

ROBOT WITH WINGS

By Mary Ann Taylor

NASA engineers were called Rocket Scientist in the pioneer days of Space Exploration. Today, they are called Explorers. Forty-one years has past since President Eisenhower signed the act creating the National Aeronautics and Space Administration. The Explorers are still pioneers in the space adventure and are on the edge of discovery in many areas. Explorer, Susan Turner is blazing a new trail in a future transportation system as project manager of the X-37 for NASA's Marshall Space Flight Center.

The X-37 is a small, winged rocket. It's an unpiloted, reusable, space plane — a robot with wings. The X-37 is the size of two and one-half mini vans and flies 25 times the speed of sound. That is about 17,050 miles per hour. It can be launched into orbit by an expendable rocket or bused on the Space Shuttle.

In the year 2004, it is planned for the X-37 to be the first plane to test flight conditions in space and on reentry of the Earth's atmosphere. Working on the X-37 is one of many first for Explorer, Susan Turner. In her teens, she played on Huntsville High School's first softball team. She played centerfield on a Dixie League Team that won the World Series.

"That was a *Hoot*," said Turner.

Turner lives with her family in Huntsville, Alabama and enjoys sports from the sideline now as she watches Eric, her son, play soccer.

“The X-37 is a tool,” said Turner.

Tools are needed in building. Even a softball team needs tools: a ball, bat, gloves, uniforms, players to test the equipment, team captain, and a coach.

“The more you practice, the better team player you become,” said Turner.

NASA has done the same thing with space tools. On July 29, 1958, NASA began filling an empty toolbox. That was in the days when one computer filled one whole room. American satellites orbited the earth for the first time. Man orbited the Earth in a Mercury capsule.

It was a time when the whole world waited and watched as John Glenn orbited the Earth. What would weightlessness do to a man living in space? What would happen when the craft reentered the Earth’s atmosphere?

The Mercury program used a one-man research and development craft to explore. The Apollo program gave the astronauts experience with living and working in space. They practiced docking procedures, a joining of two vehicles in space. Those skills were necessary for the moon expedition. Boosters were designed because the moon landing required greater power in launching procedures. Then came the Space Shuttle.

“The Space Shuttle is big and expensive to use, said Turner. “Each tool has helped scientist and engineers learn science principles bringing the future transportation system closer.”

Think of each tool and the knowledge gained from its capabilities as one building block building the road to space.

“The X-37 is protected by a thermal blanket,” said Turner. “The thermal blanket will be tested when the small plane flies through the Earth’s atmosphere on reentry.”

In the year 2003, the X-37 will be dropped from a plane, and it will glide back to the ground. If these tests are successful, the X-37 will be bused into space by the Space Shuttle. These orbital tests are scheduled for 2004.

The un-piloted, X-37 will raise its solar panels and fly in space. Solar power will enable the X-37 to remain in flight for longer periods of time. The small plane has a few batteries on board, but not the big, heavy batteries that are required for long-term flights. The space plane will conduct flight-testing before flying home and landing on a runway like a regular airplane.

NASA and industry have invested a great deal of time and money in tools and testing the capabilities of those tools. When the X-37 completes its testing will NASA have the last building block in place to build the future transportation system?

Will there be a system where space planes fly in orbit, fly through the Earth's atmosphere without fear of burning because the planes are protected by thermal blankets, and land on runways then launch again like regular airplanes?

"The X-37 will expand our knowledge base and enable us to design and operate future spacecraft cheaper, more reliably, and with improved safety," said Turner. "Kids of today may very well ride in space planes of tomorrow."

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