
170
USA

1
00:00:41,600 --> 00:00:39,530
from the Kennedy Space Center in Florida

2
00:00:44,810 --> 00:00:41,610
this is space shuttle Columbia launch

3
00:00:46,160 --> 00:00:44,820
control the countdown for launch of

4
00:00:48,200 --> 00:00:46,170
Columbia and space shuttle mission STS

5
00:00:50,240 --> 00:00:48,210
73 is continuing on schedule this

6
00:00:53,210 --> 00:00:50,250
morning the window for launch of

7
00:00:58,450 --> 00:00:53,220
Columbia opens at 9:50 a.m. Eastern Time

8
00:01:03,319 --> 00:01:00,590
this is shuttle launch control at

9
00:01:05,749 --> 00:01:03,329
t-minus three hours and holding and all

10
00:01:08,240 --> 00:01:05,759
seven of our astronauts who are planning

11
00:01:11,960 --> 00:01:08,250
on flying this morning herb president

12
00:01:14,180 --> 00:01:11,970
accounted for it breakfast everything

13
00:01:16,340 --> 00:01:14,190

continues to run smooth and with the

14
00:01:18,980 --> 00:01:16,350
vehicle and all of the astronauts have

15
00:01:20,930 --> 00:01:18,990
been awakened and they're on schedule

16
00:01:23,630 --> 00:01:20,940
we have Kathryn Thornton mission

17
00:01:25,540 --> 00:01:23,640
specialists as well as payload

18
00:01:28,880 --> 00:01:25,550
specialist Fred Leslie Albert's a co

19
00:01:39,120 --> 00:01:28,890
this is our pilot Kent Rominger who'll

20
00:01:44,430 --> 00:01:41,280
see the next to him as mission

21
00:01:47,270 --> 00:01:44,440
specialist Michael lopez-alegria making

22
00:01:49,920 --> 00:01:47,280
his first flight into space today and

23
00:01:52,260 --> 00:01:49,930
seated next to him is our commander Ken

24
00:01:54,540 --> 00:01:52,270
Bowersox commander of this seven-person

25
00:02:02,730 --> 00:01:54,550
crew making his third flight into space

26
00:02:05,249 --> 00:02:02,740
today and to round out the crew we have

27
00:02:08,040 --> 00:02:05,259
Fred Leslie payload mission payload

28
00:02:15,420 --> 00:02:08,050
specialist as well as the third mission

29
00:02:17,520 --> 00:02:15,430
specialists Kathryn Kuhlman all crew

30
00:02:20,310 --> 00:02:17,530
appear to be alert and ready to fly make

31
00:02:24,420 --> 00:02:20,320
this final attempt we hope at launching

32
00:02:26,699 --> 00:02:24,430
Columbia today this is shuttle launch

33
00:02:29,760 --> 00:02:26,709
control at t-minus 3 hours and holding

34
00:02:31,560 --> 00:02:29,770
you know we have live TV coverage of the

35
00:02:35,280 --> 00:02:31,570
crew donning their flight suits and the

36
00:02:38,820 --> 00:02:35,290
crew quarters commander Ken Bowersox is

37
00:02:42,420 --> 00:02:38,830
again suiting up for this attempt to

38
00:02:44,490 --> 00:02:42,430

launch today commander Bowersox was a

39
00:02:46,140 --> 00:02:44,500
pilot on STS 50 the first United States

40
00:02:49,199 --> 00:02:46,150
microgravity laboratory and most

41
00:02:50,789 --> 00:02:49,209
recently served as pilot on sts-61 the

42
00:02:53,789 --> 00:02:50,799
first hubble space telescope servicing

43
00:02:57,900 --> 00:02:53,799
mission he's been joined by his pilot

44
00:03:00,300 --> 00:02:57,910
Kent Rominger who is a highly decorated

45
00:03:03,750 --> 00:03:00,310
Navy pilot whose last assignment with

46
00:03:06,780 --> 00:03:03,760
the Navy was during Desert Storm where

47
00:03:08,940 --> 00:03:06,790
he served as Operations Officer for

48
00:03:26,960 --> 00:03:08,950
fighter squadron 211 aboard the USS

49
00:03:32,340 --> 00:03:30,570
Fred Leslie is one of our two payload

50
00:03:36,180 --> 00:03:32,350
specialists to be flying today he's

51
00:03:40,020 --> 00:03:37,860
Leslie holds a world record as a

52
00:03:44,100 --> 00:03:40,030
participant in the 200 person freefall

53
00:03:44,880 --> 00:03:44,110
formation as a skydiver he's an avid

54
00:03:54,780 --> 00:03:44,890
skydiver

55
00:03:59,050 --> 00:03:57,789
the crew members are being assisted with

56
00:04:00,940 --> 00:03:59,060
their launch intercepts by sleep

57
00:04:09,330 --> 00:04:00,950
technicians from both Kennedy Space

58
00:04:16,689 --> 00:04:12,880
Michael lopez-alegria was born in Madrid

59
00:04:25,469 --> 00:04:16,699
Spain grew up in California and has been

60
00:04:31,350 --> 00:04:28,029
these suits are partially inflated to

61
00:04:34,980 --> 00:04:31,360
allow for added comfort and protection

62
00:04:37,240 --> 00:04:34,990
mission specialists Kathy Coleman

63
00:04:39,939 --> 00:04:37,250

preparing to make her first trip into

64
00:04:46,790 --> 00:04:39,949
space today Shields born in South

65
00:04:51,200 --> 00:04:49,129
and she's done some research for the air

66
00:04:52,850 --> 00:04:51,210
force and Sutton endurance and tolerance

67
00:04:58,360 --> 00:04:52,860
records as a test subject in the

68
00:05:10,850 --> 00:05:01,100
Albert Sacco one of our two payload

69
00:05:12,469 --> 00:05:10,860
specialist born in Massachusetts he'll

70
00:05:15,649 --> 00:05:12,479
be working with the crystal growth

71
00:05:17,149 --> 00:05:15,659
experiments aboard this space shuttle

72
00:05:34,200 --> 00:05:17,159
mission this will be his first

73
00:05:39,820 --> 00:05:37,329
payload commander Catherine Thornton the

74
00:05:41,950 --> 00:05:39,830
most experienced as far as spaceflight

75
00:05:53,100 --> 00:05:41,960
goes this is her she's bring before her

76
00:05:59,889 --> 00:05:55,329
again she will be the payload commander

77
00:06:02,049 --> 00:05:59,899
aboard this mission she's been an

78
00:06:06,249 --> 00:06:02,059
astronaut since 1984 and she's flown on

79
00:06:09,010 --> 00:06:06,259
missions STS 33 sts-49 and she was a

80
00:06:18,749 --> 00:06:09,020
spacewalk specialist aboard sts-61 the

81
00:06:23,649 --> 00:06:21,399
this is shuttle launch control t-minus

82
00:06:26,379 --> 00:06:23,659
three hours and holding and we have live

83
00:06:27,850 --> 00:06:26,389
TV coverage of our seven crew members

84
00:06:32,439 --> 00:06:27,860
will be flying aboard space shuttle

85
00:06:33,609 --> 00:06:32,449
Columbia this morning again they're

86
00:06:36,070 --> 00:06:33,619
coming out of their crew quarters

87
00:06:41,370 --> 00:06:36,080
getting onto the elevator which will

88
00:06:46,890 --> 00:06:45,060

commander Bowersox with payload

89
00:06:50,130 --> 00:06:46,900
commander Kathryn Norton followed by the

90
00:06:53,420 --> 00:06:50,140
rest of the crew never married before

91
00:07:03,750 --> 00:06:53,430
their drive out to the pad and for their

92
00:07:04,980 --> 00:07:03,760
greatly anticipated launch today but at

93
00:07:07,080 --> 00:07:04,990
this time everything continues to

94
00:07:12,360 --> 00:07:07,090
operate properly and no technical issues

95
00:07:13,890 --> 00:07:12,370
are being worked and we're just a few

96
00:07:17,100 --> 00:07:13,900
seconds from coming out of our hold at

97
00:07:26,820 --> 00:07:17,110
t-minus 3 hours and we are at t-minus 3

98
00:07:29,130 --> 00:07:26,830
hours and Counting this is shuttle

99
00:07:32,250 --> 00:07:29,140
launch control at t-minus two hours 43

100
00:07:33,540 --> 00:07:32,260
minutes and Counting the crew has

101
00:07:35,240 --> 00:07:33,550
arrived at the pad and they are in the

102
00:07:37,830 --> 00:07:35,250
process now of entering the vehicle

103
00:07:48,809 --> 00:07:37,840
commander Ken Bowersox is preparing for

104
00:07:53,760 --> 00:07:51,239
commander Ken Bowersox has a energy

105
00:07:55,980 --> 00:07:53,770
vehicle and now preparations are being

106
00:07:58,140 --> 00:07:55,990
made to assist Albert Sacco and entering

107
00:08:07,730 --> 00:07:58,150
the vehicle he is one of two payload

108
00:08:12,659 --> 00:08:10,049
preparing next enter the vehicle is

109
00:08:18,709 --> 00:08:12,669
pilot Kent Rominger on his first trip

110
00:08:23,820 --> 00:08:21,600
next enter the vehicle is Kathy Thornton

111
00:08:25,860 --> 00:08:23,830
she is the payload commander for mission

112
00:08:34,769 --> 00:08:25,870
STS 73 and a veteran of three Shuttle

113
00:08:36,839 --> 00:08:34,779

missions Katherine Coleman or mission

114
00:08:38,430 --> 00:08:36,849
specialist one is a captain in the Air

115
00:08:47,120 --> 00:08:38,440
Force and preparing for her first flight

116
00:08:51,420 --> 00:08:49,410
this is shuttle launch control at

117
00:08:54,120 --> 00:08:51,430
t-minus two hours nine minutes and

118
00:08:56,100 --> 00:08:54,130
Counting five of the seven astronauts

119
00:08:58,800 --> 00:08:56,110
are already on board the space shuttle

120
00:09:00,449 --> 00:08:58,810
Columbia Fred Leslie at this time is

121
00:09:01,829 --> 00:09:00,459
preparing to make his way aboard the

122
00:09:03,990 --> 00:09:01,839
orbiter he is one of two payload

123
00:09:06,180 --> 00:09:04,000
specialists on this 16-day mission and

124
00:09:12,660 --> 00:09:06,190
is responsible for the fluid flow

125
00:09:14,910 --> 00:09:12,670
experiments in the space lab at this

126
00:09:16,800 --> 00:09:14,920
time Michael lopez-alegria is preparing

127
00:09:31,690 --> 00:09:16,810
to board the vehicle he will serve as

128
00:09:46,330 --> 00:09:34,600
so I clear this OTC on air BAM - for a

129
00:09:49,870 --> 00:09:46,340
Content ps1 - okay I heard everybody

130
00:09:50,740 --> 00:09:49,880
Kathy's got a squeak so I should try to

131
00:10:14,570 --> 00:09:50,750
get a mystery

132
00:10:19,380 --> 00:10:17,220
this is shuttle launch control at

133
00:10:23,160 --> 00:10:19,390
t-minus 48 minutes and Counting and we

134
00:10:25,110 --> 00:10:23,170
have a live video live TV of the shuttle

135
00:10:27,770 --> 00:10:25,120
training aircraft departing the shuttle

136
00:10:30,930 --> 00:10:27,780
landing facility being piloted by

137
00:10:32,700 --> 00:10:30,940
astronaut Bob Cabana and he will remain

138
00:10:34,980 --> 00:10:32,710

aloft in this shuttle training aircraft

139
00:11:23,630 --> 00:10:34,990
through the duration of this camp today

140
00:11:33,990 --> 00:11:31,830
copy and Columbia we get the problem

141
00:11:37,110 --> 00:11:34,000
cleared up with a range I think we'll be

142
00:11:39,180 --> 00:11:37,120
in a configuration where we can launch

143
00:11:48,720 --> 00:11:39,190
today so have a good flight and we'll

144
00:11:50,520 --> 00:11:48,730
see you back here in a few days this is

145
00:11:52,470 --> 00:11:50,530
shuttle launch control at t-minus 9

146
00:11:55,050 --> 00:11:52,480
minutes and holding with just under 40

147
00:11:56,370 --> 00:11:55,060
seconds remaining in our hold and those

148
00:11:59,130 --> 00:11:56,380
words from launch director Jim

149
00:12:01,200 --> 00:11:59,140
Harrington to NASA test director John

150
00:12:03,960 --> 00:12:01,210
Guidi that we will pick up the count at

151
00:12:06,570 --> 00:12:03,970
t-minus 9 minutes on time and if we

152
00:12:08,610 --> 00:12:06,580
don't have word from the range that they

153
00:12:10,530 --> 00:12:08,620
have resolved their problem then we will

154
00:12:12,990 --> 00:12:10,540
hold at t-minus five minutes until that

155
00:12:14,820 --> 00:12:13,000
problem is resolved all weather issues

156
00:12:16,290 --> 00:12:14,830
have been cleared we're not working any

157
00:12:18,870 --> 00:12:16,300
weather concerns at this point Deena

158
00:12:24,360 --> 00:12:18,880
from a launch standpoint or a return to

159
00:12:26,540 --> 00:12:24,370
launch site landing abort we are four

160
00:12:36,850 --> 00:12:26,550
minutes away from picking up the count

161
00:12:56,240 --> 00:12:41,000
one mark t-minus nine minutes and

162
00:12:58,100 --> 00:12:56,250
Counting Oh a repack we're in the

163
00:13:00,920 --> 00:12:58,110

process now of retracting the orbiter

164
00:13:03,139 --> 00:13:00,930
access arm that permits the crew to

165
00:13:20,220 --> 00:13:03,149
enter in depart from the orbiter

166
00:13:28,840 --> 00:13:27,070
go thorough thank you launch director

167
00:13:30,820 --> 00:13:28,850
entity you're clear to launch

168
00:13:33,370 --> 00:13:30,830
Cuffy thank you and all stations we'll

169
00:13:34,720 --> 00:13:33,380
pick up the count momentarily kill us

170
00:13:44,100 --> 00:13:34,730
because the pen on your mark give us

171
00:13:47,380 --> 00:13:44,110
copies popular thing about my mark three

172
00:13:49,720 --> 00:13:47,390
two one mark

173
00:14:02,080 --> 00:13:49,730
and we at t-minus five minutes and

174
00:14:03,220 --> 00:14:02,090
Counting we have a go for APU start no

175
00:14:25,150 --> 00:14:03,230
problems are being reported from the

176
00:14:27,880 --> 00:14:25,160
crew t-minus one minute 45 seconds and

177
00:14:29,380 --> 00:14:27,890
counting launch operations continue to

178
00:14:31,360 --> 00:14:29,390
go well this morning as the space

179
00:14:33,010 --> 00:14:31,370
shuttle Columbia soon will begin at 16

180
00:15:07,720 --> 00:14:33,020
de mission to continue microgravity

181
00:15:07,730 --> 00:15:17,830
t-minus 60 seconds and counting

182
00:15:23,500 --> 00:15:20,980
t-minus 50 seconds and counting and we

183
00:15:25,870 --> 00:15:23,510
are transferring to orbiter in internal

184
00:15:30,180 --> 00:15:25,880
power at this time Columbia is now

185
00:15:39,069 --> 00:15:31,800
coming up before I go for autosequence

186
00:15:39,079 --> 00:15:43,540
and we have a go for autosequence start

187
00:15:47,300 --> 00:15:45,530
Colombia's a Colombia's onboard

188
00:15:54,319 --> 00:15:47,310

computers have primary control of all

189
00:15:56,820 --> 00:15:54,329
the vehicles critical functions t-minus

190
00:15:59,769 --> 00:15:56,830
15 seconds

191
00:16:11,630 --> 00:16:03,530
10987 we have a go for main engine start

192
00:16:13,700 --> 00:16:11,640
two one and liftoff liftoff of the space

193
00:16:24,230 --> 00:16:13,710
shuttle Columbia catapulting scientific

194
00:16:26,180 --> 00:16:24,240
knowledge microgravity research Eastern

195
00:16:29,440 --> 00:16:26,190
now controlling Columbia underway on its

196
00:16:52,090 --> 00:16:29,450
18th trip to space going on course for a

197
00:16:56,680 --> 00:16:55,210
clemmy's altitude 15,000 feet three

198
00:16:58,449 --> 00:16:56,690
engines onboard Columbia are now falling

199
00:16:59,980 --> 00:16:58,459
back to two-thirds throttle to prepare

200
00:17:01,269 --> 00:16:59,990
the spacecraft to pass through the area

201
00:17:08,470 --> 00:17:01,279
of maximum air pressure and go

202
00:17:09,100 --> 00:17:08,480
supersonic Columbia's speed now at 800

203
00:17:12,130 --> 00:17:09,110
miles per hour

204
00:17:25,480 --> 00:17:12,140
altitude 34,000 feet three nautical

205
00:17:34,180 --> 00:17:25,490
miles downrange from the launch pad let

206
00:17:35,760 --> 00:17:34,190
me go at throttle up three main engines

207
00:17:37,899 --> 00:17:35,770
on Columbia now back at full throttle

208
00:17:38,680 --> 00:17:37,909
Columbia is now airborne for one and a

209
00:17:40,330 --> 00:17:38,690
half minutes

210
00:17:41,860 --> 00:17:40,340
it's burned almost two and a quarter

211
00:17:43,539 --> 00:17:41,870
million pounds of propellant already

212
00:17:46,779 --> 00:17:43,549
weighing less than half of what it did

213
00:17:48,399 --> 00:17:46,789

at launch three my engines on Columbia

214
00:17:49,690 --> 00:17:48,409
working well at full throttle good

215
00:17:53,620 --> 00:17:49,700
hydraulic systems good electrical

216
00:17:56,340 --> 00:17:53,630
systems altitude now 100,000 feet 14

217
00:17:59,440 --> 00:17:56,350
miles downrange from the launch pad

218
00:18:01,060 --> 00:17:59,450
Columbia traveling 2,800 miles per hour

219
00:18:03,399 --> 00:18:01,070
flight controllers are standing by for

220
00:18:05,710 --> 00:18:03,409
burnout in separation of the twin solid

221
00:18:20,640 --> 00:18:05,720
rocket first stage of coming in just

222
00:18:26,789 --> 00:18:22,680
good solid rocket booster separation is

223
00:18:32,669 --> 00:18:26,799
confirmed Clemmy now on its three main

224
00:18:35,310 --> 00:18:32,679
engines second stage altitude 185

225
00:18:39,120 --> 00:18:35,320
thousand feet 38 nautical miles

226
00:18:41,370 --> 00:18:39,130
downrange from the launch pad plumpie of

227
00:18:46,500 --> 00:18:41,380
traveling at 3,500 miles per hour

228
00:18:51,750 --> 00:18:46,510
continuing a steep climb climbing a

229
00:18:53,669 --> 00:18:51,760
performance nominal that call to the

230
00:18:55,560 --> 00:18:53,679
spacecraft indicates that performance of

231
00:19:02,430 --> 00:18:55,570
the first stage solid rockets was just

232
00:19:04,529 --> 00:19:02,440
his plan and I Columbia can now perform

233
00:19:07,380 --> 00:19:04,539
an emergency transatlantic landing at

234
00:19:09,870 --> 00:19:07,390
Ben groom arauco if required all systems

235
00:19:12,240 --> 00:19:09,880
continue to be go altitude two hundred

236
00:19:14,250 --> 00:19:12,250
and fifty thousand feet down range from