1
00:00:44,069 --> 00:00:42,229
from the kennedy space center in florida

2
00:00:45,350 --> 00:00:44,079
this is space shuttle columbia launch

3
00:00:46,869 --> 00:00:45,360
control

4
00:00:49,430 --> 00:00:46,879
the countdown for launch of space

5
00:00:51,670 --> 00:00:49,440
shuttle columbia on mission sts 78 is

6
00:00:53,430 --> 00:00:51,680
continuing on schedule this morning the

7
00:00:56,790 --> 00:00:53,440
window for launch of columbia opens at

8
00:00:59,910 --> 00:00:56,800
10 49 a.m eastern time and extends for

9
00:01:03,270 --> 00:01:01,750
earlier this morning the external tank

10
00:01:05,350 --> 00:01:03,280
was filled with about five hundred

11
00:01:07,270 --> 00:01:05,360
thousand gallons of liquid propellants

12
00:01:09,030 --> 00:01:07,280
and those tanking operations are just

13
00:01:10,710 --> 00:01:09,040

now complete

14
00:01:12,149 --> 00:01:10,720
no technical issues or problems are

15
00:01:14,230 --> 00:01:12,159
being worked at this time and we

16
00:01:16,230 --> 00:01:14,240
anticipate an on-time liftoff of the

17
00:01:19,109 --> 00:01:16,240
shuttle columbia and the seven-member

18
00:01:23,429 --> 00:01:19,119
crew from kennedy space center

19
00:01:25,270 --> 00:01:23,439
again on time at 10 49 a.m eastern today

20
00:01:27,990 --> 00:01:25,280
situated in columbia's payload bay is

21
00:01:30,390 --> 00:01:28,000
the life and microgravity space lab

22
00:01:32,310 --> 00:01:30,400
lms is housing about 43 various

23
00:01:34,230 --> 00:01:32,320
experiments involving life sciences and

24
00:01:36,149 --> 00:01:34,240
materials sciences

25
00:01:38,149 --> 00:01:36,159
the lms mission will seek answers to

26
00:01:39,990 --> 00:01:38,159
questions about our ability to sustain

27
00:01:40,870 --> 00:01:40,000
life for prolonged periods of time in

28
00:01:43,030 --> 00:01:40,880
space

29
00:01:44,870 --> 00:01:43,040
and about the subtle mechanisms involved

30
00:01:47,270 --> 00:01:44,880
in materials processing that are

31
00:01:48,789 --> 00:01:47,280
obscured by earth's gravity

32
00:01:50,550 --> 00:01:48,799
lms will continue to expand the

33
00:01:52,230 --> 00:01:50,560
foundation of scientific research by

34
00:01:54,789 --> 00:01:52,240
studying the effects of microgravity on

35
00:01:57,270 --> 00:01:54,799
the physiology development and behavior

36
00:01:59,350 --> 00:01:57,280
of living systems

37
00:02:02,310 --> 00:01:59,360
it will also study the processes of

38
00:02:04,630 --> 00:02:02,320

materials study fluid physics and grow

39
00:02:08,150 --> 00:02:04,640
protein crystals in the reduced gravity

40
00:02:11,830 --> 00:02:09,830
columbia seven member crew consists of

41
00:02:13,430 --> 00:02:11,840
three shuttle veterans and four rookie

42
00:02:14,390 --> 00:02:13,440
astronauts who have not flown in space

43
00:02:16,150 --> 00:02:14,400
before

44
00:02:17,430 --> 00:02:16,160
this is an international mission with

45
00:02:20,710 --> 00:02:17,440
four different space agencies

46
00:02:22,710 --> 00:02:20,720
represented nasa the french space agency

47
00:02:24,309 --> 00:02:22,720
the canadian space agency

48
00:02:26,229 --> 00:02:24,319
and the european space agency which

49
00:02:27,910 --> 00:02:26,239
contributed by supplying the space lab

50
00:02:30,309 --> 00:02:27,920
itself

51
00:02:31,350 --> 00:02:30,319
the sts-78 crew are commander tom

52
00:02:33,270 --> 00:02:31,360
hendricks

53
00:02:35,990 --> 00:02:33,280
pilot kevin craigel

54
00:02:38,790 --> 00:02:36,000
mission specialist richard linehan susan

55
00:02:41,350 --> 00:02:38,800
helms and charles brady and payload

56
00:02:43,990 --> 00:02:41,360
specialist jean-jacques favier from the

57
00:02:48,790 --> 00:02:44,000
french space agency and robert brent

58
00:02:52,390 --> 00:02:50,550
physiological data gathered from each

59
00:02:54,309 --> 00:02:52,400
astronaut during the three months before

60
00:02:57,589 --> 00:02:54,319
flight will provide a baseline with

61
00:02:59,190 --> 00:02:57,599
which flight data will be compared

62
00:03:01,030 --> 00:02:59,200
at this time all systems are reported to

63
00:03:24,949 --> 00:03:01,040

be in good shape and we are on track for

64
00:03:28,630 --> 00:03:26,550
and we have a good thumbs up from all

65
00:03:31,190 --> 00:03:28,640
seven crew members appears they are all

66
00:03:56,710 --> 00:03:31,200
ready to fly

67
00:04:01,190 --> 00:03:59,030
at this point the ice and the final

68
00:04:02,949 --> 00:04:01,200
inspection team has reported back

69
00:04:05,509 --> 00:04:02,959
periodically to the firing room and they

70
00:04:07,509 --> 00:04:05,519
are reporting that there is nothing

71
00:04:09,750 --> 00:04:07,519
out of order everything continues

72
00:04:11,670 --> 00:04:09,760
everything looks smooth everything on

73
00:04:14,869 --> 00:04:11,680
the vehicle looks good no debris

74
00:04:16,949 --> 00:04:14,879
concerns no ice concerns and they are

75
00:04:21,990 --> 00:04:16,959
expected to wrap up their operations in

76
00:04:25,590 --> 00:04:23,590
the crew members are being assisted with

77
00:04:27,990 --> 00:04:25,600
their launch and entry suits by suit

78
00:04:29,590 --> 00:04:28,000
technicians from both ksc and from the

79
00:04:32,150 --> 00:04:29,600
johnson space center

80
00:04:34,150 --> 00:04:32,160
this is a good view of our commander tom

81
00:04:41,110 --> 00:04:34,160
hendricks who was on his fourth

82
00:04:47,670 --> 00:04:43,670
our pilot kevin kriegel is on his second

83
00:04:53,909 --> 00:04:49,670
john jacques favier

84
00:04:56,310 --> 00:04:53,919
is a member of the french space agency

85
00:04:57,990 --> 00:04:56,320
he is one of our payload specialists or

86
00:05:01,110 --> 00:04:58,000
and will be making his first trip into

87
00:05:05,670 --> 00:05:02,870
susan helms is the

88
00:05:07,270 --> 00:05:05,680

only female aboard the

89
00:05:09,590 --> 00:05:07,280
vehicle that will be flying today and

90
00:05:12,150 --> 00:05:09,600
she of course is a

91
00:05:14,390 --> 00:05:12,160
veteran flyer she has flown

92
00:05:17,029 --> 00:05:14,400
in 30 different types of aircraft being

93
00:05:19,830 --> 00:05:17,039
named an astronaut in 1990 she has

94
00:05:23,110 --> 00:05:19,840
already flown two missions scs-54 and

95
00:05:27,670 --> 00:05:25,430
mission specialist

96
00:05:33,029 --> 00:05:27,680
one richard linehan is on his first

97
00:05:38,870 --> 00:05:35,029
and he looks like he's relaxed and

98
00:05:43,510 --> 00:05:41,510
and another mission specialist charles

99
00:05:45,830 --> 00:05:43,520
brady again on his first flight as well

100
00:05:50,550 --> 00:05:45,840
is giving a thumbs up that he too

101
00:05:53,909 --> 00:05:52,870
and the final member of our seven person

102
00:05:55,830 --> 00:05:53,919
crew

103
00:05:58,629 --> 00:05:55,840
is robert brent thirsk

104
00:06:00,310 --> 00:05:58,639
representing the canadian space agency

105
00:06:02,870 --> 00:06:00,320
he is a

106
00:06:04,469 --> 00:06:02,880
medical doctor

107
00:06:07,990 --> 00:06:04,479
he was an alternate payload specialist

108
00:06:11,029 --> 00:06:08,000
for sts-41g

109
00:06:15,510 --> 00:06:11,039
and in 1993 and 94 he was the canadian

110
00:06:18,790 --> 00:06:17,749
and here we have them our commander tom

111
00:06:20,629 --> 00:06:18,800
hendricks

112
00:06:24,309 --> 00:06:20,639
mission specialist susan helms followed

113
00:06:27,029 --> 00:06:24,319

by pilot kevin kriegel richard linehan

114
00:06:37,590 --> 00:06:27,039
charles brady jean-jacques favier

115
00:06:41,909 --> 00:06:39,909
nasa test director john guidi has given

116
00:06:43,350 --> 00:06:41,919
approval for the crew to begin entry

117
00:06:45,510 --> 00:06:43,360
into the vehicle once they make their

118
00:06:49,270 --> 00:06:45,520
way up the elevator to the 195 foot

119
00:06:53,270 --> 00:06:50,790
and we have views of the crew as they

120
00:06:54,870 --> 00:06:53,280
are exiting the elevator on the 195 foot

121
00:06:56,550 --> 00:06:54,880
level

122
00:06:58,870 --> 00:06:56,560
in the background of course is the swing

123
00:07:01,589 --> 00:06:58,880
arm that the crew will walk across the

124
00:07:29,589 --> 00:07:01,599
orbiter access arm that will gain them

125
00:07:33,430 --> 00:07:31,510
as the crew is preparing to enter the

126
00:07:35,670 --> 00:07:33,440
orbiter astronaut support personnel have

127
00:07:38,309 --> 00:07:35,680
mounted in their crew module a small

128
00:07:40,150 --> 00:07:38,319
camera that will allow us to see live

129
00:07:42,710 --> 00:07:40,160
pictures of the crew being seated in

130
00:07:45,110 --> 00:07:42,720
colombia this is the first time nasa tv

131
00:07:46,790 --> 00:07:45,120
has shown live pictures of this event

132
00:07:49,670 --> 00:07:46,800
and to assist with the commentary of

133
00:07:51,749 --> 00:07:49,680
these new views astronaut marsha ivins

134
00:07:54,070 --> 00:07:51,759
is joining us to describe the events as

135
00:07:55,589 --> 00:07:54,080
they occur welcome marcia thanks

136
00:07:56,710 --> 00:07:55,599
uh marcia can you describe to us what

137
00:07:58,710 --> 00:07:56,720
we're looking at

138
00:08:00,550 --> 00:07:58,720

sure the scene you're seeing now is the

139
00:08:03,110 --> 00:08:00,560
commander's seat up on the flight deck

140
00:08:04,629 --> 00:08:03,120
of columbia um that big white piece is

141
00:08:06,390 --> 00:08:04,639
the head rest where his helmet will go

142
00:08:08,230 --> 00:08:06,400
and the orange pieces the is the

143
00:08:10,150 --> 00:08:08,240
parachute that's in the seat

144
00:08:11,670 --> 00:08:10,160
uh you're looking at it as it is on the

145
00:08:15,110 --> 00:08:11,680
pad so when the crew gets in of course

146
00:08:20,070 --> 00:08:17,110
okay the uh astronaut support person jim

147
00:08:21,430 --> 00:08:20,080
halsell is uh assisting as tom hendricks

148
00:08:23,029 --> 00:08:21,440
comes in

149
00:08:24,950 --> 00:08:23,039
uh holding his head so it doesn't bump

150
00:08:27,670 --> 00:08:24,960
into anything tom's now standing on the

151
00:08:30,629 --> 00:08:27,680
ms2 seat he's holding on to a

152
00:08:32,949 --> 00:08:30,639
handhold above the forward window

153
00:08:34,550 --> 00:08:32,959
and now he'll pull himself up

154
00:08:36,469 --> 00:08:34,560
after he gets himself unstuck here pull

155
00:08:38,550 --> 00:08:36,479
himself up into the seat

156
00:08:40,630 --> 00:08:38,560
as they hold the parachute down you see

157
00:08:42,709 --> 00:08:40,640
the big bottles on the back of the

158
00:08:44,470 --> 00:08:42,719
of his harness

159
00:08:46,630 --> 00:08:44,480
you need to get those centered exactly

160
00:08:47,910 --> 00:08:46,640
right on the parachute so that it's

161
00:08:50,070 --> 00:08:47,920
comfortable when you're sitting in there

162
00:08:51,670 --> 00:08:50,080
headrest back down on the seat now

163
00:08:53,990 --> 00:08:51,680

now the suit tech

164
00:08:55,829 --> 00:08:54,000
al rochford will start to adjust the

165
00:08:57,190 --> 00:08:55,839
straps on his harness

166
00:09:00,550 --> 00:08:57,200
so that he's

167
00:09:02,230 --> 00:09:00,560
pulled down and comfortable in the seat

168
00:09:06,150 --> 00:09:02,240
and then they'll start connecting the

169
00:09:10,949 --> 00:09:09,110
you can see uh al's got kevin's helmet

170
00:09:12,870 --> 00:09:10,959
um kicked the

171
00:09:14,710 --> 00:09:12,880
headrest back and kevin will lift his

172
00:09:16,790 --> 00:09:14,720
head up you can see the little calm

173
00:09:32,230 --> 00:09:16,800
pigtail hanging out of the back and i'll

174
00:09:32,240 --> 00:09:39,670
ms3 on board at this time

175
00:09:39,680 --> 00:09:42,230
go ahead

176
00:09:45,509 --> 00:09:44,310
okay uh ingress steps are complete with

177
00:09:47,269 --> 00:09:45,519
the exception of the switch speak up

178
00:09:57,110 --> 00:09:47,279
tape we'll put that in work now

179
00:10:03,190 --> 00:09:58,389
uh marcia can you tell us what we're

180
00:10:07,829 --> 00:10:05,829
we're in the mid deck now and uh

181
00:10:09,670 --> 00:10:07,839
max candler who's the sutek and he is

182
00:10:12,070 --> 00:10:09,680
strapping in

183
00:10:14,949 --> 00:10:12,080
uh chuck brady who's sitting in the ms3

184
00:10:18,949 --> 00:10:17,350
sitting in front of

185
00:10:21,509 --> 00:10:18,959
chuck and the rest of the guys on the

186
00:10:23,030 --> 00:10:21,519
mid deck is the whole row of or wall of

187
00:10:23,990 --> 00:10:23,040
lockers that has all the stuff in it

188
00:10:26,550 --> 00:10:24,000

that were

189
00:10:28,949 --> 00:10:26,560
taken to space max has got

190
00:10:30,870 --> 00:10:28,959
his parachute on the

191
00:10:35,190 --> 00:10:30,880
harness and looks like he's got the seat

192
00:10:40,069 --> 00:10:37,750
otc ms3 comm check

193
00:10:42,630 --> 00:10:40,079
ms3 otc i got you loud and clear how

194
00:10:47,030 --> 00:10:45,110
otc ms3 got you loud clear good morning

195
00:10:52,550 --> 00:10:47,040
roberta good morning chuck looking good

196
00:10:56,069 --> 00:10:54,230
uh waiting in the white room

197
00:10:58,069 --> 00:10:56,079
is uh the final astronaut who will be

198
00:11:01,430 --> 00:10:58,079
boarding the vehicle today

199
00:11:33,030 --> 00:11:01,440
jean-jacques favier of the french

200
00:11:38,069 --> 00:11:34,949
and columbia

201
00:11:39,990 --> 00:11:38,079
uh you guys have a good mission and uh

202
00:11:42,389 --> 00:11:40,000
we'll see you back here in about a

203
00:11:46,790 --> 00:11:42,399
little over two weeks and uh

204
00:11:49,829 --> 00:11:48,389
so thanks jim uh we got a crew here

205
00:11:51,590 --> 00:11:49,839
that's ready to go thanks to all the

206
00:11:53,670 --> 00:11:51,600
professionals here at the cape we're

207
00:11:55,190 --> 00:11:53,680
ready to work with uh jsc during launch

208
00:11:57,990 --> 00:11:55,200
and then the rest of the day we're ready

209
00:11:59,430 --> 00:11:58,000
to put our payload crew to work with the

210
00:12:01,509 --> 00:11:59,440
folks at the marshall space flight

211
00:12:04,150 --> 00:12:01,519
center

212
00:12:12,389 --> 00:12:04,160
and in today you're cleared along hi

213
00:12:16,310 --> 00:12:14,069

a final test of the flight control

214
00:12:18,230 --> 00:12:16,320
services is now being conducted

215
00:12:19,829 --> 00:12:18,240
this is a program pattern of movements

216
00:12:21,509 --> 00:12:19,839
designed to verify the readiness for

217
00:12:44,710 --> 00:12:21,519
launch of the engines and other flight

218
00:12:47,990 --> 00:12:46,230
and final error surface checks of the

219
00:12:49,829 --> 00:12:48,000
orbiter's aerial surfaces are being

220
00:12:53,030 --> 00:12:49,839
completed this is verifying the

221
00:12:54,389 --> 00:12:53,040
orbiter's hydraulic systems

222
00:12:57,590 --> 00:12:54,399
and the main engines are being gibbled

223
00:12:59,670 --> 00:12:57,600
for a final test before launch

224
00:13:02,310 --> 00:12:59,680
flight crews otc close the molecule

225
00:13:04,069 --> 00:13:02,320
visors and initiate o2 flow have a great

226
00:13:18,550 --> 00:13:04,079
flight and have more fun than a barrel

227
00:13:22,150 --> 00:13:21,190
we have a go for maintenance and start

228
00:13:23,110 --> 00:13:22,160
five

229
00:13:24,150 --> 00:13:23,120
four

230
00:13:25,190 --> 00:13:24,160
three

231
00:13:26,790 --> 00:13:25,200
two

232
00:13:28,629 --> 00:13:26,800
one

233
00:13:30,470 --> 00:13:28,639
and we have liftoff of this spatial

234
00:13:34,310 --> 00:13:30,480
columbia on an international life

235
00:13:35,750 --> 00:13:34,320
science and microgravity mission

236
00:13:40,069 --> 00:13:35,760
houston now controlling the flight of

237
00:13:43,670 --> 00:13:41,910
roger royal columbia

238
00:13:45,269 --> 00:13:43,680

columbia completes the role to place the

239
00:13:46,629 --> 00:13:45,279
shuttle in a heads down wings level

240
00:13:50,629 --> 00:13:46,639
position for the eight and a half minute

241
00:13:54,629 --> 00:13:52,870
23 seconds into the flight columbia's

242
00:13:56,310 --> 00:13:54,639
three liquid fuel main engines will soon

243
00:13:58,230 --> 00:13:56,320
begin to throttle back in a three-step

244
00:14:00,310 --> 00:13:58,240
fashion to 67 percent of rated

245
00:14:01,990 --> 00:14:00,320
performance that will dampen the stress

246
00:14:10,710 --> 00:14:02,000
on the shuttle's aero surfaces as it

247
00:14:15,590 --> 00:14:13,110
45 seconds into the flight

248
00:14:17,509 --> 00:14:15,600
columbia already traveling at 711 miles

249
00:14:21,030 --> 00:14:17,519
per hour two and a half miles downrange

250
00:14:25,269 --> 00:14:23,030
the three engines now beginning to rev

251
00:14:27,030 --> 00:14:25,279
up to full throttle 104 of rated

252
00:14:28,629 --> 00:14:27,040
performance those main engines along

253
00:14:30,069 --> 00:14:28,639
with columbia's three fuel cells and

254
00:14:34,470 --> 00:14:30,079
three hydraulic power units all

255
00:14:38,230 --> 00:14:36,230
booster officer here in mission control

256
00:14:39,829 --> 00:14:38,240
standing by for solid rocket booster

257
00:14:51,990 --> 00:14:39,839
shutdown and separation about five

258
00:14:55,910 --> 00:14:54,150
booster officer confirms a normal solid

259
00:15:00,870 --> 00:14:55,920
rocket booster separation standing by