



1
00:00:05,869 --> 00:00:03,530
ILS is go for autosequence start

2
00:00:07,970 --> 00:00:05,879
and we have a go for autosequence start

3
00:00:09,350 --> 00:00:07,980
Discovery's onboard computers have

4
00:00:15,460 --> 00:00:09,360
primary control of all the vehicles

5
00:00:23,840 --> 00:00:18,410
t-minus 15 seconds the sound suppression

6
00:00:29,080 --> 00:00:23,850
water system has been activated all

7
00:00:36,799 --> 00:00:33,979
two one booster ignition and liftoff of

8
00:00:39,350 --> 00:00:36,809
discovery celebrating its 25th birthday

9
00:00:41,619 --> 00:00:39,360
by racking up science and supplies to

10
00:00:44,000 --> 00:00:41,629
the space station

11
00:00:45,529 --> 00:00:44,010
Houston now controlling the bin I tryna

12
00:00:47,840 --> 00:00:45,539
Rick sturckow and his crew to the

13
00:00:49,580 --> 00:00:47,850

International Space Station discovery

14

00:00:50,720 --> 00:00:49,590

rolling on to the proper alignment for

15

00:00:52,580 --> 00:00:50,730

its eight-and-a-half minute ride to

16

00:00:54,200 --> 00:00:52,590

orbit four-and-a-half million pounds of

17

00:01:03,920 --> 00:00:54,210

hardware in humans taking aim on the

18

00:01:09,050 --> 00:01:07,220

thirty two seconds into the flight the

19

00:01:10,760 --> 00:01:09,060

three liquid fuel main engine soon will

20

00:01:12,710 --> 00:01:10,770

throttle back to 72 percent of rated

21

00:01:14,030 --> 00:01:12,720

performance down in the bucket reducing

22

00:01:19,400 --> 00:01:14,040

the stress on the shuttle as it goes

23

00:01:22,550 --> 00:01:19,410

transonic discovery three and a half

24

00:01:30,560 --> 00:01:22,560

miles in altitude four miles downrange

25

00:01:32,180 --> 00:01:30,570

from the Kennedy Space Center standing

26

00:01:42,590 --> 00:01:32,190

by for the throttle up call now from

27

00:01:44,150 --> 00:01:42,600

Capcom eric boe discovery the throttle

28

00:01:45,740 --> 00:01:44,160

up call acknowledged by commander Rick

29

00:01:47,780 --> 00:01:45,750

sturckow joined on the flight deck by

30

00:01:50,270 --> 00:01:47,790

pilot Kevin Ford flight engineer Jose

31

00:01:52,010 --> 00:01:50,280

Hernandez and Pat Forrester seated down

32

00:01:54,139 --> 00:01:52,020

in the mid Decker Danny Olivas Christer

33

00:01:56,359 --> 00:01:54,149

Fuglesang of the European Space Agency

34

00:01:57,770 --> 00:01:56,369

and nicole stott hitching a ride for

35

00:02:03,260 --> 00:01:57,780

three months on the International Space

36

00:02:07,850 --> 00:02:03,270

Station one minute 30 seconds into the

37

00:02:10,250 --> 00:02:07,860

flight full of discovery systems

38

00:02:12,229 --> 00:02:10,260

performing normally 17 miles in altitude

39

00:02:22,510 --> 00:02:12,239

18 miles downrange from the Kennedy

40

00:02:27,160 --> 00:02:24,840

one minute 50 seconds into the flight

41

00:02:40,360 --> 00:02:27,170

standing by for solid rocket boosters

42

00:02:44,830 --> 00:02:42,759

booster officer confirms staging a good

43

00:02:46,600 --> 00:02:44,840

solid rocket booster separation guidance

44

00:02:48,100 --> 00:02:46,610

now converging the on-board computers

45

00:02:58,030 --> 00:02:48,110

steering the shuttle for its precise

46

00:02:58,040 --> 00:03:01,340

you

47

00:03:07,490 --> 00:03:04,710

discovery 37 miles in altitude 54 miles

48

00:03:10,710 --> 00:03:07,500

downrange from the Kennedy Space Center

49

00:03:13,410 --> 00:03:10,720

three good main engines three good

50

00:03:18,180 --> 00:03:13,420

auxiliary power units three good fuel

51
00:03:32,270 --> 00:03:18,190
cells to engine Mehran happy to engine

52
00:03:37,340 --> 00:03:34,880
three minutes into the flight everything

53
00:03:48,380 --> 00:03:37,350
going very well for discovery 47 miles

54
00:03:49,640 --> 00:03:48,390
in altitude 85 miles downrange the

55
00:03:51,559 --> 00:03:49,650
orbital maneuvering system engines

56
00:03:53,780 --> 00:03:51,569
ignited discovery kicking on the

57
00:03:55,220 --> 00:03:53,790
afterburners for one minute 52 seconds

58
00:04:01,280 --> 00:03:55,230
assisting the shuttle and its crew on

59
00:04:03,020 --> 00:04:01,290
their climb to orbit discovery flying on

60
00:04:04,759 --> 00:04:03,030
the singular power of its three liquid

61
00:04:06,290 --> 00:04:04,769
fuel main engines draining a half a ton

62
00:04:17,580 --> 00:04:06,300
of fuel per second from the shuttles

63
00:04:21,069 --> 00:04:19,539

discovery coming up on the point of

64

00:04:22,749 --> 00:04:21,079

negative return where the shuttle will

65

00:04:24,520 --> 00:04:22,759

be too far downrange too high an

66

00:04:28,209 --> 00:04:24,530

altitude to return to the launch site in

67

00:04:34,059 --> 00:04:28,219

the event of an engine failure discovery

68

00:04:35,769 --> 00:04:34,069

negative return discovery speeding

69

00:04:37,149 --> 00:04:35,779

straight as an arrow on its night flight

70

00:04:41,679 --> 00:04:37,159

toward a date with the International

71

00:04:42,730 --> 00:04:41,689

Space Station Sunday night four minutes

72

00:04:46,029 --> 00:04:42,740

eight seconds into the flight

73

00:04:49,659 --> 00:04:46,039

Discovery's 61 miles in altitude 163

74

00:05:05,250 --> 00:04:49,669

miles downrange from the Cape all

75

00:05:11,070 --> 00:05:08,010

more than halfway toward its preliminary

76
00:05:13,380 --> 00:05:11,080
orbit Discovery's engines fuel cells and

77
00:05:16,380 --> 00:05:13,390
auxiliary power units performing as

78
00:05:17,760 --> 00:05:16,390
advertised discovery now 212 miles

79
00:05:22,350 --> 00:05:17,770
downrange from the Kennedy Space Center

80
00:05:24,090 --> 00:05:22,360
the environmental systems officer

81
00:05:26,190 --> 00:05:24,100
reports the activation of a good flash

82
00:05:28,290 --> 00:05:26,200
evaporator system providing cooling for

83
00:05:29,760 --> 00:05:28,300
Discovery's avionics until the payload

84
00:05:36,090 --> 00:05:29,770
bay doors are open an hour and a half

85
00:05:39,300 --> 00:05:36,100
into the flight five minutes into the

86
00:05:46,100 --> 00:05:39,310
ascend toward orbit this view from a

87
00:05:46,110 --> 00:05:53,030
discovery press to ATO select mistress

88
00:05:56,940 --> 00:05:55,440

that call from Capcom Eric BOE

89

00:05:59,160 --> 00:05:56,950

indicating that discovery can make

90

00:06:00,780 --> 00:05:59,170

minimal abort to orbit targets in the

91

00:06:02,820 --> 00:06:00,790

event of an engine failure however all

92

00:06:18,620 --> 00:06:02,830

three main engines continued to perform

93

00:06:23,370 --> 00:06:22,260

discovery now 336 miles downrange from

94

00:06:25,380 --> 00:06:23,380

the Kennedy Space Center

95

00:06:30,660 --> 00:06:25,390

coming up on the 6 minute mark into the

96

00:06:32,130 --> 00:06:30,670

flight the guidance officer in Mission

97

00:06:33,480 --> 00:06:32,140

Control confirming that Discovery's

98

00:06:35,370 --> 00:06:33,490

computers have commanded the main

99

00:06:37,050 --> 00:06:35,380

engines to swivel again enabling the

100

00:06:39,660 --> 00:06:37,060

shuttle to roll to a heads-up position

101
00:06:41,220 --> 00:06:39,670
above the fuel tank gaining more

102
00:06:42,660 --> 00:06:41,230
favorable communications through the

103
00:06:44,790 --> 00:06:42,670
tracking and data relay satellite system

104
00:06:49,760 --> 00:06:44,800
as it heads up hill single-engine

105
00:06:54,480 --> 00:06:49,770
mistress 104 recovery Rider and

106
00:06:57,270 --> 00:06:54,490
discovery press to Meco writer Park

107
00:06:59,160 --> 00:06:57,280
Anika that call from Capcom Eric BOE

108
00:07:01,200 --> 00:06:59,170
indicating that discovery can make

109
00:07:03,000 --> 00:07:01,210
normal main engine cutoff targets in the

110
00:07:04,350 --> 00:07:03,010
event of an engine failure however six

111
00:07:09,680 --> 00:07:04,360
and a half minutes into the flight all

112
00:07:16,880 --> 00:07:12,620
discovery now 466 miles downrange from

113
00:07:31,870 --> 00:07:16,890

the Kennedy Space Center less than two

114

00:07:38,030 --> 00:07:34,370

discovery single-engine press 104

115

00:07:44,390 --> 00:07:38,040

nominal shutdown plan go for the 22nd

116

00:07:47,960 --> 00:07:44,400

plus X no go to pitch second X go go to

117

00:07:49,700 --> 00:07:47,970

pitch the 22nd plus X referred to by

118

00:07:52,120 --> 00:07:49,710

Capcom Eric BOE is the maneuver that

119

00:07:54,890 --> 00:07:52,130

commander Ricks Turco will perform after

120

00:07:56,960 --> 00:07:54,900

external tank separation enabling

121

00:07:58,850 --> 00:07:56,970

umbilical weld cameras to obtain flash

122

00:08:01,550 --> 00:07:58,860

photography of the fuel tank as it

123

00:08:02,810 --> 00:08:01,560

drifts away seven and a half minutes

124

00:08:04,280 --> 00:08:02,820

into the flight the main engines being

125

00:08:05,390 --> 00:08:04,290

throttled down to limit the stress on

126
00:08:07,400 --> 00:08:05,400
the shuttle and its seven crew members

127
00:08:09,590 --> 00:08:07,410
to that of three times the effect of

128
00:08:11,240 --> 00:08:09,600
gravity discovery currently traveling at

129
00:08:21,320 --> 00:08:11,250
a speed of more than four miles per

130
00:08:23,320 --> 00:08:21,330
second discovery in its crew 700 miles

131
00:08:46,450 --> 00:08:23,330
downrange from the Kennedy Space Center

132
00:08:50,420 --> 00:08:48,710
standing by now for main engine cutoff

133
00:08:52,130 --> 00:08:50,430
that will be followed a few seconds

134
00:09:04,010 --> 00:08:52,140
later by the separation of the external

135
00:09:06,380 --> 00:09:04,020
fuel tank booster officer confirms a

136
00:09:23,350 --> 00:09:06,390
good main engine cutoff now standing by

137
00:09:26,760 --> 00:09:24,990
external tanks

138
00:09:34,710 --> 00:09:26,770

confirm discovery now in its preliminary

139

00:09:37,200 --> 00:09:34,720

orbit you can see the flash photography

140

00:09:41,670 --> 00:09:37,210

as discovery fades away from the camera

141

00:09:42,830 --> 00:09:41,680

view good maneuver being commanded by

142

00:09:45,000 --> 00:09:42,840

Rick sturckow

143

00:09:46,980 --> 00:09:45,010

maneuvering discovery so that those

144

00:09:48,870 --> 00:09:46,990

cameras embedded in the umbilical well

145

00:09:51,260 --> 00:09:48,880

can perform that flash photography of

146

00:09:54,060 --> 00:09:51,270

the discarded external fuel tank an

147

00:09:56,670 --> 00:09:54,070

uneventful ride to orbit for the shuttle

148

00:09:58,460 --> 00:09:56,680

Discovery two days shy of its 25th

149

00:10:02,580 --> 00:09:58,470

anniversary of its maiden flight