

Nozomi (Planet-B)



Nozomi (Japanese for Hope and known before launch as Planet-B) was planned as a Mars orbiting aeronomy mission designed to study the martian upper atmosphere and its interaction with the solar wind and to develop technologies for use in future planetary missions. Specifically, instruments on the spacecraft were to measure the structure, composition and dynamics of the ionosphere, aeronomy effects of the solar wind, the escape of atmospheric constituents, the intrinsic magnetic field, the penetration of the solar-wind magnetic field, the structure of the magnetosphere, and dust in the upper atmosphere and in orbit around Mars. The mission would have also returned images of Mars' surface.

Nozomi was Japan's first interplanetary spacecraft and also the first mission sent to the Red Planet by a nation other than the United States or Soviet Union.

The gravitational assist from Earth as well as a seven-minute engine burn put Nozomi on an escape trajectory toward Mars.

Unfortunately, a faulty valve resulted in loss of propellant, leaving the spacecraft with insufficient acceleration to reach its nominal trajectory. Subsequently, because two midcourse corrections on December 21 used more propellant than intended, Nozomi's originally planned mission had to be completely reconfigured.

While heading toward Earth, on April 21, 2002, powerful solar flares damaged Nozomi's communications and power systems, causing the hydrazine to freeze in the vehicle's attitude control system. Contact with the spacecraft was lost May 15, but two months later, controllers found the spacecraft's beacon. Mission scientists were able to thaw the frozen fuel as the spacecraft approached Earth and the flybys were accomplished as intended.

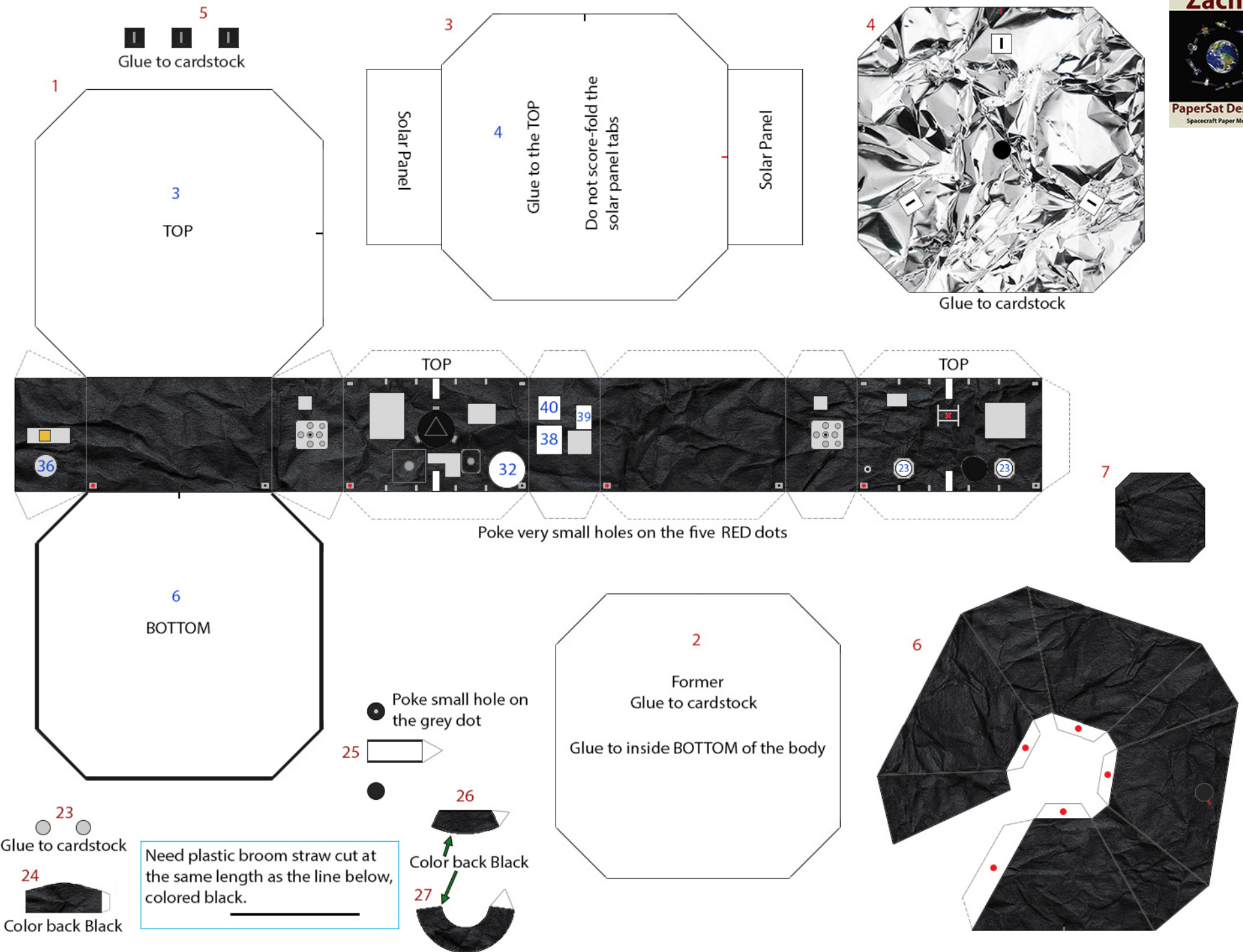
Soon after, the spacecraft's luck finally ran out. On Dec. 9, 2003, in anticipation of the Mars orbit insertion planned for five days later, the main thruster failed, essentially ending the mission.

Ground controllers commanded lower thrust attitude control thrusters to fire to ensure that Nozomi would not impact onto the Martian surface, which would have been a problem since the spacecraft had not been sterilized.

The spacecraft passed by Mars at a range of about 620 miles (1,000 kilometers) and remains in heliocentric orbit. Despite not accomplishing its primary mission, Nozomi provided important data from its suite of scientific instruments.

Nozomi was launched on July 4, 1998 by M-V-3 rocket from Kagoshima Space Center in Uchinoura.

Nozomi (Planet-B)

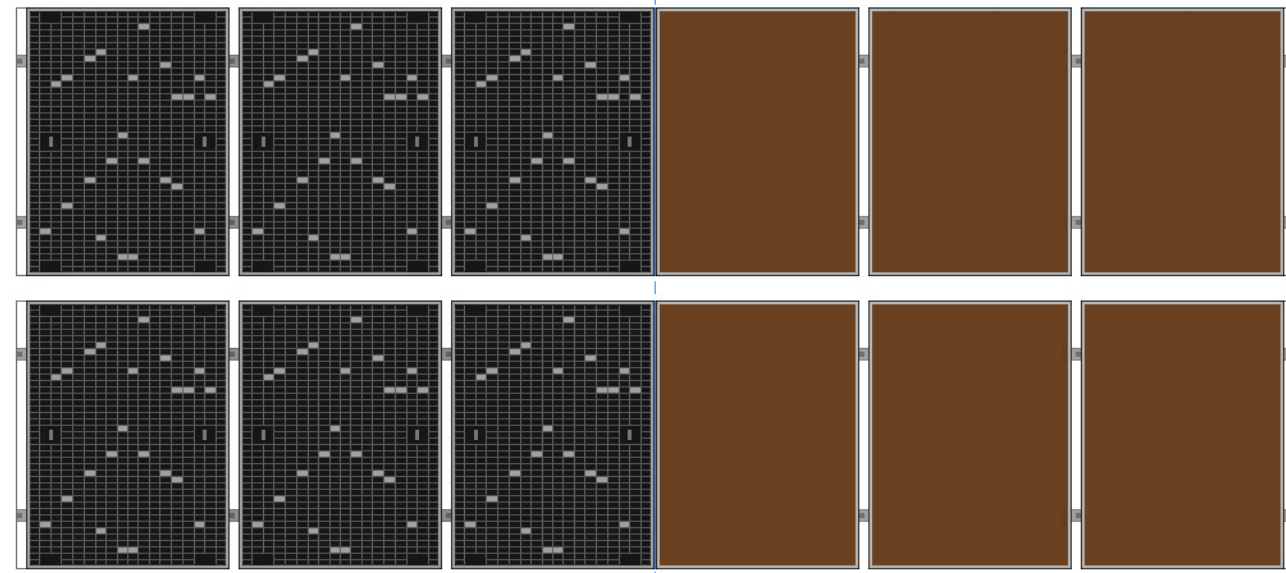
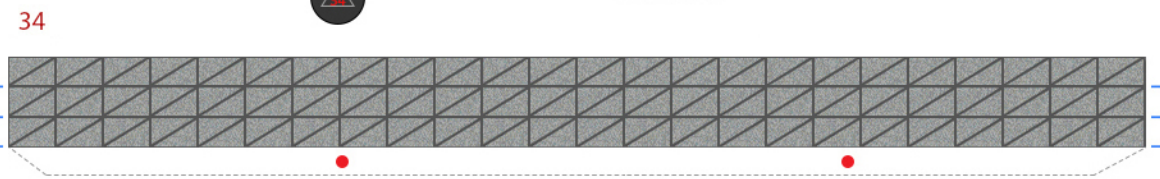
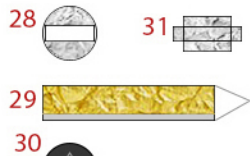
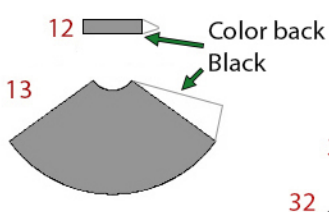
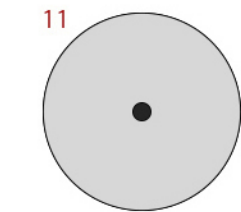
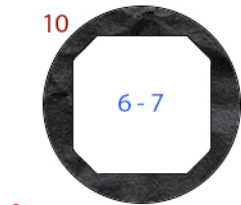


Nozomi (Planet-B)

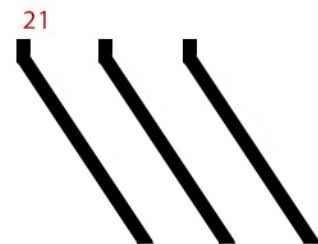
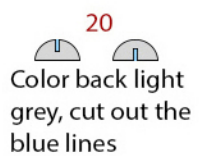
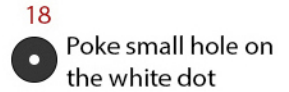
Zach's



PaperSat Designs
Spacecraft Paper Models



Cut plastic broom straw the same length as the line below, colored light grey



Glue the two layers of cardstock
Color back and edges black



Cut four long plastic broom straws or similar material around 4.5 inches (115 mm) long colored light grey or silver for the antennas.