



1
00:00:02,470 --> 00:00:01,589
eight

2
00:00:04,950 --> 00:00:02,480
seven

3
00:00:06,470 --> 00:00:04,960
six go for main engine start

4
00:00:07,510 --> 00:00:06,480
four three

5
00:00:08,549 --> 00:00:07,520
two

6
00:00:11,430 --> 00:00:08,559
one

7
00:00:13,589 --> 00:00:11,440
zero and liftoff of space shuttle

8
00:00:16,230 --> 00:00:13,599
endeavor expanding the international

9
00:00:22,390 --> 00:00:16,240
space station while creating a classroom

10
00:00:25,429 --> 00:00:23,830
houston now controlling the flight of

11
00:00:27,670 --> 00:00:25,439
endeavor the space shuttle begins its

12
00:00:29,109 --> 00:00:27,680
journey back into orbit

13
00:00:31,029 --> 00:00:29,119

endeavor rolling onto the proper

14

00:00:32,790 --> 00:00:31,039

alignment heads down wings level for the

15

00:00:34,470 --> 00:00:32,800

eight and a half minute ride to orbit

16

00:00:38,790 --> 00:00:34,480

taking aim on the international space

17

00:00:42,310 --> 00:00:40,630

thirty seconds into the flight the three

18

00:00:44,310 --> 00:00:42,320

liquid fuel main engines will soon

19

00:00:45,990 --> 00:00:44,320

throttle back to 72 percent of rated

20

00:00:47,270 --> 00:00:46,000

performance in the bucket to reduce the

21

00:00:52,229 --> 00:00:47,280

stress on the shuttle as it breaks

22

00:00:56,229 --> 00:00:54,229

this view

23

00:00:57,990 --> 00:00:56,239

from long-range trackers now from a

24

00:00:59,670 --> 00:00:58,000

camera on the external fuel tank showing

25

00:01:03,110 --> 00:00:59,680

the bird's eye view of endeavour heading

26

00:01:08,230 --> 00:01:05,670

54 seconds into the flight

27

00:01:09,830 --> 00:01:08,240

endeavor already eight miles downrange

28

00:01:12,710 --> 00:01:09,840

standing by for the throttle up call

29

00:01:18,630 --> 00:01:12,720

from capcom chris ferguson

30

00:01:21,670 --> 00:01:20,149

the throttle up call acknowledged by

31

00:01:23,510 --> 00:01:21,680

commander scott kelly joined on the

32

00:01:25,109 --> 00:01:23,520

flight deck by pilot charlie hobaugh

33

00:01:26,630 --> 00:01:25,119

flight engineer rick mastracchio and

34

00:01:28,710 --> 00:01:26,640

tracy caldwell

35

00:01:30,390 --> 00:01:28,720

dave williams aldrue and barbara morgan

36

00:01:32,149 --> 00:01:30,400

seated down on the mid-deck morgan

37

00:01:34,390 --> 00:01:32,159

racing toward space on the wings of a

38

00:01:36,630 --> 00:01:34,400

legacy

39

00:01:39,030 --> 00:01:36,640

one minute 30 seconds into the flight

40

00:01:41,590 --> 00:01:39,040

endeavor currently traveling almost 2

41

00:01:43,429 --> 00:01:41,600

000 miles an hour 14 miles in altitude

42

00:01:45,590 --> 00:01:43,439

15 miles downrange from the kennedy

43

00:01:47,270 --> 00:01:45,600

space center three good fuel cells three

44

00:01:58,789 --> 00:01:47,280

good auxiliary power units three good

45

00:02:02,789 --> 00:02:00,389

endeavour flying straight is an arrow

46

00:02:04,630 --> 00:02:02,799

one minute 55 seconds into the flight

47

00:02:17,670 --> 00:02:04,640

standing by for solid rocket booster

48

00:02:21,750 --> 00:02:19,750

booster officer confirms staging a good

49

00:02:23,350 --> 00:02:21,760

solid rocket booster separation guidance

50

00:02:25,190 --> 00:02:23,360

now converging

51
00:02:27,350 --> 00:02:25,200
endeavors on board computers commanding

52
00:02:29,270 --> 00:02:27,360
the main engine nozzles to gently swivel

53
00:02:31,990 --> 00:02:29,280
aiming endeavor for a precise keyhole in

54
00:02:35,670 --> 00:02:32,000
space for main engine cut off

55
00:02:37,270 --> 00:02:35,680
two minutes 25 seconds into the flight

56
00:02:39,030 --> 00:02:37,280
the propulsion officer reports the

57
00:02:40,790 --> 00:02:39,040
orbital maneuvering system engines have

58
00:02:42,229 --> 00:02:40,800
ignited providing endeavor with a kick

59
00:02:43,750 --> 00:02:42,239
in the pants for the next minute and a

60
00:02:46,309 --> 00:02:43,760
half assisting the shuttle and its crew

61
00:02:49,350 --> 00:02:46,319
on its climb to orbit

62
00:02:51,110 --> 00:02:49,360
endeavour 40 miles in altitude 59 miles

63
00:03:08,229 --> 00:02:51,120

downrange from the kennedy space center

64

00:03:12,630 --> 00:03:09,910

three minutes into the flight endeavors

65

00:03:15,270 --> 00:03:12,640

75 miles downrange

66

00:03:17,670 --> 00:03:15,280

traveling almost 4 000 miles an hour 47

67

00:03:20,470 --> 00:03:17,680

miles in altitude

68

00:03:22,390 --> 00:03:20,480

all of its systems looking good

69

00:03:23,990 --> 00:03:22,400

endeavour flying on the singular power

70

00:03:25,830 --> 00:03:24,000

of its three liquid fuel main engines

71

00:03:36,390 --> 00:03:25,840

draining a half a ton of fuel per second

72

00:03:39,670 --> 00:03:37,910

seven and a half minutes into the flight

73

00:03:40,710 --> 00:03:39,680

the main engine soon will throttle down

74

00:03:42,149 --> 00:03:40,720

to

75

00:03:43,670 --> 00:03:42,159

limit the stress on the shuttle and its

76

00:03:46,149 --> 00:03:43,680

seven crew members to that of three

77

00:03:48,149 --> 00:03:46,159

times the effect of gravity endeavor

78

00:03:50,390 --> 00:03:48,159

currently traveling more than four miles

79

00:03:51,750 --> 00:03:50,400

per second at the time of main engine

80

00:03:53,990 --> 00:03:51,760

cutoff endeavor will enter its

81

00:04:04,710 --> 00:03:54,000

preliminary orbit at a speed of five

82

00:04:10,550 --> 00:04:06,869

endeavour currently traveling at

83

00:04:12,470 --> 00:04:10,560

15 000 miles an hour

84

00:04:14,309 --> 00:04:12,480

20 seconds of powered flight remaining

85

00:04:15,670 --> 00:04:14,319

standing by for main engine cut off

86

00:04:17,430 --> 00:04:15,680

which will be followed a few seconds

87

00:04:29,110 --> 00:04:17,440

later by the separation of the external

88

00:04:32,550 --> 00:04:30,950

booster officer confirms main engine

89

00:04:50,710 --> 00:04:32,560

cutoff

90

00:04:54,710 --> 00:04:52,710

external tank separation confirmed

91

00:04:56,710 --> 00:04:54,720

endeavour now in its preliminary orbit