

At Issue

Lee Goldberg, Editor



I woke up earlier than usual to follow the spectacular end hours of the Cassini Saturn probe's 17-year mission. Incinerating the craft in the planet's atmosphere made sense. It would protect Saturn's moons against possible contamination while yielding a precious close-up glimpse of the mysterious gas giant. Nevertheless, as I listened to the laconic chatter of the flight ops team preparing the spacecraft for its incandescent dive, I found myself near tears and awash in memories of another spacecraft's death that occurred more than 20 years ago.

in the spring of 1992, where we spent several months preparing Mars Observer for launch and integrating it with its Titan III launch vehicle. It took a lot of double shifts and weekends to maintain a pace that would have the craft tested, fueled, and ready to meet the 3-day launch window that opened up in late September, but we still managed to have some fun along the way. I'll leave those stories, which include spending the night in a bunker directly under the launch vehicle, midnight encounters with wild pigs on the Cape's back roads, and kissing the rocket's nosecone for

Attachments

Mars Observer was a much less sophisticated spacecraft, launched in 1992 to resume the task of studying the red planet that had come to a halt after the Viking probes went silent about a decade earlier. It had been conceived to fulfill the "Faster, Better, Cheaper" philosophy that NASA had adopted at the time and was intended to be built on a relatively tight budget with as many off-the-shelf components from existing commercial spacecraft as possible. Weighing about a fifth of Cassini's 12,000 pounds, it still managed to carry eight scientific payloads that would provide new insights on the geology and atmosphere of Mars. I was lucky enough to be part of the team at GE AstroSpace who were responsible for making sure those payloads fit on the spacecraft, survived the journey to Mars, and were able to execute their mission once they arrived.

Since making the science payloads "comfy" aboard the spacecraft involved so many aspects of its design and testing, my job gave me a chance to work with nearly every engineering team on the project. In the process, I learned a great deal about things like how objects gain and lose heat in a vacuum, the arcane workings of attitude control and hypergolic propulsion systems, and how the craft's limited supply of solar-electric power was distributed to the flight electronics and the payloads.

As fascinating as the technology was, the people I worked with were the most rewarding part of my job. Mars Observer was the first interplanetary mission our company had worked on since we built some of the early Ranger lunar probes in the early 1960s, so we all took special pride in being a part of it. Some of my work involved providing the thermal engineers with the information they'd need to keep the instruments at an even temperature in a deep space environment. At other times, I'd watch as the mechanical engineers translated the payload interface requirements I'd developed into small, 3-dimensional poems, written in carbon and titanium.

After four years of assembly and testing, most of the team headed down to Cape Canaveral

another column.

When launch day arrived, we watched the Titan burn its way into the sky. We held our breaths for 17 minutes while we waited for the first telemetry signals from our bird to tell us that it was doing fine and ready to head to Mars. I wasn't married at the time, and had no children, but the feelings of relief, pride, and deep joy we all felt gave me a preview of what I'd experience at the birth of my daughter a few years later.

With the launch behind us, most of the tribe I'd spent the last six years with began to move on to other assignments, leaving a small team who would operate the craft during its two-year journey to Mars. Most of us kept in touch with the flight ops team to see how "our baby" was doing. It was one of those old friends who called me a few days before Mars Observer was scheduled to arrive to let me know they had lost communication with our spacecraft.

I returned to GE to serve on the team that tried to figure out what happened and to regain contact with the craft. We spent two weeks attempting various recovery plans before we ran out of things to try. It was just a machine but, for many of us, it felt as if we had lost a dear friend, a fellow traveler to the stars.

Some 23 years later, I felt echoes of that heartache as Cassini's flight team reported the craft's attitude control system was struggling to maintain stability as it descended into Saturn's atmosphere. Soon after that, the telemetry stream disappeared, replaced by the hiss of static.

I am glad that Cassini had a dramatic and fitting end to its amazing 20-year mission. I'm also grateful that GE determined the problem with Mars Observer and built a second vehicle that launched in 1996 and successfully delivered its payload to Mars.

Nevertheless, part of me is still lost in the stars, along with the emissary I helped to build.

Is there something you worked on that stole your heart? If you'd like to share it with me, or your fellow readers, write me at lee.goldberg@advantagemedia.com.

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