
160

1
00:00:33,380 --> 00:00:31,700
from launch complex 39 at the Kennedy

2
00:00:35,660 --> 00:00:33,390
Space Center in Florida this is shuttle

3
00:00:38,299 --> 00:00:35,670
launch control at t-minus 3 hours and

4
00:00:40,250 --> 00:00:38,309
holding we're now in the final five

5
00:00:42,079 --> 00:00:40,260
hours of the countdown for the launch of

6
00:00:46,009 --> 00:00:42,089
the space shuttle Columbia on mission

7
00:00:47,869 --> 00:00:46,019
STS 80 the countdown is being controlled

8
00:00:54,950 --> 00:00:47,879
from firing room 3 at the launch control

9
00:00:59,619 --> 00:00:54,960
center and we're on schedule for liftoff

10
00:01:05,540 --> 00:01:02,660
this is the 21st flight for space

11
00:01:07,190 --> 00:01:05,550
shuttle Columbia and the 80th mission of

12
00:01:14,330 --> 00:01:07,200
the space shuttle program since launches

13
00:01:16,910 --> 00:01:14,340

began in April 1981 15 years ago there

14
00:01:19,279 --> 00:01:16,920
are three objectives of the sts-80

15
00:01:20,960 --> 00:01:19,289
mission to deploy the Orpheus Paz

16
00:01:23,199 --> 00:01:20,970
satellite holding a complement of

17
00:01:27,139 --> 00:01:23,209
ultraviolet telescopes to study the

18
00:01:28,910 --> 00:01:27,149
lifestyle stars in galaxies and to

19
00:01:31,279 --> 00:01:28,920
deploy the Wakefield facility to grow

20
00:01:34,070 --> 00:01:31,289
thin substrate films for high-speed

21
00:01:37,910 --> 00:01:34,080
electronic chips and advanced electronic

22
00:01:41,300 --> 00:01:37,920
components the mission duration for STS

23
00:01:44,260 --> 00:01:41,310
80 is planned as 15 days 16 hours 44

24
00:01:48,609 --> 00:01:44,270
minutes and Columbia will been a being a

25
00:01:50,719 --> 00:01:48,619
219 statute mile high circular orbit

26
00:01:51,919 --> 00:01:50,729
assuming on time launched today the

27
00:01:53,540 --> 00:01:51,929
landing is planned to occur at the

28
00:01:57,529 --> 00:01:53,550
Kennedy Space Center on the morning of

29
00:02:00,850 --> 00:01:57,539
December 5th at approximately 7:30 7

30
00:02:04,240 --> 00:02:02,440
in the astronaut quarters the

31
00:02:06,430 --> 00:02:04,250
five-member flight crew of Columbia are

32
00:02:07,990 --> 00:02:06,440
just now being awakened and are

33
00:02:09,780 --> 00:02:08,000
approximately a half hour they will be

34
00:02:11,530 --> 00:02:09,790
entering the dining room for breakfast

35
00:02:13,630 --> 00:02:11,540
afterward they will have a weather

36
00:02:16,300 --> 00:02:13,640
briefing and receive a status on the

37
00:02:18,160 --> 00:02:16,310
countdown activity they will then go to

38
00:02:21,070 --> 00:02:18,170

the suit-up room and down their flight

39
00:02:22,510 --> 00:02:21,080
suits and at about eleven thirty eight

40
00:02:25,240 --> 00:02:22,520
this morning depart for the 20-minute

41
00:02:32,350 --> 00:02:25,250
ride out to launch pad 39b at the edge

42
00:02:34,690 --> 00:02:32,360
of the atlantic ocean final inspection

43
00:02:37,630 --> 00:02:34,700
team is now at the launch pad beginning

44
00:02:40,330 --> 00:02:37,640
their activities where they will be for

45
00:02:42,760 --> 00:02:40,340
approximately the next two hours

46
00:02:45,250 --> 00:02:42,770
they have several objectives while

47
00:02:46,390 --> 00:02:45,260
they're there they assess the integrity

48
00:02:49,600 --> 00:02:46,400
of the thermal insulation on the

49
00:02:52,780 --> 00:02:49,610
external tank they look for any ice or

50
00:02:54,400 --> 00:02:52,790
frost formations on the tank and measure

51
00:02:58,720 --> 00:02:54,410
temperatures on various parts of the

52
00:03:03,460 --> 00:02:58,730
vehicle here we see our sts-80 flight

53
00:03:07,479 --> 00:03:03,470
crew mr. naught story Musgrave down on

54
00:03:09,430 --> 00:03:07,489
the end you'll be in charge of the

55
00:03:10,410 --> 00:03:09,440
Wakefield facility activity on this

56
00:03:14,070 --> 00:03:10,420
mission

57
00:03:17,020 --> 00:03:14,080
there's our flight engineer Tom Jones

58
00:03:20,140 --> 00:03:17,030
you'll be working the remote manipulator

59
00:03:27,390 --> 00:03:20,150
system doing an EBA and

60
00:03:33,059 --> 00:03:29,940
there is mission specialist tamara

61
00:03:34,460 --> 00:03:33,069
jernigan we eat on our Orpheus spas and

62
00:03:41,309 --> 00:03:34,470
we'll be doing one of the crew

63
00:03:46,250 --> 00:03:41,319

spacewalks and there is pilot Ken Roman

64
00:03:52,550 --> 00:03:49,390
and the crew just getting ready for

65
00:03:56,210 --> 00:03:52,560
breakfast there's the sts-80 traditional

66
00:03:59,330 --> 00:03:56,220
cake on the table and when breakfast is

67
00:04:00,890 --> 00:03:59,340
over they'll head down to suit up and

68
00:04:05,680 --> 00:04:00,900
head out for the launch pad which is

69
00:04:07,850 --> 00:04:05,690
just about an hour away at this time

70
00:04:10,280 --> 00:04:07,860
here in firing room 3 of the launch

71
00:04:12,020 --> 00:04:10,290
control center all of our activities

72
00:04:35,610 --> 00:04:12,030
continue to go smoothly the final

73
00:04:40,150 --> 00:04:37,960
this is shuttle launch control at

74
00:04:42,840 --> 00:04:40,160
t-minus three hours and holding well

75
00:04:45,340 --> 00:04:42,850
we're in the suit-up room and we see our

76
00:04:48,560 --> 00:04:45,350
commander

77
00:04:53,570 --> 00:04:48,570
Hancock rolled his suit up activities

78
00:04:53,580 --> 00:05:03,040
and originally from Austin Texas

79
00:05:03,050 --> 00:05:14,879
and our pilot can't Wilma gir

80
00:05:20,129 --> 00:05:17,879
mission specialist dr. Tammy Jernigan be

81
00:05:24,540 --> 00:05:20,139
one of our EBA astronauts on this

82
00:05:26,999 --> 00:05:24,550
mission and going across the room there

83
00:05:28,920 --> 00:05:27,009
is mission specialist Tom Jones he'd be

84
00:05:31,700 --> 00:05:28,930
our flight engineer on this mission and

85
00:05:37,580 --> 00:05:31,710
he will take the lead and operating the

86
00:05:45,269 --> 00:05:41,510
and there is story Musgrave making his

87
00:05:48,740 --> 00:05:45,279
six flight into space tying the record

88
00:05:52,409 --> 00:05:48,750

along with veteran astronaut John Young

89
00:05:53,129 --> 00:05:52,419
he will be the lead astronaut associated

90
00:05:55,110 --> 00:05:53,139
with the white shield facility

91
00:06:00,300 --> 00:05:55,120
activities on this flight and we're

92
00:06:03,379 --> 00:06:00,310
providing EBA support while Tom Jones

93
00:06:06,929 --> 00:06:03,389
and Tammy Jernigan around in payload Bay

94
00:06:08,760 --> 00:06:06,939
and back now at launch pad 39b at the

95
00:06:11,640 --> 00:06:08,770
Kennedy Space Center where the final

96
00:06:13,350 --> 00:06:11,650
inspection team has reached the mobile

97
00:06:17,159 --> 00:06:13,360
launcher platform and is wrapping up

98
00:06:20,610 --> 00:06:17,169
their ice inspections and final

99
00:06:27,000 --> 00:06:24,659
walk down the entire nearly 400 foot

100
00:06:31,760 --> 00:06:27,010
structure since they entered the pad

101
00:06:37,850 --> 00:06:34,580
here we see the sts-80 astronauts

102
00:06:40,879 --> 00:06:37,860
leaving the crew quarters and route to

103
00:06:45,260 --> 00:06:40,889
the elevator to ride down from the third

104
00:07:45,590 --> 00:06:45,270
of the first floor to ride the astronaut

105
00:07:52,550 --> 00:07:49,280
where we see our commander Ken cockerel

106
00:07:56,630 --> 00:07:52,560
in the white a white roof helped by the

107
00:08:10,830 --> 00:07:56,640
suit technicians pair for entry into the

108
00:08:16,000 --> 00:08:13,000
this is shuttle launch control at

109
00:08:16,629 --> 00:08:16,010
t-minus two hours 13 minutes 37 seconds

110
00:08:19,540 --> 00:08:16,639
and counting

111
00:08:20,310 --> 00:08:19,550
we're in the picture now we see pilot

112
00:08:33,250 --> 00:08:20,320
Kent Rominger

113
00:08:37,510 --> 00:08:33,260

waiting the board and mission specialist

114
00:08:42,100 --> 00:08:40,389
about to be assisted with her launch and

115
00:08:44,680 --> 00:08:42,110
entry suit

116
00:08:47,980 --> 00:08:44,690
you will be one of the two astronauts

117
00:08:50,639 --> 00:08:47,990
along with Tom Jones that will be doing

118
00:08:53,230 --> 00:08:50,649
an e ba on this flight designed to

119
00:08:54,190 --> 00:08:53,240
evaluate evaluate equipment and

120
00:09:11,030 --> 00:08:54,200
procedures for building the

121
00:09:19,169 --> 00:09:15,329
and the second dva the spacewalkers will

122
00:09:54,820 --> 00:09:19,179
evaluate EBA tethers story Musgrave now

123
00:09:54,830 --> 00:10:07,330
CCSD and our CRT OTC

124
00:10:11,720 --> 00:10:09,710
so the main engine helium purge sequence

125
00:10:26,889 --> 00:10:11,730
which prepares the engines for main

126
00:10:44,620 --> 00:10:28,869
main engines now being given as a

127
00:11:04,990 --> 00:10:47,139
the beanie cap the gaseous oxygen vent

128
00:11:08,949 --> 00:11:05,000
hood now being retracted rain safety

129
00:11:09,819 --> 00:11:08,959
systems arm ten nine eight ignition

130
00:11:12,670 --> 00:11:09,829
sequence start

131
00:11:17,290 --> 00:11:12,680
seven six three main engines up and

132
00:11:19,150 --> 00:11:17,300
burning two one and liftoff of space

133
00:11:21,129 --> 00:11:19,160
shuttle Columbia on a diversified

134
00:11:34,130 --> 00:11:21,139
mission of astronomy and commercial

135
00:11:38,060 --> 00:11:35,990
Houston is now controlling the roll

136
00:11:39,860 --> 00:11:38,070
maneuver is complete Columbia is in a

137
00:11:47,530 --> 00:11:39,870
heads-down we need level position headed

138
00:11:52,180 --> 00:11:49,300

the flight colombia's engines are now

139
00:11:54,070 --> 00:11:52,190
beginning to throttle down to 67% of

140
00:11:55,900 --> 00:11:54,080
rated thrust and the orbiter passes

141
00:11:57,790 --> 00:11:55,910
through the area of maximum aerodynamic

142
00:12:08,470 --> 00:11:57,800
pressure on the vehicle in the lower

143
00:12:15,000 --> 00:12:08,480
regions of the Earth's atmosphere jambe

144
00:12:19,090 --> 00:12:17,200
Columbia's three liquid fueled engines

145
00:12:21,250 --> 00:12:19,100
are now back at full throttle 104

146
00:12:24,160 --> 00:12:21,260
percent of rated thrust Columbia now

147
00:12:25,750 --> 00:12:24,170
traveling 1,800 miles per hour 15 miles

148
00:12:28,780 --> 00:12:25,760
in altitude downrange from the Kennedy

149
00:12:41,320 --> 00:12:28,790
Space Center 13 miles all three main

150
00:12:44,889 --> 00:12:43,180
the next event will be the burnout and

151
00:13:02,480 --> 00:12:44,899
separation of Columbia's twin solid

152
00:13:02,490 --> 00:13:08,660
Columbia Houston performance nominal

153
00:13:12,329 --> 00:13:10,290
performance nominal

154
00:13:14,369 --> 00:13:12,339
two minutes 18 seconds into the flight

155
00:13:16,170 --> 00:13:14,379
the booster officer has confirmed good

156
00:13:18,090 --> 00:13:16,180
separation of the solid rocket boosters

157
00:13:20,639 --> 00:13:18,100
and performance onboard Columbia has

158
00:13:22,590 --> 00:13:20,649
been as expected all three main engines

159
00:13:24,269 --> 00:13:22,600
are continuing to perform at 104 percent

160
00:13:26,280 --> 00:13:24,279
of rated thrust the three auxiliary

161
00:13:27,869 --> 00:13:26,290
power units and fuel cells are also

162
00:13:29,879 --> 00:13:27,879
continuing to perform as expected

163
00:13:32,160 --> 00:13:29,889

Columbia now downrange from the Kennedy

164
00:13:36,269 --> 00:13:32,170
Space Center at a distance of 55 miles