

## Offered Title: To the Moon 3

Early in our space race with the USSR there were two suggested goals, be the first to build a permanent space station or, more aggressively, land a human on the Moon. Pre-emptively President Kennedy chose the Moon with an aggressive timeline, by the end of 1969. It was on!

New construction techniques, new technologies, new materials, new thinking. The US and USSR were pushing harder and harder to be the first, be the best, be the winner. This in a frontier totally unforgiving. Astronauts and Cosmonauts were aware of the risks and yet they pushed too. Sometimes we went too fast to perceive clearly, no stepping back, no taking a breath to consider possibilities, probabilities. This was a race.

Tragedy struck the US first. Virgil "Gus" Grissom, Ed White, and Roger Chaffee died in their Apollo 1 capsule during a ground test. In a closed capsule full of electronics, using a greater than atmospheric pressure of pure oxygen was one of the probabilities they missed. This, after all, had been procedure. One little spark that should not have happened, an inward opening hatch that would not open due to higher than atmospheric pressure inside.

A few months later, Cosmonaut Vladimir Komarov became the first spaceflight fatality, during an emergency re-entry in his Soyuz 2 craft. The mission had been aborted due to a solar panel failing to deploy, and a malfunctioning attitude control system. Parachutes that were supposed to slow the capsule for a ground landing got tangled. The Soyuz crashed in a ball of flames.

Time to step back, re-evaluate, slow down a bit. Fix things.

The USSR made fixes and after completing a first ever docking of two crewed spacecraft, started its Zond crewed Moon landing program (based on Soyuz craft). Zond spacecraft were problematic from the start but managed a circumlunar flight with tortoises on board and a safe water splashdown, their first. However, the USSR's crewed Moon program effectively ended on July 3, 1969, after their new N-1 rocket, required to boost a crewed Zond craft to the Moon exploded on the launchpad, destroying it.

Apollo got back on track with improved equipment and procedures. After several changes/swaps of schedules, NASA sent Apollo 8 to the Moon for a crewed 10 orbit mission – without the Lunar Lander. Apollo 9 carried the lander and performed undocking and docking trials. Apollo 10 did the same and added orbital altitude change trials of the lander.

Apollo 11 (Neil Armstrong, Edwin "Buzz" Aldrin, and Michael Collins) launched flawlessly on July 16, 1969 at 8:32 am CDT. After three days, reaching the Moon and inserting into orbit, Armstrong and Aldrin landed on the lunar surface on July 20 at 3:17 pm CDT. At 9:56 pm CDT, Armstrong became the first human to stand on the Moon.

## What's in the Sky?

July 27/28; 5am; east: A waning crescent Moon is rising with Taurus. The Pleiades shines above them.