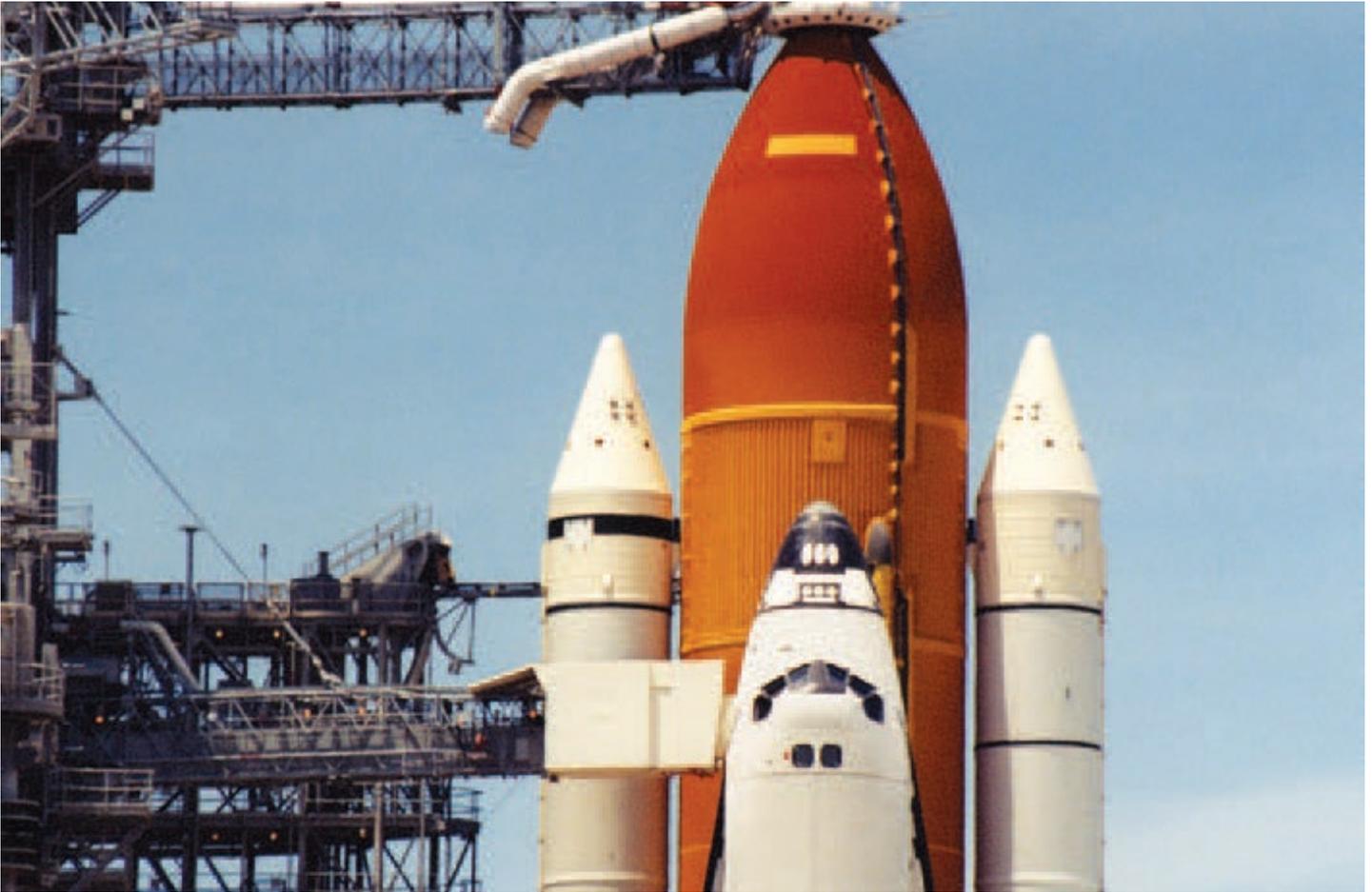


STEEL CONDUIT

**CASE STUDY:
UNITED SPACE ALLIANCE,
KENNEDY SPACE CENTER
CAPE CANAVERAL, FLORIDA**

Space-age protection for NASA





**“WE USE STEEL
CONDUIT TO
PROTECT ELECTRICAL
CONDUCTORS FROM
PHYSICAL DAMAGE
AND EMI.”**

Maintenance engineer Dan Dermody is one of thousands of dedicated men and women behind the success of America’s space shuttle program. And steel conduit is one of the products that helped him do his job effectively.

Dermody worked for United Space Alliance (USA), a company formed in the early 1990s to consolidate the many functions involved in space flight operations and to gradually relieve the National Aeronautics & Space Administration (NASA) of this near-routine work. With a 25,000-square-foot plant on the grounds of the Kennedy Space Center at Cape Canaveral, USA refurbished America’s space shuttle fleet prior to each shuttle launch.

Dermody’s particular area of responsibility was in the robotic paint system that sprayed an insulating coating on the shuttles’ solid rocket boosters. The system’s two robot cells sprayed a two-part epoxy coating that contained minute beads of glass and granulated cork.



STEEL CONDUIT PROTECTS CONDUCTORS FROM PHYSICAL DAMAGE AND EMI

“We use steel conduit to protect the paint cells’ electrical conductors,” he said. “Protection from physical damage by forklifts and other plant equipment is part of the function of the steel conduit. Another part is protection from a build-up of the spray itself. Conduit keeps the wiring clean and in place, and keeps it from becoming covered with spray.”

Another invaluable protective function performed by the steel conduit was to guard the signal cables that operate the paint system’s flow meters against electromagnetic interference (EMI) from other power sources.

About 1,000 feet of steel conduit were used for the wiring in the paint spray cells, Dermody said. “In the entire plant there are miles of it. There are multiple runs of power and signal cables going to many different test locations. You look up at the ceiling and all you see is steel conduit.”

STRENGTH OF STEEL CONDUIT – A MAJOR ADVANTAGE

Dermody normally specified rigid steel conduit or electrical metallic tubing (EMT) because of their strength and rigidity. “You can’t place a clamp to support flexible tubing every five or six feet,” he said.

The fact that steel conduit is recyclable also was helpful. “We develop enhancements to our paint system every few years, and when we do, we can just replace the conductors within the existing steel conduit.”

Dermody said he preferred steel conduit to other types of conduit. “It’s excellent for equipment grounding, it’s exceptionally strong, it’s easy to work with, it’s relatively inexpensive and you can run it anywhere,” he said. “You can crash a forklift into steel conduit and you don’t hurt it.”

