People Power

Words & Pictures
by Michael Soluri

Inspired by their work and dedication to the nation's space program, writer and photographer Michael Soluri received permission from the United Space Alliance to photograph the men and women who work behind the scenes to keep NASA's shuttle fleet space-worthy.

It's just not the work. Somebody built the pyramids. Somebody's going to build something. Pyramids, Empire State Building—these things just don't happen.

—Mike Lefevre, from *Working*,
by Studs Terkel

No truer words could have been said, especially when it comes to working on one of NASA's space shuttles, in this case, Discovery. Since its return to flight in July 2005, almost every aspect of this orbiter was inspected, removed and replaced where appropriate. Then it was monitored, inspected and reinspected—section by section, piece by piece, like its three main engines, hydraulics, landing wheels, crew compartment, cockpit windows and some of the approximately 24,000 external tiles.

But these things just don't happen.

Over the years, I have wanted to photograph what I felt was the gap between the hardware of human spaceflight and what is seen ascending the skies over the Kennedy Space Center toward low Earth orbit. So in my view, this gap—mostly behind the scenes—is the collective effort from the day-to-day workforce that inspects, replaces, integrates, tests and prepares a preflight shuttle orbiter for human spaceflight. As a result, I wanted to portray the people whose day job is to work on a spaceship in an Earth-based hangar at the Kennedy Space Center.

In January 2006, months away from its familiar vertical launch pad configuration—before it was attached to its stack of orange fuel tank and white solid booster rockets—Discovery was horizontal, encased within a maze of scaffolding, electrical tubing and clean-room compartments in what's called its Orbiter Processing Facility (OPF)—a spotless industrial-like hanger illuminated by a combination of yellowish sodium vapor lights and numerous red racks of florescent lights.

With access afforded me by both NASA and the United Space Alliance (USA), I caught the better part of the first shift on a Wednesday in mid-January. And although New Horizons was on a launch pad poised for its ten-year, four-billion-mile journey to the planet Pluto, the men and women in the high bay (the area where the Orbiter is parked) of Orbiter Processing Facility 3 were preparing Discovery for a summer 2006 launch for its 122 nautical miles up to the International Space Station orbiting planet Earth.

In the areas surrounding the Discovery, I met and photographed individuals who are both veterans and newcomers in the more than quarter-century life of shuttle operations. People like orbiter operations manager Elizabeth "Betty" Muldowney, first hired by Rockwell International as a quality control supervisor on Columbia in late 1979; Chad Kruger, an aerospace technician since 2001, working on the reinsertion of the orbiter's three engine bells; composite technician Danny Haynes, who since 1990, has worked on the thermal protection system that surrounds the Orbital Maneuvering System (OMS) thrusters; Melanie Moon, a lead orbiter integrity monitor; and Nancy Patskoski, an aerospace inspector working within the aft engine compartment of Discovery.

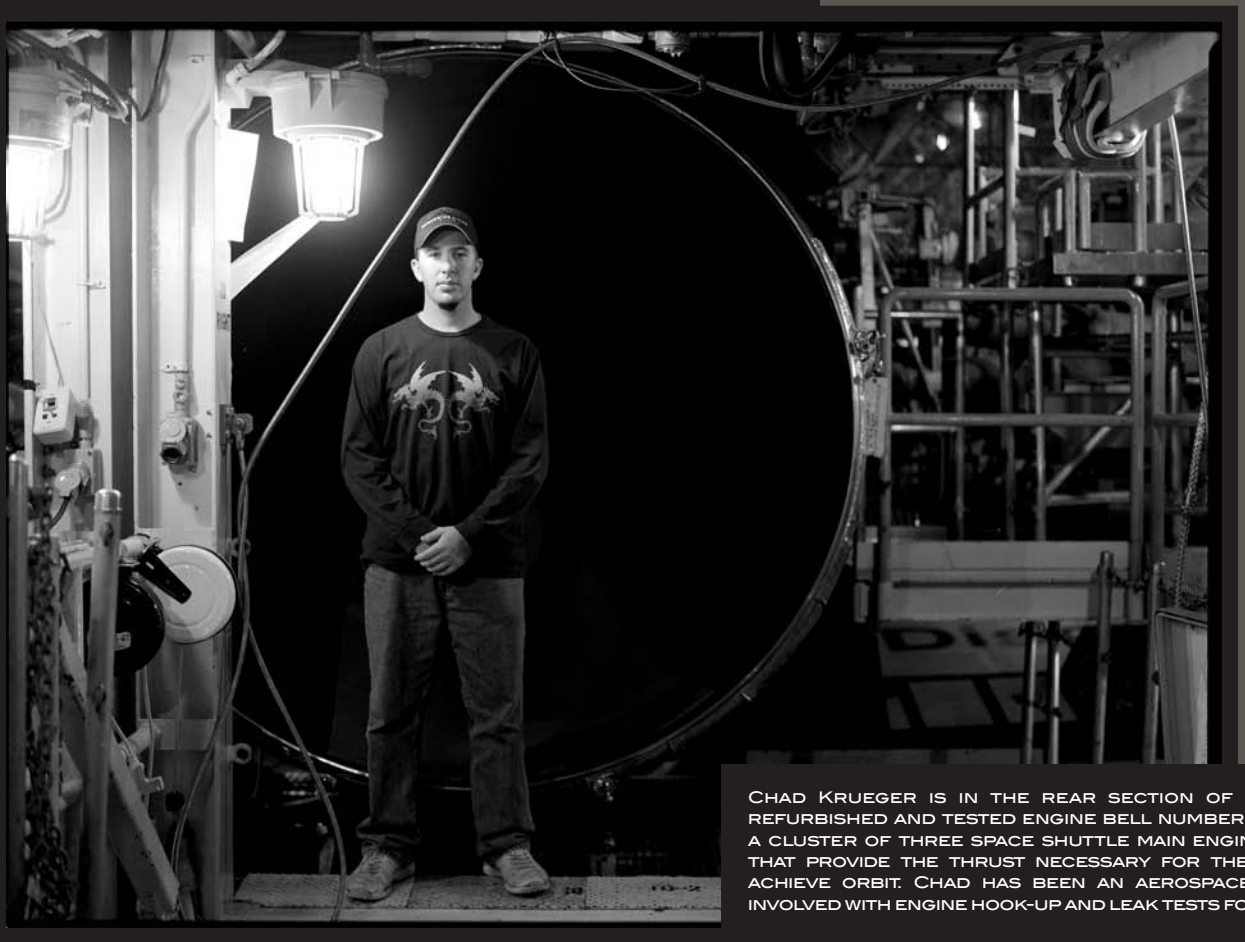
And so it goes: people so far behind the typical scenes of launch and landing that it's difficult to recognize they make their living working on a spaceship.

I guess you can say things just don't happen.

Robert "Bobby" Hopping is a veteran shuttle system inspector (SSI) since 1979 and helped launch Columbia in 1981. Under the aft section of Discovery's nose and landing gear compartment, Bobby leads the checkout of the orbiter's black thermal protection system tiles. In this case, the systematic inspection of 5,104 of the 15,000 gap fillers between the thousands of heat-resistant tiles that line the orbiter's underbelly.

Robert "Jake" Jacobson is a Senior Aerospace Technician since 1988, he was assigned to work on Discovery's mid-body and payload bay. During the STS-121 flow, Jake was actively involved in the installation, removal, testing and alignment of the mechanism for the Remote Manipulator System (RMS) and the Orbiter Boom Sensing System (OBSS).

Two of the six forward-looking windows—with protective preflight window guards—on the pilot side of Discovery. Since August 21, 2005, engineers have replaced seven of the Discovery's 10 cockpit windows. The windows are made out of aluminum silicate glass and fused silica glass, which shrink or expand from heating on reentry. Maintaining optical quality is essential for the crew during assent and entry.



Chad Krueger is in the rear section of Discovery's refurbished and tested engine bell number two, one of a cluster of three space shuttle main engines (SSMEs), that provide the thrust necessary for the orbiter to achieve orbit. Chad has been an aerospace technician involved with engine hook-up and leak tests for five years.

Melanie Moon, at the 50.2 door in the aft engine section of Discovery, is an orbiter integrity clerk. She is responsible for monitoring which tools and what personnel go into this section of the orbiter during its maintenance, flight integration and testing. Within the engine compartment is Nancy Patskoski, a shuttle system inspector.

Gregory Cecil is repairing tiles around the windows on the commander's side of the orbiter. An aerospace composite technician for three years, Greg's work is highly detailed as he uses dental-like tools to inject specially designed sealants between each tile, then cures them with a heat lamp, in the background to the right.

Rene Arriens is a veteran spacecraft operator (SCO) since before the loss of Challenger. His expertise is in the ground testing of the orbiter's instruments and subsystems from the crew module. In essence, he "flies" the orbiter on the ground preparing it for flight. As a member of the closeout crew in the launch pad white room, Rene is the last person the shuttle crew sees before the hatch is locked and sealed.