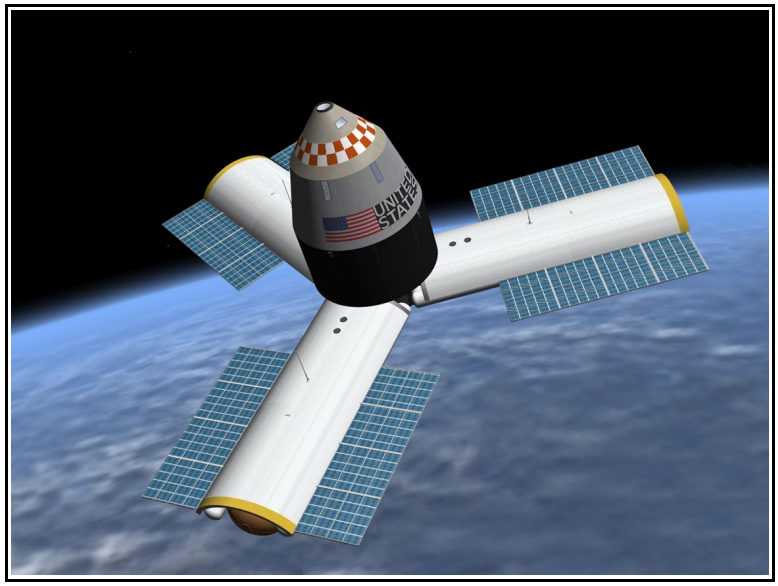
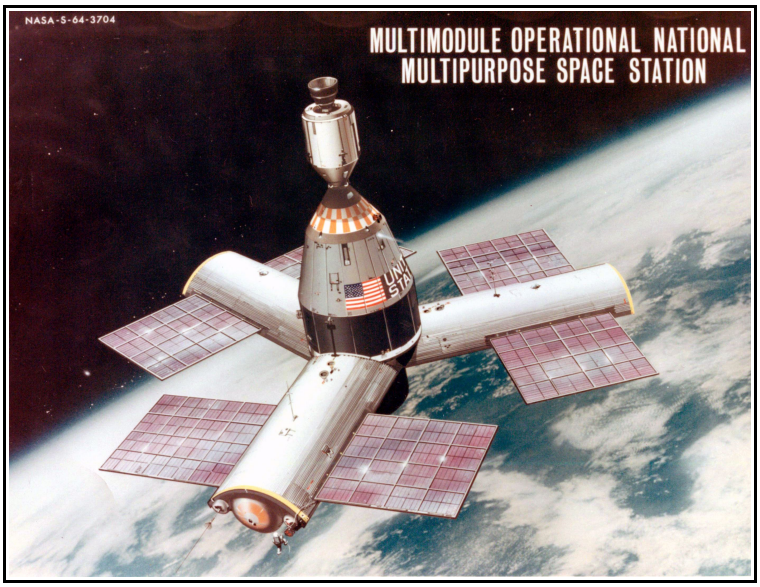
# Self-Deploying Radial Module Space Station 1.0

By Alain Hosking (80mileshigh) and Erik Anderson (Sputnik)
For Orbiter 2006 p.1 by Dr. Martin Schweiger.



This add-on depicts a space station concept from the 1960s – the self-deploying space station. The idea of launching a a self-deploying space station originated in studies conducted by the Langley Research Center and later North American Aviation in the early 1960s. These studies concluded that the on-orbit assembly of space station modules posed an unrealistic challenge for the technology of the day. Self-deploying stations however, offered an attractive solution, as their launch configuration could condense to the size of comparably smaller payloads.

While North American invested much effort in designing a hexagonal station concept, a radial module design like the one depicted here, was also investigated. The station would launch on a Saturn V along with an Apollo Command Module. The Apollo crew would observe the station's deployment before docking and beginning orbital operations. The station would rotate at three rpm, which with a radius of 75 feet (22.86 meters) would create a little over 0.2-g at the extreme ends of the modules.




In 1964 Lockheed began a study for NASA's Manned Spacecraft Center, on a similar design – the Modular Multipurpose Space Station. Utilizing existing technology, especially that created by the Gemini and Apollo programs, the study seriously envisioned a launch date in the 1967-70 time frame for a self-deploying station with a crew of 24. A modified Apollo module with a crew of 6, or a hypothetical vehicle with a crew of 12 would resupply the station every 90 days.

Although the concept of the self-deploying space station proved popular enough to prompt several studies by NASA and private aerospace companies, by 1968 NASA had made the decision to move ahead with a zero-g design which would ultimately result in the Skylab station.

This add-on has combined the visual aesthetic of the above artist's impression with the actual schematics of a slightly different design.

**Bibliography**

Jenkins, Dennis R., 'Self Deploying Space Station (NAS1-1630)', *Aerospace Projects Review*, vol.1, no.6, (2008) pp.11-20.

Wade, Mark, *LORL* [online] http://www.astronautix.com/craft/lorl.htm (accessed April 2, 2010).

Wade, Mark, *Rotating Manned Orbital Research Laboratory for a Saturn V Launch Vehicle* [online] http://www.astronautix.com/details/rot21902.htm (accessed April 2, 2010).

## Flying the Self-Deploying Radial Module Space Station in Orbiter

**Add-on dependencies**:

The station uses Vinka's Spacecraft3 dll for its animation sequence and config. Make sure you've got that installed first. You can grab it from here:

http://www.orbithangar.com/searchid.php?ID=3894.

The launch scenarios require Sputnik's Velcro Rockets, available here:
http://www.orbithangar.com/searchid.php?ID=3388

...and Sputnik'sVelcro Saturns, available here:

http://www.orbithangar.com/searchid.php?ID=3389

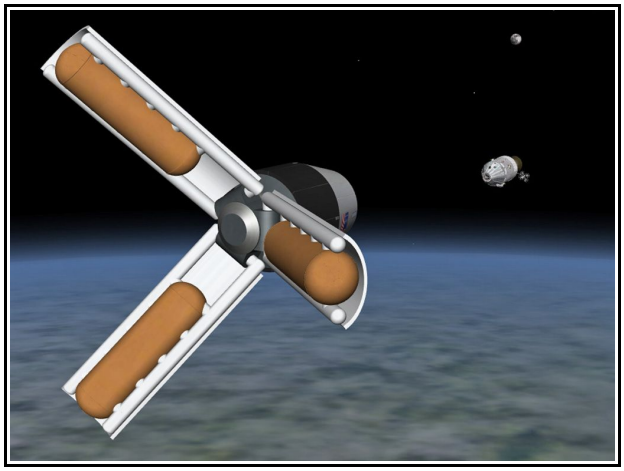
Lastly, you'll need AMSO 1.18 by ACSoft for the Apollo Command Module. Grab AMSO here:
http://www.acsoft.ch/AMSO/amso.html

---

Standard Orbiter keystrokes apply except where specified. For the sake of practicality the station name has been shortened in Orbiter to 'RMSS' for Radial Module Space Station.

**Launch:**
Press **'O'** to initiate the Velcro Saturn autopilot. Press **'J'** after orbital insertion to release payloads. Depending on the scenario your payload is the station or the station and the command module. The plan to launch an Apollo CSM with the station on a Saturn V was conceived early in the Apollo program when the CSM was lighter. Here the Saturn V utilizes SRMs to compensate for the weight of the fully realized CSM.

**Deployment:**
After orbital insertion press **'F3'** to select the station **'RMSS'**. Wait for it to clear the SII stage then press **'K'** to begin the station's deployment sequence. Once the radial modules and solar panels are extended use **NUM-4** or **NUM-6** to spin the station up to three rpm. The original studies kept the station's solar panels facing +/- 10 degrees to the sun.



**Docking:**
You can dock to the station before it spins up following launch, but subsequent missions to the station require spin synchronization before docking. Shuttle docking is not possible in this version as it would require a de-spun dock which we have not included here. A nadir docking port has been included in addition to the Zenith port depicted here.

**XPDR and IDS:**

---

Station XPDR: 131.30
Dock 1 (zenith) IDS: 134.10
Dock 2 (nadir) IDS: 134.20

---

Enjoy!

---

Alain Hosking (80mileshigh) Mesh, textures, and documentation – eightymileshigh@hotmail.com
Erik Anderson (Sputnik) Config and scenario files.
April 2, 2010

---