





# Reach for the HIGH GROUND



Photography by Guy Aceto

For the 45th Space Wing in Florida, the last Titan launch marked the end of an era.

*Launchpad 40A at Cape Canaveral AFS, Fla., is readied for the last East Coast launch of a Titan IV rocket. The April launch carried into orbit a classified National Reconnaissance Office payload.*

**C**ape Canaveral is part of what is often called America's "Space Coast," a 72-mile strip of Atlantic beaches halfway between Miami and Jacksonville, Fla. Here is not only NASA's Kennedy Space Center but also two major Air Force space centers. Air Force Space Command's 45th Space Wing operates from Cape Canaveral AFS, Fla., and nearby Patrick AFB, Fla., located just to the south. Wing headquarters is at Patrick, while launch operations take place at the Air Force station. The 45th SW offers support for NASA activities at Kennedy Space Center.

Towering rocket launch gantries (at right) are common features of the landscape at Cape Canaveral.



Photos by Guy Acelio



The cape is the starting point for much of America's space program—NASA's manned space shuttle missions as well as USAF's launches of national security satellites. Space systems sent into orbit from the cape supply military forces with vital communications signals as well as position, targeting, and surveillance data.

It takes months to prepare for a space launch. Workers must first assemble the launcher system in one of two vertical assembly areas pictured at left. It is then transported into place. Moving a fully assembled rocket is no small feat. Special rail lines connect various assembly and launch sites. For April's launch, the giant Titan IV rocket moved over rail lines from the vertical assembly building to Launchpad 40A. That particular pad has been used for Titan launches continuously since June 1965.

Physical security at Cape Canaveral has always been extraordinarily tight, given the extremely high value of and secrecy surrounding its payloads. Each building is equipped with a set of security notification lights that alert personnel to the security condition at any building. At right is an assembly area's high-security entry gate and its security notification lights.

The fences deter intrusions, using sophisticated motion detectors to alert security personnel when there is unexpected traffic in an area. Special codes are needed to enter each assembly building.





Rail lines (left and below) carry assembled rockets to their protective launch gantries. Each gantry is surrounded by four metal towers (below) that draw lightning strikes away from the assembled rocket. The photo at left was taken from the vantage of a gantry.



Airmen and civilian contractors work side by side. Shown at right (l-r) are SSgt. Toby Farr, Bill Kernan, Denny Ross, and TSgt. Chris Labine.

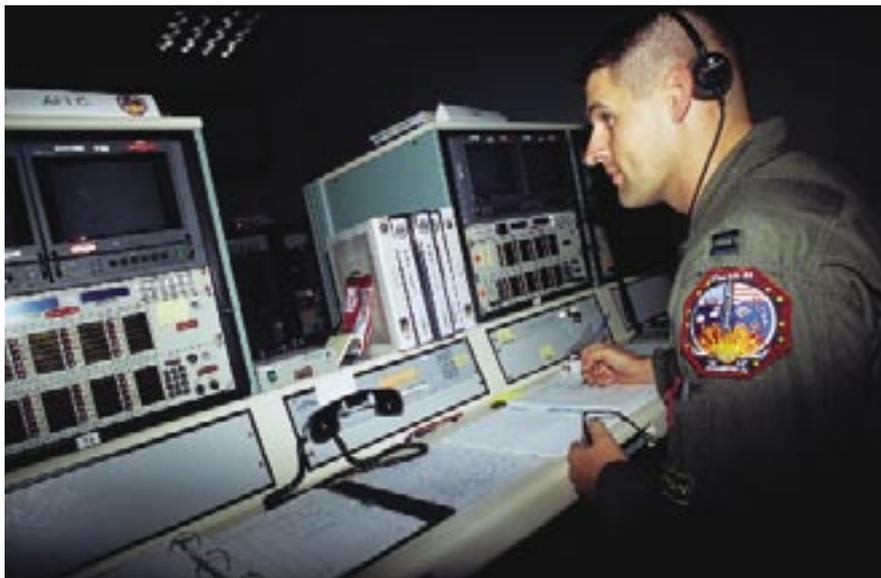


At left is the crucial joint where the Titan's solid rocket motors were mated to the main stages. The solid rocket motors fire first, lifting the rest of the launch vehicle.

Air Force and contractor personnel do their utmost to ensure success. The technicians monitor, check, and recheck the equipment to ensure everything is performing to exacting specifications.

The launch control center, or LCC (pictured at right), serves as a kind of central nervous center for every space launch. Ed McDaniel (l), chief of area safety, discusses the upcoming Titan launch with Capt. Craig Dumas, Air Force launch commander from the 3rd Space Launch Squadron. At right (wearing headset) is Marshall Lynch, a civilian launch contractor.

Sometimes a launch mishap creates a dangerous situation that requires the swift destruction of an in-flight booster. The LCC commander has the unenviable responsibility for destroying a rocket and its payload, some valued in the millions. The rocket can be destroyed by the push of a button from the LCC.



At left, Dumas monitors the proceedings from the launch commander's seat. He wears a mission patch created specially for this launch. The wearing of unique patches for each mission is a tradition at Cape Canaveral.

Most rockets launched from the station carry military and commercial satellites. A few carry scientific satellites and other types of payloads for NASA. Most launches are not classified.

At right, the fully assembled Titan IVB rocket stands upright with its inertial upper stage and NRO payload mounted on top. The rocket is still inside its mobile service tower at pad 40A. Before the launch, workers will slowly pull away the service tower and leave only the umbilical tower.





At top, the mobile service tower has been pulled back, leaving the launch vehicle in full view. Moving the million-pound tower without damaging the rocket requires extreme care. Above, MSgt. Lou Moyer, noncommissioned officer in charge of the 3rd SLS's booster section, observes as the door to the tower is prepared for rollback.



Above, a civilian contractor technician watches the gantry roll back away from the rocket. With missions taking so much time and preparation, the final launch is an event typically attended by the press and many of the workers. Special shirts, such as those seen on the contract workers at left, commemorate the event.



At right, airmen assigned to the wing's range operations control center (ROCC) coordinate all of the range activities needed to support the launch properly. For example, they vigorously monitor the airspace exclusion area along the Florida coast, trying to ensure that it has been cleared of unauthorized aircraft.



Above, 1st Lt. Mike Smith (l), an operator with the 1st Range Operations Squadron, works alongside operations evaluator Capt. Ingrid Kaat from the 45th Operations Group. They are monitoring vast stretches of nearby air and sea.

At left, Smith keeps watch on the range up until the time of the actual launch.



Each launch is a major news event, covered by local and national media. Above, photographers stake out sites with preferred vantage points, while TV trucks (at right) are readied for their transmissions. The press area is three miles from pad 40A.





The photo at left shows the enormous rocket, fitted with its inertial upper stage and payload, awaiting its scheduled evening launch.

Below, on April 29, 2005, Mission B30 is a "go," and the Titan's fiery blastoff shakes the earth for miles in every direction. After 40 years in service, this launch was the last hurrah for the Titan series on the East Coast. The last operational Titan IV will blast off at Vandenberg AFB, Calif.



Above, top: Seconds after blastoff, the rocket and its payload roar upward, lighting the sky and trailing a plume of smoke. Above, a wall at pad 40A is decorated with "mission markings" for each successful launch from that site. Now, data for B30 can be added. ■



Lockheed Martin photo