



Apollo 12: “Pinpoint for Science”

Following the successful Apollo 11 mission to land the first humans on the Moon, NASA conducted a series of six additional crewed lunar missions, each intended to expand science knowledge by visiting somewhat riskier landing sites, for longer periods of time, traversing longer distances and utilizing more advanced equipment and measuring devices.

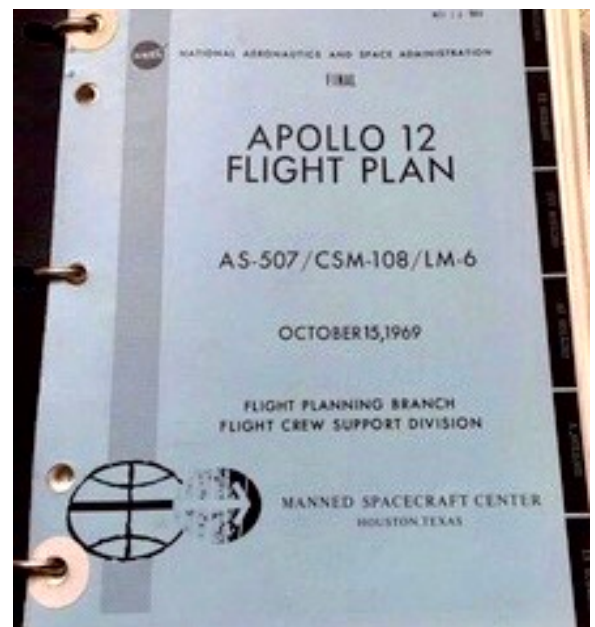
Apollo 12 was an iconic mission, not only for its pinpoint landing, but also for some serious issues that the crew and ground support personnel dealt with, often in a humorous but always capable way.

All photos courtesy of NASA.



Major Mission Objectives:

- Attempt a pinpoint landing.
- Study another mare (sea) - the Ocean of Storms.
- Conduct two Moon walks.
- Deploy various measuring instruments and conduct scientific experiments.
- Collect samples of lunar soil and rocks for scientific examination back on Earth.
- Locate and study the Surveyor 3 lander.
- Study the Moon's surface from above.
- Photograph additional potential landing sites.
- Return safely to Earth.





From left to right: Conrad, Gordon and Bean.

The Crew

The Apollo 12 featured an all-Navy crew led by Commander Charles (Pete) Conrad, a veteran of Gemini 5 and 11 missions. Alan Bean served in his first spaceflight as Apollo 12's Lunar Module Pilot. Richard (Dick) Gordon, Conrad's Gemini 11 crewmate, rounded out the crew as Command Module Pilot.

Pete Conrad would later fly the first mission to occupy Skylab, the first U.S. space station. Alan Bean visited Skylab on the following mission and later became a well-known and respected space artist. Apollo 12 was Dick Gordon's final mission. All three crew members have passed away.

Launch and Flight

On November 14, 1969, Apollo 12 launched in cloudy, rainy and windy conditions. Lightning struck the Saturn V 36.5 seconds into flight, discharging down to the ground through its ionized exhaust plume. Protective circuits took the Service Module's fuel cells offline, along with much of the Command Module's instrumentation. A second strike resulted in multiple caution and warning indicators on the spacecraft and scrambled the telemetry being read at Mission Control.

The IBM-built Instrumentation Unit kept the Saturn V flying normally, but the problem was urgent and serious. Mission Control "EECOM" John Aaron recalled a similar problem during an earlier test and suggested that the crew switch their Signal Conditioning Equipment switch to Auxiliary, resulting in the now infamous "Try SCE to AUX" instruction that quickly saved the mission.



On November 19, the Apollo 12 Lunar Module “Intrepid” separated from the Command Module “Yankee Clipper,” and a few hours later, Conrad landed just 580 feet from the designated landing target, only 500 feet from the Surveyor 3 craft.

True to his trademark humorous style, when the 5’ 6” Conrad stepped on the lunar surface he quipped, “Whoopie! Man, that may have been a small one for Neil, but that’s a long one for me!”

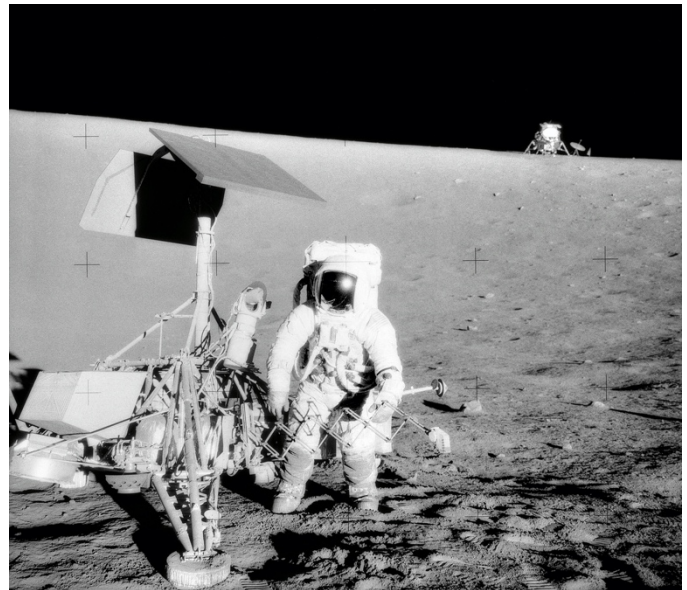
Bean soon joined Conrad on the surface and then, in an unfortunate error, inadvertently pointed the lens of their new color video camera directly at the Sun, frying its sensor tube and ending any chance for live color television coverage.

Conrad and Bean were able to recover parts of the U.S. Surveyor 3 lander, which had landed on the Moon on April 20, 1967.

Over the course of two Moon walks lasting 7 hours and 45 minutes, the crew collected 76 pounds of lunar samples. They also deployed several experiments, many of which were more sophisticated and long-lasting than those carried by Apollo 11.

After Conrad and Bean rejoined Gordon in lunar orbit, the Yankee Clipper returned to Earth, landing on November 24. During the splashdown, a camera fell from its storage area onto Alan Bean’s head, opening a six-stitch gash, knocking him unconscious and resulting in a mild concussion.

As with the Apollo 11, the Apollo 12 crew spent a total of 21 days in quarantine, once again finding no evidence of organisms brought home from the Moon.



Mission Insights

The Apollo 12 mission demonstrated that a pinpoint landing on the Moon, even in a more challenging location, was possible. It also proved that multiple, extended Extravehicular Activities (EVAs) on the lunar surface were both safe and productive.

Samples of the Surveyor 3 spacecraft were studied extensively on Earth and valuable insights were gained into micrometeoroid activity and longer-term effects of the lunar atmosphere on equipment.

The lightning strike event demonstrated the value of extensive testing and simulation, the capabilities and judgment of Mission Control staff and their NASA and contractor support teams and effective interactions among the ground staff and crew.

The affable crew and their easy-going style helped maintain interest in the Apollo program, although the lack of live video significantly hampered television coverage. Unknown to much of the public, a few sometimes adult-only pranks were played on the crew.

All-in-all, Apollo 12 remains an iconic mission, not only because of its unique challenges but also because of its engaging crew and, ultimately, the successful completion of all major mission objectives.

Due to the success of Apollo 12, the soon-to-be famous Apollo 13 mission was confirmed for an April 11, 1970 launch to visit and study the Fra Mauro highlands.

