

# Atlantis moves in on Hubble to grab telescope (Update)

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This image provided by NASA on Tuesday May 12, 2009 and annotated by source, shows debris from Atlantis' launch hitting the shuttle's right wing edge after launch on Monday May 11, 2009. The Atlantis astronauts uncovered a 21-inch stretch of nicks on their space shuttle Tuesday, but NASA said the damage did not appear to be serious. The damage was likely the result of debris that came off the fuel tank shortly after liftoff Monday. (AP Photo/NASA)

(AP) -- Shuttle Atlantis and its crew moved toward the Hubble Space Telescope for a 350-mile-high grab Wednesday that will set the stage for five days of treacherous spacewalking repairs in an orbit littered with space junk.

Late Tuesday, the [astronauts](#) got comforting news: the ugly stretch of nicks on Atlantis' thermal tiles were not considered serious, and no further inspections were needed. NASA is continuing to prep another

shuttle, though, just in case a piece of space junk hits the shuttle during the mission.

Hubble's unusually high orbit is strewn with smashed satellite pieces and other debris that could pierce the shuttle or suit of a spacewalking astronaut.

Commander Scott Altman and his co-pilot fired the engines Wednesday morning and steered Atlantis into Hubble's orbit. An hour later, Altman spotted Hubble, "that star approaching from the east."

Mission Control reminded the astronauts that no one has seen the [telescope](#) up close since 2002. "We hope to get a lot closer," Altman radioed from 268,000 feet away.

Early in the afternoon, robot arm operator Megan McArthur will use the 50-foot boom to grab the school bus-sized observatory and anchor it in Atlantis' payload bay.

The capture is expected to occur over the Indian Ocean, just northeast of Madagascar.

Hubble scientists and managers warn that Hubble may look a little ragged; it hasn't had a tuneup for seven years.

Beginning Thursday, two teams of spacewalking astronauts - two men per team - will take turns venturing outside to replace the 19-year-old Hubble's batteries and gyroscopes, and an old camera and pointing mechanism. They also will install fresh thermal covers on the telescope and a new science data-control unit - the original conked out last September and, although revived, delayed the shuttle flight by seven months.

The space repairmen also will go into the guts of two broken science instruments and attempt to fix the fried electronics. Astronauts have never attempted anything like this before at Hubble.

This is the fifth and final flight to Hubble, costing NASA just over \$1 billion. The space agency hopes to get another five to 10 years of dazzling views of the cosmos, with all the planned upgrades, which should leave the observatory more powerful than ever.

The mission almost didn't happen.

A year after the 2003 Columbia tragedy, NASA canceled the repair effort, saying it was too dangerous. The astronauts would not have anywhere to seek shelter because the [international space station](#) is in a different, inaccessible orbit.

But a new NASA regime reinstated the flight in 2006 after shuttle repair techniques were developed and tested in orbit. A plan also was put in place to have a rescue shuttle on the launch pad to blast off within days for a rescue.

That shuttle, the Endeavour, will remain on standby until Atlantis and its crew of seven head back to Earth late next week.

As for the nicks on Atlantis, they stretch over 21 inches on the right wing, on the forward edge where it joins with the fuselage. The astronauts discovered the damage Tuesday while inspecting their ship.

The nicks are shallow and embedded in thick thermal tiles, in a location that is not particularly vulnerable during re-entry at flight's end. Engineers believe those scrapes were caused by debris that came off the fuel tank 1 1/2 minutes after liftoff Monday.

Columbia's damage at launch was considerably more severe - a plate-size hole in the most sensitive part of the left wing. NASA did not pursue the matter and was unaware of the extent of the damage until the shuttle was returning home. All seven astronauts were killed.

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On the Net:

**NASA:** <http://www.nasa.gov/mission-pages/hubble/main/index.html>

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