# B-58 Hustler
And
# Project Town Hall          Version 1.0



By Erik Anderson aka Sputnik          erik_h_anderson@hotmail.com

Thanks to:
Gary Hunter, gary@my-planes.com, for graciously letting my use his old B-58 from X-Plane v7.0 as the basis for this add-on.
Hendo and Daver and erv, for the CVE-Lite code on which this is based.

And, above all, many thanks go to Martin Schweiger, for actually developing the simulator I used to daydream about in astrodynamics classes!

http://www.orbitersim.com

---

**Unpacking**:

Use Winzip to put each subfolder in its matching Orbiter folder.
To use any of the scenarios with Skybolts or Town Hall, you will first need to install Velcro Rockets (not included).
To use the Skybolt scenarios, you need the Skybolt add-on.
To fly from Edwards AFB, you will need the Project X-15 Edwards and High Range add-on.

---

**Introduction**:

Welcome to the B-58 / Town Hall add-on!

It's hard to believe that the B-58 Hustler has not previously been tackled for Orbiter. The B-58 seemed fantastically advanced for its day. The delta-winged, Mach 2.0 bomber was futuristic-looking, and as fast in speed and time-to-climb as the F-4 Phantom II, which it raced at least once. Only the even more fantastic Mach 3.0 XB-70 Valkyrie could, eventually, overshadow it. The three-man crew rode in ejection seats that doubled as escape pods.

The B-58's original payload (not modeled here) was a combined fuel pod and nuclear weapon; it would be emptied then dropped on the target, allowing a cleaner B-58 airplane to escape. The pod would frequently leak fuel into the works of the nuclear weapon, though, which was not desirable, so the two components were separated permanently in the configuration shown here; a large fuel tank, with a cavity for the weapon, which could be dropped later or at the same time, but of course not before.

The B-58 had a relatively short service life. It was done in by two things: its very high maintenance cost, and the improvements in high-altitude SAM defenses that negated its high-speed, high-altitude mission design. At 50,000' altitude, the B-58 was a Mach 2.0 aircraft with transcontinental range. At low altitude, it was…not.

While the B-58 was still current, it was examined as a launch platform for the Skybolt air-launch ballistic missile (eventually cancelled), as well as for Project Town Hall.

Project Town Hall was a brief proposal, and study, examining the B-58 Hustler as the launch platform to use a minimum-modified Minuteman ICBM (then starting production) as a small satellite launcher. Air launch would add the benefits of freedom from launch ranges, choice of inclination and longitude of ascending node, and consequent quick-reaction space launch.

In addition to ordinary satellite launches, two missions (then under investigation by different program offices) were emphasized.

The first was photo reconnaissance. The flexibility of air launch permitted a single-orbit photo pass of practically any swath. Since there was only one pass, the satellite might not even be tracked. If it was, photos could still be in the hands of the photo interpreters almost before the target knew it had been seen.

The second was satellite intercept. The aircraft could be positioned below the track of the oncoming target satellite, and launch directly to an intercept. The target could then be inspected and, if necessary, destroyed.

The modifications needed to the Minuteman would have been extensive. A payload fairing, payload adapter, range safety systems, and a new autopilot algorithm would have been required. It transpired that a stock B-58A was not quite large enough to loft the Minuteman, and would also scrape the rocket's tail on takeoff. Shortening the first stage by 81 inches solved both problems at the same time, but would have made the launcher more customized, and thus more expensive.

In the end, Project Town Hall was not undertaken. The B-58 was retired in 1970. The Minuteman remained a missile only, at least until surplus motors began to be used for small launchers in the late 1990's. The satellite intercept mission was never filled. The small, quick-reaction photo-recon satellite was never filled, either. Photo-recon satellites evolved to be larger and more expensive. Occasionally the need for something quick, small, light, and cheap, to develop intelligence for battlefield commanders instead of strategic analysts, is occasionally floated, but no such system is in regular service. Air launch, of course, had to wait until the advent of the Pegasus launcher.

**B-58** Operation:

Two folders are provided:  a KSC folder for east-coast missions, and an Edwards folder for west-coast launches (Project X-15 High Range required).

The Town Hall system was designed so that the missile's guidance system would couple with the B-58 autopilot to guide the aircraft to the release point at the appropriate time.  Alas, you will have to do it manually.

Throttle up.  Rotate at 200 KIAS (103 m/s), holding the nose 7-8 degrees up.  Once airborne, retract the gear with the "G" key.

B-58 Keys:

**J** – Jettisons the payload (by default, igniting it and turning on its autopilot, if any)
**G** – Lower/raise the landing gear
**B** – Toggles the wheel brakes

Maneuver to your launch range, which is east, then southbound, for polar launches from KSC (you will need to fly east to clear the Florida coast).  For Edwards scenarios, fly southwest until over water, then turn south and let fly.

Approach at 220 KIAS; land at 200.

Town Hall Keys:

**O** – Autopilot toggle on/off
**J** – Jettisons the payload

**Bibliography**:

Web:
There is a great deal of information, of course, on the B-58:
http://en.wikipedia.org/wiki/B-58_Hustler

There is rather less on Project Town Hall:
http://www.up-ship.com/apr/extras/townhall.htm
http://www.rocketryforum.com/showthread.php?57490-STUDY-SUMMARY-Project-quot-Town-Hall-quot-B-58-Hustler-Minuteman-Missile-ASAT-Spy-Satellite

http://en.wikipedia.org/wiki/LGM-30_Minuteman

**Version history**:

V1.0
 First release.