

# MAN ON A MISSION

BY SAMUEL GREENGARD • PHOTOGRAPH BY RAY NG

**MARK LAPOLE**  
PROGRAM MANAGER,  
BALL CORPORATION

- Manages high-profile, space vehicle projects, including the world-renowned Hubble Telescope and the next-generation James Webb Space Telescope, designed to look at the universe in the infrared spectrum.
- Worked on the following space vehicle projects: Deep Impact, the Kepler Mission, Cloudsat and CALIPSO.
- When not saving sophisticated space equipment from the technical glitches that often occur in space environments, rescues blind and deaf Great Danes here at home.



# ON

## Mark LaPole ('84, PC) keeps the American space program focused on the future

**I**F Mark G. LaPole, Ph.D., ('84, PC) has learned one thing in his years of designing and building space vehicles, it's that a well-grounded approach goes a long way toward exploring the vastness of the galaxy. Over the past 20 years, as program manager for Ball Corporation, LaPole has tackled an array of high-profile projects, including the Hubble Telescope, the Webb Telescope, Deep Impact, the Kepler Mission, Cloudsat and CALIPSO.

Standing at the forefront of human exploration is no small matter. "I believe the work I do is important and it is changing our fundamental understanding of physics and the earth we inhabit," explains the Embry-Riddle Prescott alumnus who received his degree in Aeronautical Engineering. "These are extremely exciting times. We are reaching beyond Einstein now. He would be amazed at what we have achieved."

To be sure, LaPole is no ordinary aerospace engineer, and his work stretches far beyond the mundane. Working with state-of-the-art technology—including super-fast computers, high-powered lasers, low-noise electronics, state-of-the-art optics—and tight budgets, he is helping define the future of the American space program while pushing the limits of personal and human understanding. "I am hooked on this line of work. It marries my love of physics with engineering," he explains.

### SPACE MATTERS

Coping with tight budgets and high aspirations is no simple task. LaPole describes himself as the kind of person who works with "a computer, a screwdriver and a soldering iron." Yet, he also must be adept at dealing with smart, creative and sometimes stubborn engineers and scientists.

"In any moment I may take on the personality of manager, coach, engineer, scientist, technician, shrink, peacemaker, bully or pincushion," he says.

For the past six years, LaPole has supervised service and repairs of the Hubble Space Telescope program, which has involved more than 1,000 engineers and support staff. The team developed sophisticated telerobotics to replace worn-out batteries and gyros—though the initiative was eventually scrapped because of the reuse of the Space Shuttle. In addition, Ball Corporation has built two repair kits for existing instruments as well as two new optical instruments. The optics, when installed in October, will provide the space telescope with capabilities 30 to 50 times as great as at present. "Hubble will steal the science headlines for a decade," he predicts.

LaPole is also involved with the development of the James Webb Telescope, a next-generation device that will provide glimpses of the universe within the infrared spectrum, as opposed to the ultraviolet and visible capabilities of the Hubble. This will allow the Webb Telescope to peer further back in time as it examines the universe. "Webb will offer great capabilities, but because of its design and orbit, it can't be serviced or updated by humans," he notes. As a result, NASA may eventually move to telerobotics to service it too.

The challenges inherent in these projects—as well as many of the others LaPole has managed—have meant pushing engineering to new limits. Ball was responsible for correcting the Hubble Telescope's initial focus flaw, and it has built seven instruments, plus the repair and replacement hardware for two others. The company also has worked to improve service cycles by integrating more advanced modular systems. In the past, detectors and electronics on space missions such as the Hubble were more than five years behind the current state of technology. "We have reduced this to around six months," LaPole says.

### BEYOND THE STARS

Attracted by the Apollo moon program at age 6, LaPole's interest in engineering and space flourished. He credits his education at Embry-Riddle as the foundation for his successful career. "In a small school, there is no place to hide. What that means is you leave complete. The structured curriculum guarantees that all the skills you need are integrated and intact," he says.

After spending six years in the U.S. Air Force—working at Edwards Air Force Base in California, Cape Canaveral in Florida and at The Air Force Technical Applications Center in Florida, LaPole accepted a position at Ball as a programs manager and systems engineer in 1990. Through all the missions and initiatives, he has retained a sense of the joy that brought him to the profession in the first place. "I still get to touch the flight hardware. I like dirty hands and the smell of jet fuel," he confesses.

For LaPole, who enjoys the Colorado outdoor lifestyle, reaching for the stars isn't an abstract concept. It's something that continues to play an integral role in his life. He says, "I'm proud of the work I've done and what we have been able to accomplish. We've played an important role in keeping generations of space vehicles operating and the space program moving forward."