



Follow Spaceflight Now on
twitter

The Mission



Orbiter: Endeavour
Mission: STS-134
Payload: AMS
Launch: April 29, 2011
Time: 3:47 p.m. EDT
Site: Pad 39A, Kennedy Space Center
Landing: May 13 @ 9:26 a.m. EDT
Site: KSC's Shuttle Landing Facility

- [Mission Status Center](#)
- [Launch Windows Chart](#)
- [Countdown Timeline](#)
- [Ascent Timeline](#)
- [Master Flight Plan](#)
- [SRB Case History](#)
- [STS-134 Video Coverage](#)
- [High Definition Video](#)
- [STS-134 Mission Index](#)
- [Our Shuttle Archive](#)

The Crew



- Cdr [Mark Kelly](#)
- Pilot [Greg Johnson](#)
- MS 1 [Mike Fincke](#)
- MS 2 [Roberto Vittori](#)
- MS 3 [Drew Feustel](#)
- MS 4 [Greg Chamitoff](#)

Endeavour's cargo bay loaded for space station run

BY JUSTIN RAY

SPACEFLIGHT NOW

Posted: March 26, 2011



Inside launch pad 39A's cleanroom today, technicians completed inserting a \$2 billion physics instrument and a pallet of spare parts into the payload bay of shuttle Endeavour for hauling to the International Space Station.

The payload installation effort began Friday and was called complete today at 12:40 p.m. EDT (1640 GMT) with the Alpha Magnetic Spectrometer and Express Logistics Carrier No. 3 locked into the orbiter's cargo hold.



Animation of the shuttle bay shows docking port in the front, ELC in the middle and AMS in the rear. Credit: NASA TV

"We're taking up a very important experiment, the Alpha Magnetic Spectrometer, a science experiment that could change the course of physics. And we're also taking some pieces and parts up to the space station in anticipation of the shuttle retiring," Endeavour pilot Greg Johnson said in a pre-flight interview.

ELC 3 is a two-sided deck carrying various replacement hardware for station systems that can be called upon in the future. It has a pair of S-band communications antennas, a high-pressure oxygen tank, an extra ammonia coolant reservoir, a new arm for the Dextre robot and some assorted electronics.

Final Shuttle Mission Patch

Free shipping to U.S. addresses!

The crew emblem for the final space shuttle mission is now available in our store!

Atlantis is scheduled for launch in June.

- [U.S. STORE](#)
- [WORLDWIDE STORE](#)



STS-133 Patch

Free shipping to U.S. addresses!

The final planned flight of space shuttle

Discovery is symbolized in the official embroidered crew patch for STS-133. Available in our store!

- [U.S. STORE](#)
- [WORLDWIDE STORE](#)



Anniversary Shuttle Patch

Free shipping to U.S. addresses!

This embroidered patch commemorates the 30th anniversary of the Space Shuttle

Program. The design features the space shuttle Columbia's historic maiden flight of April 12, 1981.

- [U.S. STORE](#)
- [WORLDWIDE STORE](#)



Ares Patch

The Ares Project will develop two new rockets to launch astronauts back to the Moon under NASA's

Vision for Exploration. The Ares will employ a single space shuttle solid rocket booster to loft the Orion crew capsule. The



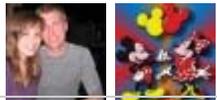
Find us on Facebook



Spaceflight Now

Like

2,224 people like Spaceflight Now.



Facebook social plugin

Top Stories

- [Assembly required](#) - Engineers are nearly finished putting together the Curiosity rover, NASA's next mission to Mars.
- [NASA science suffers](#) - Expert panel says NASA is poorly positioned to take advantage of space station research opportunities.
- [SpaceX super-rocket](#) - SpaceX unveils a heavy-duty Falcon rocket it says can lift nearly 60 tons to orbit by 2013.
- [Spysat retired](#) - A 20-year-old spy satellite has disappeared in space, leading observers to believe it was secretly deorbited.
- [Rising costs](#) - Soaring launch prices may force NASA to delay or cancel some science missions.
- [Shuttle delay](#) - Busy traffic at the space station forces a 10-day delay of Endeavour's final flight.
- [Soyuz launch](#) - Next space station crew blasts off from Kazakhstan.
- [GOCE update](#) - Europe's gravity satellite is supplying exquisite data and could get mission extension.
- [Storm inspections](#) - Engineers look over Endeavour after severe storm hits space center.
- [Practice countdown](#) - The six Endeavour astronauts undergo a countdown simulation inside the shuttle.
- [Retiring a shuttle](#) - Main engines removed from space shuttle Discovery.
- [How to get there?](#) - NASA expects to select a design architecture this summer

"Well, it has one of the most exciting names in the business, Express Logistics Carrier No. 3, but it's really important for the space station and we have, obviously by its name, we have other Express logistics carriers, and what we're doing is setting up the space station to last until 2020 and perhaps beyond. So in order for a large aerospace complex vehicle like the International Space Station to last a long time without a heavy lift vehicle like the shuttle to deliver spares, because things do break over time, we have all the spare parts of the station already bolted on to the outside of this big frame structure," said Endeavour mission specialist Mike Fincke.

Just after hours Endeavour docks to the space station, scheduled to occur April 21 around 5 p.m. EDT, the robotic arms of the shuttle and station will work in tandem to unberth the 14,000-pound ELC from the payload bay and attach it onto the port-side truss.

The following day, the 15,250-pound Alpha Magnetic Spectrometer will be hoisted from the rear of Endeavour's payload bay in similar fashion by the robot arms and mounted to the starboard-side truss. That is planned for April 22 around 2 p.m. EDT, given an on-time launch.

"The Alpha Magnetic Spectrometer is going to sit on the outside of the International Space Station and collect some amazing data," Fincke said in a pre-flight interview. "It's going to look up to the heavens and just receive whatever super particles decide to arrive. We're going to be able to detect some things that we've never seen before and understand the universe a lot better thanks to AMS."

AMS is the exotic experiment to prove the existence or myth of antimatter, seek out dark matter and probe the origins of the universe.

"AMS is a \$2 billion cosmic particle detector. It's got 16 partner nations including the United States that are involved in designing and building this instrument. It's got 60, six zero, different universities that are involved, a lot of physicists. It's managed by the Department of Energy but the program is located in CERN (European Organization for Nuclear Research), outside of Geneva, Switzerland. And the program, specifically the principal investigator, is a Ph.D. physicist, Nobel Prize winner, named Dr. Samuel Ting, who envisioned and appropriated the money and constructed AMS with a big team of engineers but mostly physicists, and we're going to launch that as our primary payload," Endeavour commander Mark Kelly said.

"AMS is a cosmic particle detector that's going to look for a bunch of different things including antimatter, dark matter and dark energy, stuff that we don't know a lot about. We think there's antimatter in the universe, naturally occurring; physicists believe that at the Big Bang there were equal parts of matter and antimatter and we don't know where the

gigantic Ares 5 will haul the equipment and cargo needed for such lunar voyages. This is the Ares emblem.

■ [U.S. STORE](#)

One Giant Leap

Hosted by Corbin Bernsen, this award winning documentary marks the 50th anniversary of the U.S. space agency and features exclusive interviews with veteran astronauts.

■ [U.S. STORE](#)

■ [WORLDWIDE STORE](#)



Next Shuttle Mission Patch

Free shipping to U.S. addresses!

The final planned flight of space shuttle Endeavour is symbolized in the official embroidered crew patch for STS-134. Available in our store!

■ [U.S. STORE](#)

■ [WORLDWIDE STORE](#)



[Carrying the Fire](#)

Michael Collins

Best Price \$1.44
or Buy New \$13.57



[Privacy Information](#)



for heavy-lift rocket and exploration vehicle.

antimatter is, so the AMS is going to try to answer a lot of those questions."

Endeavour is scheduled for launch April 19 at 7:48 p.m. EDT (2348 GMT) on the two-week mission that also includes four planned spacewalks to perform maintenance on the station.

SPACEFLIGHT NOW+PLUS

[CLICK HERE TO SUBSCRIBE](#)

Additional coverage for subscribers:

- **VIDEO:** PAYLOADS ARRIVE AT LAUNCH PAD 39A [PLAY](#) | [HI-DEF](#)
- **VIDEO:** CANISTER ROTATED UPRIGHT FOR PAD [PLAY](#) | [HI-DEF](#)
- **VIDEO:** PALLET OF SPARE PARTS INTO CANISTER [PLAY](#) | [HI-DEF](#)
- **VIDEO:** AMS PAYLOAD PUT INTO TRANSPORTER [PLAY](#) | [HI-DEF](#)

- **VIDEO:** SHUTTLE AND STATION PROGRAM BRIEFING [PLAY](#)
- **VIDEO:** THE STS-134 MISSION OVERVIEW PRESENTATIONS [PLAY](#)
- **VIDEO:** IN-DEPTH WITH ALPHA MAGNETIC SPECTROMETER [PLAY](#)
- **VIDEO:** PREVIEW BRIEFING ON MISSION'S SPACEWALKS [PLAY](#)
- **VIDEO:** THE ASTRONAUTS' PRE-FLIGHT NEWS BRIEFING [PLAY](#)

- **VIDEO:** SUN RISES OVER THE LAUNCH PAD [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ENDEAVOUR ARRIVES ATOP PAD 39A [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ROLLOUT FROM VEHICLE ASSEMBLY BUILDING [PLAY](#) | [HI-DEF](#)

- **VIDEO:** HOISTING ENDEAVOUR TO TANK AND SRBS [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ORBITER GOES VERTICAL [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ENDEAVOUR LEAVES PROCESSING HANGAR [PLAY](#) | [HI-DEF](#)

- **VIDEO:** PAYLOAD MEDIA DAY [PLAY](#) | [HI-DEF](#)
- **VIDEO:** THE ALPHA MAGNETIC SPECTROMETER [PLAY](#) | [HI-DEF](#)
- **VIDEO:** PAYLOAD REMOVED FROM C-5 [PLAY](#) | [HI-DEF](#)
- **VIDEO:** AMS ARRIVES FROM EUROPE [PLAY](#) | [HI-DEF](#)

- **VIDEO:** EXPRESS LOGISTICS CARRIER NO. 3 [PLAY](#) | [HI-DEF](#)
- **VIDEO:** HIGH-PRESSURE OXYGEN GAS TANK [PLAY](#) | [HI-DEF](#)
- **VIDEO:** PUTTING STATION ANTENNA ON CARRIER [PLAY](#) | [HI-DEF](#)

- **VIDEO:** TANK UNLOADED TO ASSEMBLY BUILDING [PLAY](#) | [HI-DEF](#)
- **VIDEO:** THE EXTERNAL FUEL TANK ARRIVES [PLAY](#) | [HI-DEF](#)
- **VIDEO:** BOOSTER SEGMENT MOVED TO VAB [PLAY](#) | [HI-DEF](#)
- **VIDEO:** KENNEDY SPACE CENTER SRB CEREMONY [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ENDEAVOUR FITTED WITH MAIN ENGINES [PLAY](#) | [HI-DEF](#)
- **VIDEO:** ORBITER TOWED OFF RUNWAY [PLAY](#) | [HI-DEF](#)

- **MORE:** [STS-134 VIDEO ARCHIVE](#)
- **HDTV:** [HIGH-DEFINITION COVERAGE](#)
- [SUBSCRIBE NOW](#)

[INDEX](#) | [PLUS](#) | [NEWS ARCHIVE](#) | [LAUNCH SCHEDULE](#)
[ASTRONOMY NOW](#) | [STORE](#)
[ADVERTISE](#)

© 2011 Spaceflight Now Inc.