
070

1
00:00:00,630 --> 00:00:07,710
\h Music

2
00:00:07,710 --> 00:00:09,630
\h George Diller Launch Commentator: "Go for main engine start,

3
00:00:09,630 --> 00:00:10,480
\h 8...

4
00:00:10,480 --> 00:00:11,280
\h 7...

5
00:00:11,280 --> 00:00:12,100
\h 6...

6
00:00:12,100 --> 00:00:13,000
\h 5...

7
00:00:13,000 --> 00:00:13,990
\h 4...

8
00:00:13,990 --> 00:00:15,010
\h 3...

9
00:00:15,010 --> 00:00:16,120
\h 2...

10
00:00:16,120 --> 00:00:17,220
\h 1...

11
00:00:17,220 --> 00:00:21,780
\h zero...and liftoff for the final launch of Endeavour...

12
00:00:21,780 --> 00:00:26,830
\h expanding our knowledge and expanding our lives in space."

13
00:00:26,830 --> 00:00:31,150

\h And with that, space shuttle Endeavour embarked on its final flight on the morning of

14
00:00:31,150 --> 00:00:37,070
\h May 16, 2011, carrying six crew members on their way to complete U.S. construction of

15
00:00:37,070 --> 00:00:39,280
\h the International Space Station.

16
00:00:39,280 --> 00:00:41,590
\h Under the command of Mark Kelly,

17
00:00:41,590 --> 00:00:43,070
\h Pilot Greg Johnson and

18
00:00:43,070 --> 00:00:44,800
\h Mission Specialists Mike Fincke,

19
00:00:44,800 --> 00:00:46,030
\h Greg Chamitoff,

20
00:00:46,030 --> 00:00:48,020
\h Drew Feustel and the European Space Agency’s

21
00:00:48,020 --> 00:00:51,350
\h Roberto Vittori headed to orbit.

22
00:00:51,350 --> 00:00:55,380
\h After the remote inspection of the shuttle's exterior thermal protection system was

23
00:00:55,380 --> 00:01:00,990
\h complete, Vittori and Johnson used the shuttle's robotic arm to reach into the payload bay

24
00:01:00,990 --> 00:01:04,250
\h and grapple the Express Logistics Carrier.

25
00:01:04,250 --> 00:01:08,120
\h Once Endeavour caught up with the station, Kelly put the shuttle through a "backflip"

26
00:01:08,120 --> 00:01:13,000
\h at a distance of 600 feet to allow the station crew to photograph Endeavour's thermal

27
00:01:13,000 --> 00:01:16,110
\h protection tiles before docking.

28
00:01:16,110 --> 00:01:19,230
\h During the docking process an advanced system called

29
00:01:19,230 --> 00:01:24,630
\h STORMM -- or Sensor Test for Orion Rel-nav Risk Mitigation -- gathered data that could

30
00:01:24,630 --> 00:01:27,610
\h help future spacecraft dock to the station.

31
00:01:27,610 --> 00:01:32,210
\h Soon after docking and the hatches were opened, the Express Logistics Carrier containing

32
00:01:32,210 --> 00:01:38,490
\h space parts was installed on the station's exterior using shuttle and station robotic arms.

33
00:01:38,490 --> 00:01:43,570
\h The chief payload -- the Alpha Magnetic Spectrometer-2 -- was handed off from the

34
00:01:43,570 --> 00:01:47,660
\h shuttle arm to the station's and then placed in its permanent position atop

35
00:01:47,660 --> 00:01:50,470
\h the starboard 3 truss.

36
00:01:50,470 --> 00:01:56,100
\h The spectrometer is a 15,000-pound, $2 billion advanced scientific instrument that could

37
00:01:56,100 --> 00:02:00,640
\h answer basic questions about our universe, perhaps shedding light on dark matter

38
00:02:00,640 --> 00:02:02,660

\h and antimatter.

39
00:02:02,660 --> 00:02:07,310
\h The mission’s first of four spacewalks was completed by Feustel and Chamitoff as they

40
00:02:07,310 --> 00:02:11,730
\h swapped exterior experiments and installed equipment in more than six hours

41
00:02:11,730 --> 00:02:14,210
\h outside the station.

42
00:02:14,210 --> 00:02:18,000
\h The following day, the crew used the station's robotic arm to conduct a focused

43
00:02:18,000 --> 00:02:23,320
\h inspection to collect photographs and data on a small area of damage spotted on

44
00:02:23,320 --> 00:02:25,440
\h Endearvour's underside.

45
00:02:25,440 --> 00:02:30,810
\h The information gathered enabled mission managers to clear Endeavour for its return.

46
00:02:30,810 --> 00:02:35,590
\h That same day, the combined crews joined together in the Kibo module for a special call

47
00:02:35,590 --> 00:02:40,900
\h from Pope Benedict XVI.

48
00:02:40,900 --> 00:02:46,090
\h Spacewalk two paired Fincke and Feustel as they spent eight hours completing station

49
00:02:46,090 --> 00:02:47,500
\h maintenance tasks.

50
00:02:47,500 --> 00:02:52,530
\h Among those tasks -- topping off ammonia in a cooling loop and lubricating a solar array

51
00:02:52,530 --> 00:02:57,960
\h joint on the port truss and one of the hands on Dextre robotic arm.

52
00:02:57,960 --> 00:03:01,510
\h There was a break in the busy schedule when three of the station's

53
00:03:01,510 --> 00:03:04,610
\h crew members departed the station aboard a Russian Soyuz and

54
00:03:04,610 --> 00:03:07,120
\h returned to Earth on May 23.

55
00:03:07,120 --> 00:03:12,050
\h It marked the only time a Soyuz departed the station while a space shuttle was docked.

56
00:03:12,050 --> 00:03:16,160
\h The following day, the remaining combined crew of nine had time to complete some

57
00:03:16,160 --> 00:03:19,170
\h interior maintenance around the station.

58
00:03:19,170 --> 00:03:25,410
\h The third spacewalk was once again conducted by the team of Fincke and Feustel.

59
00:03:25,410 --> 00:03:29,950
\h Performing a number of tasks in just short of seven hours, the spacewalkers left the

60
00:03:29,950 --> 00:03:35,260
\h Canadarm2 closer to having a new base of operation which will give it access to much of

61
00:03:35,260 --> 00:03:38,370
\h the orbiting laboratory's Russian segment.

62
00:03:38,370 --> 00:03:42,600
\h After the docked inspection and clearance for Endeavour from Houston,

63
00:03:42,600 --> 00:03:47,610

\h the fourth and last spacewalk was conducted by Chamitoff and Fincke.

64
00:03:47,610 --> 00:03:52,150
\h The outing marked the final spacewalk by space shuttle crew members.

65
00:03:52,150 --> 00:03:56,870
\h Among the tasks in their almost seven-and-a-half hour work, the spacewalkers attached

66
00:03:56,870 --> 00:04:02,150
\h the shuttle's boom sensor to the station -- making it the final major U.S. piece to be added

67
00:04:02,150 --> 00:04:04,880
\h to the orbiting laboratory.

68
00:04:04,880 --> 00:04:10,000
\h Greg Chamitoff STS-134 Mission Specialist:"On behalf of the STS-134 crew and the Expedition 27 crew

69
00:04:10,000 --> 00:04:13,870
\h space station assembly is complete."

70
00:04:13,870 --> 00:04:19,070
\h With construction complete and supplies delivered during 11 days of joint operations,

71
00:04:19,070 --> 00:04:24,040
\h the two crews said goodbye and the hatches were closed between the two spacecraft.

72
00:04:24,040 --> 00:04:29,630
\h After undocking, the shuttle completed a fly-around, providing amazing images of the

73
00:04:29,630 --> 00:04:31,850
\h fully completed station.

74
00:04:31,850 --> 00:04:35,310
\h Fincke -- who during the mission became the U.S. astronaut with the most time

75
00:04:35,310 --> 00:04:40,220
\h in space -- later described the crew's feelings looking at the completed station

76
00:04:40,220 --> 00:04:42,850
\h Mike Fincke STS-134 Mission Specialist: "I think we all should be really impressed how big

77
00:04:42,850 --> 00:04:45,720
\h and magnificent that space station is,

78
00:04:45,720 --> 00:04:51,900
\h we were impressed; we were exited like five-year olds at a rollercoaster park a mean it was pretty impre

79
00:04:51,900 --> 00:04:58,140
\h The STS-134 crew performed an additional test of the STORRM equipment during a

80
00:04:58,140 --> 00:05:01,540
\h rendezvous exercise before backing away from the station.

81
00:05:01,540 --> 00:05:07,000
\h Endeavour's final return to Earth came in the overnight hours, as its ghostly outline -- lit

82
00:05:07,000 --> 00:05:13,840
\h by the runway's xenon lights -- appeared out of the darkness at 2:35 a.m. on June 1.

83
00:05:13,840 --> 00:05:16,910
\h Mark Kelly STS-134 Commander: "Houston, Endeavour, wheelstop.

84
00:05:16,910 --> 00:05:20,320
\h Mission Control: One hundred and twenty-two million miles flown during 25 challenging

85
00:05:20,320 --> 00:05:25,600
\h spaceflights, your landing ends a vibrant legacy for this amazing vehicle that will long be

86
00:05:25,600 --> 00:05:29,140
\h remembered. Welcome home, Endeavour."