

COUNTING DOWN

Time ticking down on historic launch clock

BY FRANK OCHOA-GONZALES

Father Time has taken its toll on NASA's Kennedy Space Center countdown clock. Years of hurricanes and harsh Florida humidity and sunshine have taken their toll. Before year's end, the historic icon will be replaced.

The countdown clock at Kennedy's Press Site is considered one of the most-watched timepieces in the world and may only be second in popularity to Big Ben's Great Clock in London, England. It also has been the backdrop for a few Hollywood movies.

"It is so absolutely unique -- the one and only -- built for the world to watch the countdown and launch," said Timothy M. Wright, IMCS Timing, Countdown and Photo Services. "From a historical aspect, it has been very faithful to serve its mission requirements."

The exterior of the clock is original to the Apollo era, but the interior mechanism has been updated. Designed by Kennedy engineers and built by Kennedy technicians in 1969, the countdown clock has become harder to maintain because parts are getting older and more difficult to obtain.

"Over the years, we've had to keep circuits up with all the lightning in the area," Wright said. "We've also had to keep it dry inside with dehumidifiers."

Not including the triangular concrete and aluminum base, the famous landmark is nearly 6 feet (70 inches) high, 26 feet (315 inches) wide and 3 feet deep.

Each numerical digit (six in all) is about 4 feet high and 2 feet wide. Each digit uses 56 40-watt light bulbs, the same ones found at the local hardware store. There are 349 total light bulbs in the clock, including the +/- sign (nine) and pair of colons (four).

In 2004, the clock was damaged by Hurricane Charlie. It was then that NASA decided it was time for an upgrade.





As the sun rises and paints a colorful skyline across Kennedy Space Center on May 16, 2011, media set up cameras at the countdown clock in the Launch Complex 39 area before the launch of space shuttle Endeavour on the STS-134 mission. Photo credit: NASA/Troy Cryder

The design of a more modern multimedia display, similar to the screens seen at sporting venues, is in the works. The display, which comes at a cost of \$280,000, will provide images from multiple sources, as well as the countdown launch time. Also, streaming video will be an option.

The new display is very similar in size, with the screen being nearly 26 feet wide by 7 feet high. While not true high-definition, the video resolution will be 1280 x 360.

“Visually it will be much brighter and support whatever mission it is called upon,” Wright said. “Hopefully the new display will be accepted like its predecessor.”

The countdown clock always has been tied visually with the flagpole 34 feet away. Officially called “The Press Site: Clock and Flag Pole,” the pair was listed in the National Register of Historic Places on Jan. 21, 2000. They are historically associated with all U.S. space program launches since the moon landings more than 40 years ago.

The clock is controlled from the Launch Control Center (LCC) by the Timing and Imaging

Technical Support Group, also known as the “timing crew.” From the LCC, technicians monitor and distribute the official time to NASA facilities, including the firing rooms.

Before a launch, the launch director performs the traditional call to stations and the countdown clock is activated and begins to count down eventually to T-zero in hours, minutes and seconds. After launch, the clock runs forward, recording mission-elapsed time (MET).

The digital countdown timer has ticked toward some of mankind’s greatest feats launched from American soil. They include:

- Apollo 12 moon-landing mission, November 1969
- Skylab, May 1973
- The Apollo–Soyuz Test Project, July 1975
- First space shuttle launch, April 1981
- First post-Challenger shuttle mission, September 1988
- Hubble Space Telescope launch, April 1990
- John Glenn’s launch aboard shuttle Discovery, October 1998

- First post-Columbia shuttle mission, July 2005
- Final space shuttle mission, STS-135, July 2011

The clock also has been used to countdown numerous planetary probe and uncrewed NASA launches that lift off from nearby Cape Canaveral Air Force Station. The last launch on which the countdown clock was used was the Sept. 25 liftoff of the SpaceX CRS-4 resupply mission to the International Space Station. That may prove to be the clock’s final mission.

Wright said, “I do believe it was always able to come through -- although sometimes with some hard work -- when it really counted.”

Another sign of the times is the Central Instrumentation Facility (CIF) Time Station, built in 1965, was permanently turned off Oct. 23 at 9:40 a.m. The time station provided 24/7 timing, countdown, reference frequency and first-motion codes and signals to the Industrial Area facilities and remote sites. But because of the new design to install GPS time-code generators in major facilities in the Industrial Area, the timing function

of the CIF is no longer required. The countdown distributed from the CIF now has moved to the LCC Master Time Station, and the Reference Frequency distribution has moved to the CD&SC Remote Time Station to support mission requirements in Kennedy’s Industrial Area.

“With its functional operation now dispersed to multiple facilities with the new design,” Wright said, “the signals run through the GPS Satellite Time and Frequency Systems, and we have a more accurate way of delivering and receiving the signal.”

According to Luis Berrios, Kennedy’s Exhibits and Artifacts Manager, Kennedy has requested to acquire the countdown clock from the agency’s Artifact Working Group (AWG) at NASA Headquarters for possible display at the Kennedy Space Center Visitor Complex.

“Many feel this clock is as much of an icon as Apollo and Shuttle,” Berrios said. “At the visitor complex, it would ignite the magic surrounding a launch, and begin the countdown to explore Kennedy Space Center as part of the entry experience for the guests of the visitor complexvisitor complex.” [SpM](#)