



ASST LAUNCH DIRECTOR

LAUNCH DIRECTOR

LAUNCH DIRECTOR

1
00:01:12,710 --> 00:00:38,470
hi i'm sts-131 commander alan poindexter

2
00:01:15,590 --> 00:01:14,390
this is shuttle launch control we are

3
00:01:17,670 --> 00:01:15,600
now in the

4
00:01:19,030 --> 00:01:17,680
crew quarters at the operations checkout

5
00:01:23,109 --> 00:01:19,040
building

6
00:01:27,350 --> 00:01:25,270
and the crew are getting into their

7
00:01:28,710 --> 00:01:27,360
orange launch and entry suits and

8
00:01:40,069 --> 00:01:28,720
preparing for

9
00:01:45,670 --> 00:01:42,310
it's pilot jim dutton

10
00:01:55,749 --> 00:01:47,830
orange aces suit

11
00:01:55,759 --> 00:02:00,069
mission specialist one rick mastracchio

12
00:02:04,870 --> 00:02:01,429
looking at ease

13
00:02:06,789 --> 00:02:04,880

confident and ready to fly today

14

00:02:08,869 --> 00:02:06,799

and clay anderson

15

00:02:11,270 --> 00:02:08,879

mission specialist number five a veteran

16

00:02:13,750 --> 00:02:11,280

of a long duration space station flight

17

00:02:16,470 --> 00:02:13,760

getting ready for uh his mission he'll

18

00:02:20,470 --> 00:02:16,480

be one of two space walkers along with

19

00:02:22,070 --> 00:02:20,480

rick mastracchio on sts-131

20

00:02:24,710 --> 00:02:22,080

mission specialist number three

21

00:02:26,550 --> 00:02:24,720

stephanie wilson

22

00:02:28,949 --> 00:02:26,560

she's a veteran of two space flights

23

00:02:30,869 --> 00:02:28,959

sts-121

24

00:02:37,910 --> 00:02:30,879

and sts-120

25

00:02:43,509 --> 00:02:40,229

and our japan aerospace exploration

26

00:02:45,509 --> 00:02:43,519

agency astronaut naoko yamazaki

27

00:02:49,110 --> 00:02:45,519

a big wave for the cameras and a thumbs

28

00:02:53,830 --> 00:02:51,350

she's one of three discovery women

29

00:02:55,910 --> 00:02:53,840

astronauts who will be joining

30

00:02:58,309 --> 00:02:55,920

a female aboard the international space

31

00:03:00,070 --> 00:02:58,319

station

32

00:03:02,470 --> 00:03:00,080

there's there's dottie metcalf

33

00:03:04,550 --> 00:03:02,480

lindenberger

34

00:03:06,949 --> 00:03:04,560

she's mission specialist number two

35

00:03:08,949 --> 00:03:06,959

making her first space flight she's a

36

00:03:10,390 --> 00:03:08,959

former high school science teacher

37

00:03:14,710 --> 00:03:10,400

turned astronaut

38

00:03:18,070 --> 00:03:15,910

the crew is

39

00:03:21,430 --> 00:03:18,080

very nearly ready to begin their walkout

40

00:03:24,630 --> 00:03:21,440

to launch pad 39a where

41

00:03:27,110 --> 00:03:24,640

space shuttle discovery stands

42

00:03:31,110 --> 00:03:27,120

illuminated by xenon light ready for

43

00:03:32,949 --> 00:03:31,120

launch at 6 21 a.m eastern time

44

00:03:35,589 --> 00:03:32,959

and we see the astronauts

45

00:03:36,710 --> 00:03:35,599

for discoveries sts-131 mission waving

46

00:03:38,309 --> 00:03:36,720

at the camera

47

00:03:39,990 --> 00:03:38,319

excited to be heading towards the

48

00:03:41,589 --> 00:03:40,000

elevator that means they'll be on their

49

00:03:46,390 --> 00:03:41,599

way out to the launch pad aboard the

50

00:03:53,910 --> 00:03:47,830

several management astronauts in

51
00:03:56,789 --> 00:03:55,589
over a hundred news media await the

52
00:04:08,949 --> 00:03:56,799
arrival

53
00:04:08,959 --> 00:04:18,789
get back

54
00:04:18,799 --> 00:04:57,670
oh

55
00:05:03,350 --> 00:05:01,029
and we see the crew now uh out of the

56
00:05:05,670 --> 00:05:03,360
astrovan and they're walking over so

57
00:05:07,590 --> 00:05:05,680
they can better look at this beautiful

58
00:05:08,950 --> 00:05:07,600
space shuttle discovery

59
00:05:11,270 --> 00:05:08,960
there we can see some of the venting

60
00:05:12,629 --> 00:05:11,280
that you were talking about

61
00:05:14,070 --> 00:05:12,639
and they just need to walk a little

62
00:05:16,790 --> 00:05:14,080
further over here so they can get a good

63
00:05:18,629 --> 00:05:16,800

view and

64

00:05:20,629 --> 00:05:18,639

there's another view looking down at

65

00:05:22,550 --> 00:05:20,639

them

66

00:05:25,830 --> 00:05:22,560

now already inside the space shuttle

67

00:05:26,950 --> 00:05:25,840

discovery at this point is our astronaut

68

00:05:31,189 --> 00:05:26,960

support personnel and see they're

69

00:05:35,990 --> 00:05:32,950

right here now you have a view up on the

70

00:05:37,749 --> 00:05:36,000

195 foot level and we see closeout crew

71

00:05:39,990 --> 00:05:37,759

member number three that's john

72

00:05:41,909 --> 00:05:40,000

hazelhurst he's waiting for the arrival

73

00:05:43,830 --> 00:05:41,919

of the seven crew members from the space

74

00:05:46,390 --> 00:05:43,840

shuttle discovery

75

00:05:48,710 --> 00:05:46,400

so seven crew members from discovery

76
00:05:50,870 --> 00:05:48,720
seven members of the closeout crew and

77
00:05:59,350 --> 00:05:50,880
at this time we also still have our ice

78
00:06:04,710 --> 00:06:02,150
and here we see a view from the white

79
00:06:07,510 --> 00:06:04,720
room which is just outside the hatch of

80
00:06:09,830 --> 00:06:07,520
the shuttle

81
00:06:12,309 --> 00:06:09,840
and we have the commander

82
00:06:18,150 --> 00:06:12,319
alan poindexter

83
00:06:23,830 --> 00:06:21,670
he's a navy captain

84
00:06:26,950 --> 00:06:23,840
and he's on his second flight here

85
00:06:29,110 --> 00:06:26,960
you're seeing him get into a harness

86
00:06:31,909 --> 00:06:29,120
this harness will hook into his

87
00:06:35,029 --> 00:06:31,919
parachute we have emergency survival

88
00:06:36,870 --> 00:06:35,039

equipment inside that harness

89

00:06:39,189 --> 00:06:36,880

if it looks uncomfortable

90

00:06:41,749 --> 00:06:39,199

it kind of is but we get we get used to

91

00:06:45,029 --> 00:06:41,759

it because we train with it so much

92

00:06:46,710 --> 00:06:45,039

the parachute uh if required but we all

93

00:06:48,870 --> 00:06:46,720

have them in case we need them they're

94

00:06:50,629 --> 00:06:48,880

already in the seat

95

00:06:52,550 --> 00:06:50,639

waiting inside the space shuttle so when

96

00:06:53,430 --> 00:06:52,560

he gets in we'll clip that harness right

97

00:06:54,390 --> 00:06:53,440

into

98

00:07:09,270 --> 00:06:54,400

the

99

00:07:11,270 --> 00:07:09,280

shuttle discovery

100

00:07:13,990 --> 00:07:11,280

and you also heard that the commander is

101
00:07:14,870 --> 00:07:14,000
on board that call was from the closeout

102
00:07:17,350 --> 00:07:14,880
crew

103
00:07:18,469 --> 00:07:17,360
letting the launch control center team

104
00:07:21,110 --> 00:07:18,479
know that

105
00:07:29,189 --> 00:07:23,909
poindexter is on board and now we see

106
00:07:34,230 --> 00:07:31,909
clay will be sitting on the mid deck so

107
00:07:35,909 --> 00:07:34,240
here they've got his parachute harness

108
00:07:36,870 --> 00:07:35,919
on him and they're just uh putting in

109
00:07:39,029 --> 00:07:36,880
some

110
00:07:40,629 --> 00:07:39,039
light sticks

111
00:07:44,710 --> 00:07:40,639
glaze giving a shout out to all his

112
00:07:49,350 --> 00:07:47,270
clay's just put on his communications

113
00:07:51,670 --> 00:07:49,360

cap inside that cap you have uh

114

00:07:54,390 --> 00:07:51,680

earphones on both sides and we also have

115

00:07:56,629 --> 00:07:54,400

microphones that come across and he'll

116

00:07:59,029 --> 00:07:56,639

strap all that on once he gets into a

117

00:08:00,790 --> 00:07:59,039

seat we'll plug that that whole system

118

00:08:03,110 --> 00:08:00,800

into the communication system and we'll

119

00:08:05,189 --> 00:08:03,120

be able to talk to them we'll actually

120

00:08:06,790 --> 00:08:05,199

hear that in a little while as each crew

121

00:08:08,469 --> 00:08:06,800

member hooks into their communication

122

00:08:10,550 --> 00:08:08,479

system they want to check that out and

123

00:08:13,350 --> 00:08:10,560

they'll actually do a comm check we've

124

00:08:15,430 --> 00:08:13,360

changed the view back now as you see uh

125

00:08:17,589 --> 00:08:15,440

alan poindexter the commander in his

126

00:08:19,510 --> 00:08:17,599

seat and if he looks like he's laying

127

00:08:21,110 --> 00:08:19,520

down well he kind of is because with the

128

00:08:23,110 --> 00:08:21,120

orbiter in the vertical position the

129

00:08:25,670 --> 00:08:23,120

seats are are back so you're actually

130

00:08:30,710 --> 00:08:25,680

laying on your back

131

00:08:35,350 --> 00:08:33,589

jim is one of the uh rookie flyers

132

00:08:37,029 --> 00:08:35,360

that's correct he's on his first flight

133

00:08:38,790 --> 00:08:37,039

boy you'd never know it he has been

134

00:08:42,630 --> 00:08:38,800

training for so long for this and he's

135

00:08:47,269 --> 00:08:44,630

well he certainly has a lot of flying

136

00:08:49,190 --> 00:08:47,279

experience he has over 3 300 hours in

137

00:08:51,990 --> 00:08:49,200

more than 30 different aircraft to his

138

00:08:56,710 --> 00:08:54,150

now we actually have a view from inside

139

00:08:59,190 --> 00:08:56,720

the mid deck of the space shuttle

140

00:09:00,790 --> 00:08:59,200

and we see the uh insertion tech number

141

00:09:02,470 --> 00:09:00,800

seven that's ray cuevas in the white

142

00:09:04,150 --> 00:09:02,480

suit with the number seven on the back

143

00:09:06,150 --> 00:09:04,160

he's actually strapping in mission

144

00:09:09,990 --> 00:09:06,160

specialist clay anderson into the mid

145

00:09:17,430 --> 00:09:12,949

back to the flight deck with a view of

146

00:09:20,949 --> 00:09:18,790

and if you look close you can kind of

147

00:09:23,430 --> 00:09:20,959

see two people working around there

148

00:09:25,430 --> 00:09:23,440

they're helping strap him in and also

149

00:09:27,670 --> 00:09:25,440

place all of his equipment where he can

150

00:09:29,350 --> 00:09:27,680

properly reach it and as you can imagine

151
00:09:30,790 --> 00:09:29,360
uh with all the vibration that we

152
00:09:31,910 --> 00:09:30,800
experience with launch it's important

153
00:09:33,190 --> 00:09:31,920
that

154
00:09:35,110 --> 00:09:33,200
the different

155
00:09:37,509 --> 00:09:35,120
small items that we might need like a

156
00:09:39,910 --> 00:09:37,519
checklist or even a pen or a pencil

157
00:09:42,470 --> 00:09:39,920
is nearby with either a good bit of

158
00:09:44,389 --> 00:09:42,480
velcro or at least a tether because we

159
00:09:47,990 --> 00:09:44,399
don't want things flying loose in there

160
00:09:50,630 --> 00:09:48,000
as as we rattle on up to orbit

161
00:09:52,710 --> 00:09:50,640
in your view right now uh on the uh

162
00:09:58,790 --> 00:09:52,720
closer part of the view you see uh

163
00:10:04,750 --> 00:10:00,949

yep stephanie's making her third space

164

00:10:07,670 --> 00:10:04,760

flight she flew on sts-121 first and

165

00:10:09,750 --> 00:10:07,680

sts-120 second go ahead

166

00:10:11,110 --> 00:10:09,760

she has a bachelor's degree from harvard

167

00:10:14,150 --> 00:10:11,120

and a master's degree from the

168

00:10:15,829 --> 00:10:14,160

university of texas

169

00:10:18,949 --> 00:10:15,839

and is mission specialist 3 on this

170

00:10:33,030 --> 00:10:21,430

she's also quite the wizard at operating

171

00:10:42,470 --> 00:10:35,750

hey now we got stephanie wilson giving a

172

00:10:46,389 --> 00:10:44,790

and that's always a fun thing to do to

173

00:10:48,710 --> 00:10:46,399

you know that your family and friends

174

00:10:51,190 --> 00:10:48,720

are all watching and and be able to

175

00:10:53,190 --> 00:10:51,200

acknowledge that uh you appreciate them

176

00:10:54,870 --> 00:10:53,200

watching and you appreciate all their

177

00:10:56,870 --> 00:10:54,880

support because they've been supporting

178

00:10:59,190 --> 00:10:56,880

quite a long time when these crews have

179

00:11:00,949 --> 00:10:59,200

been putting in a lot of long hours and

180

00:11:06,069 --> 00:11:00,959

and it's really wonderful to know we

181

00:11:11,750 --> 00:11:09,430

ntd cdr com check

182

00:11:14,949 --> 00:11:11,760

cdr this is ntd i've got you latin clear

183

00:11:16,470 --> 00:11:14,959

good morning dex

184

00:11:23,990 --> 00:11:16,480

good morning steve got you loud and

185

00:11:29,509 --> 00:11:26,870

houston cdr com check

186

00:11:33,110 --> 00:11:29,519

cdr houston we read you loud and clear

187

00:11:36,710 --> 00:11:35,269

good morning cj to you and everybody in

188

00:11:41,750 --> 00:11:36,720

the mission control center i've got you

189

00:11:47,350 --> 00:11:44,150

and rick mastracchio is getting ready to

190

00:11:51,110 --> 00:11:48,949

in the meantime we just changed our view

191

00:11:52,870 --> 00:11:51,120

back to inside the crew module on the

192

00:11:55,110 --> 00:11:52,880

flight deck now you're seeing our pilot

193

00:11:56,550 --> 00:11:55,120

so we actually move the camera over to

194

00:11:59,030 --> 00:11:56,560

the other side

195

00:12:01,269 --> 00:11:59,040

and we're seeing our pilot jim dutton he

196

00:12:03,910 --> 00:12:01,279

also goes by callsign mesh

197

00:12:05,269 --> 00:12:03,920

so nash is getting all strapped into his

198

00:12:07,509 --> 00:12:05,279

seat

199

00:12:09,750 --> 00:12:07,519

and he'll be ready to do his voice

200

00:12:11,430 --> 00:12:09,760

checks momentarily that's correct once

201
00:12:13,509 --> 00:12:11,440
uh once we get his helmet on him and his

202
00:12:15,350 --> 00:12:13,519
gloves and uh gets them all get them all

203
00:12:17,509 --> 00:12:15,360
strapped in uh we'll hear the similar

204
00:12:20,069 --> 00:12:17,519
comb checks from him as you can imagine

205
00:12:21,509 --> 00:12:20,079
uh it's actually very critical to make

206
00:12:25,430 --> 00:12:21,519
sure that we can communicate with each

207
00:12:29,670 --> 00:12:26,389
back

208
00:12:31,190 --> 00:12:29,680
in the white room with rick mastracchio

209
00:12:33,590 --> 00:12:31,200
this will be his third flight he's

210
00:12:35,110 --> 00:12:33,600
mission specialist number one and he and

211
00:12:37,670 --> 00:12:35,120
clay anderson will be conducting all

212
00:12:39,670 --> 00:12:37,680
three of the spacewalks on the mission

213
00:12:41,509 --> 00:12:39,680

back now to this view on the mid deck we

214

00:12:43,590 --> 00:12:41,519

see stephanie wilson climbing up into

215

00:12:45,190 --> 00:12:43,600

her seat her seat on the mid deck is

216

00:12:49,110 --> 00:12:45,200

actually the one that's closest to the

217

00:12:53,350 --> 00:12:51,030

there are three seats located on the mid

218

00:12:55,910 --> 00:12:53,360

deck and you can see clay anderson is

219

00:12:57,670 --> 00:12:55,920

closest to us and then there's another

220

00:13:00,470 --> 00:12:57,680

seat in the center that's not quite

221

00:13:06,629 --> 00:13:03,590

and there's naoko yamazaki this is a big

222

00:13:10,150 --> 00:13:06,639

day for naoko and for the japan

223

00:13:12,550 --> 00:13:10,160

aerospace exploration agency

224

00:13:14,629 --> 00:13:12,560

she's their second female astronaut and

225

00:13:16,550 --> 00:13:14,639

she will be

226

00:13:17,990 --> 00:13:16,560

flying to the space station and joining

227

00:13:21,350 --> 00:13:18,000

a fellow

228

00:13:22,629 --> 00:13:21,360

jaxa astronaut suichi naguchi

229

00:13:25,350 --> 00:13:22,639

naoko is

230

00:13:28,550 --> 00:13:25,360

making her first flight

231

00:13:30,389 --> 00:13:28,560

she was selected by the japan aerospace

232

00:13:32,629 --> 00:13:30,399

exploration agency as an astronaut in

233

00:13:34,550 --> 00:13:32,639

1999.

234

00:13:36,550 --> 00:13:34,560

the view that you're seeing now is in

235

00:13:38,550 --> 00:13:36,560

the flight deck of the space shuttle

236

00:13:40,550 --> 00:13:38,560

we've moved the camera now it was over

237

00:13:43,110 --> 00:13:40,560

there right by our pilot jim dutton but

238

00:13:43,829 --> 00:13:43,120

now we've moved it to the very center of

239

00:13:48,870 --> 00:13:43,839

the

240

00:13:50,230 --> 00:13:48,880

looking back down and so that way we'll

241

00:13:51,829 --> 00:13:50,240

be able to see

242

00:13:53,670 --> 00:13:51,839

if you uh it's kind of hard to see but

243

00:13:56,470 --> 00:13:53,680

look closely it's a little bit dark you

244

00:13:59,030 --> 00:13:56,480

see rick mastracchio is uh in his seat

245

00:14:01,189 --> 00:13:59,040

and he's being strapped in

246

00:14:04,150 --> 00:14:01,199

and that would be on the left side of

247

00:14:09,430 --> 00:14:06,629

here's dottie metcalf lindenberger

248

00:14:11,110 --> 00:14:09,440

she is a rookie she is

249

00:14:12,870 --> 00:14:11,120

one of three former school teachers

250

00:14:15,670 --> 00:14:12,880

selected as mission specialists in the

251

00:14:17,910 --> 00:14:15,680

2004 educator astronaut class

252

00:14:20,350 --> 00:14:17,920

along with joe acaba and ricky arnold

253

00:14:25,030 --> 00:14:20,360

who both flew aboard discovery on

254

00:14:30,069 --> 00:14:27,350

ms5 otc i've got you loud and clear good

255

00:14:34,310 --> 00:14:30,079

morning clay

256

00:14:40,710 --> 00:14:37,750

ntd ms5 comp check

257

00:14:43,110 --> 00:14:40,720

ms5 this is ntv loud and clear good

258

00:14:44,949 --> 00:14:43,120

morning clay

259

00:14:59,590 --> 00:14:44,959

good morning steve i have you the same

260

00:15:05,590 --> 00:15:03,430

and ms5 comm check

261

00:15:09,350 --> 00:15:05,600

ms5 houston we read you loud and clear

262

00:15:16,949 --> 00:15:13,030

cj i have you the same

263

00:15:27,430 --> 00:15:16,959

otc ovcc go ahead ms4 on board at this

264

00:15:32,230 --> 00:15:29,430

and this is uh back to the flight deck

265

00:15:33,509 --> 00:15:32,240

now with ms-1 rick mastragio and uh

266

00:15:35,189 --> 00:15:33,519

we're seeing him close and lock his

267

00:15:38,389 --> 00:15:35,199

visor we'll hear his communications

268

00:15:43,030 --> 00:15:40,389

ms-1 this is ntd i have you loud and

269

00:15:52,870 --> 00:15:43,040

clear good morning rick

270

00:15:52,880 --> 00:15:56,230

has

271

00:16:01,670 --> 00:15:58,870

ms-1 houston we read you loud and clear

272

00:16:06,710 --> 00:16:01,680

good morning rick

273

00:16:11,189 --> 00:16:08,949

this view is back to the mid deck and

274

00:16:13,749 --> 00:16:11,199

it's a little tough to see but naoko is

275

00:16:16,389 --> 00:16:13,759

in the center of all of that

276

00:16:29,990 --> 00:16:16,399

orange that you see and she's getting

277

00:16:33,990 --> 00:16:32,150

although this is a dark view in the very

278

00:16:35,509 --> 00:16:34,000

center of your uh

279

00:16:39,430 --> 00:16:35,519

view right now

280

00:16:41,110 --> 00:16:39,440

is uh dottie or ms2 sitting in her seat

281

00:16:42,949 --> 00:16:41,120

and they're working to

282

00:16:53,350 --> 00:16:42,959

fasten all of her seatbelts and strap

283

00:16:57,350 --> 00:16:55,110

and discovery during the astrocalm

284

00:16:59,030 --> 00:16:57,360

checks adjust appropriate volume control

285

00:17:02,069 --> 00:16:59,040

for comfort do not change the audio

286

00:17:16,949 --> 00:17:02,079

panel switch configuration

287

00:17:22,710 --> 00:17:19,669

ms3 and x4

288

00:17:34,470 --> 00:17:24,630

i copy all and putting to air to ground

289

00:17:40,870 --> 00:17:36,310

this is shuttle launch control at t

290

00:17:43,990 --> 00:17:42,870

eight minutes 25 seconds remain in the

291

00:17:45,990 --> 00:17:44,000

hold

292

00:17:47,990 --> 00:17:46,000

and as space shuttle discovery prepares

293

00:17:50,950 --> 00:17:48,000

for launch the international space

294

00:17:52,070 --> 00:17:50,960

station traveling about 220 miles above

295

00:17:54,630 --> 00:17:52,080

the earth

296

00:17:56,070 --> 00:17:54,640

is on a 51.6 degree inclination to the

297

00:17:57,909 --> 00:17:56,080

equator

298

00:17:59,909 --> 00:17:57,919

the shuttle launch time is based on the

299

00:18:01,830 --> 00:17:59,919

time that the earth's rotation carries

300

00:18:05,350 --> 00:18:01,840

kennedy's space center's launch pad into

301
00:18:07,830 --> 00:18:05,360
the plane of the space station's orbit

302
00:18:10,070 --> 00:18:07,840
and right now as we speak the space

303
00:18:12,390 --> 00:18:10,080
station is approaching kennedy

304
00:18:14,390 --> 00:18:12,400
for residents and visitors in the space

305
00:18:15,750 --> 00:18:14,400
coast area it will be visible for about

306
00:18:16,789 --> 00:18:15,760
three minutes

307
00:18:19,510 --> 00:18:16,799
beginning

308
00:18:20,870 --> 00:18:19,520
momentarily

309
00:18:23,350 --> 00:18:20,880
it should appear from the south

310
00:18:29,270 --> 00:18:23,360
southwest and move to the east peaking

311
00:18:32,070 --> 00:18:31,190
and at the time of liftoff just minutes

312
00:18:35,110 --> 00:18:32,080
away

313
00:18:37,750 --> 00:18:35,120

the space station moving at 17

314

00:18:40,150 --> 00:18:37,760

500 miles per hour

315

00:18:42,230 --> 00:18:40,160

or five miles a second

316

00:18:49,350 --> 00:18:42,240

will have moved to out over the atlantic

317

00:18:53,510 --> 00:18:51,430

mission control in houston is sending

318

00:18:55,510 --> 00:18:53,520

nasa television to the members of the

319

00:19:05,230 --> 00:18:55,520

space station crew so they can watch the

320

00:19:05,240 --> 00:19:08,870

sro212 go ahead

321

00:19:12,470 --> 00:19:10,630

ranges go for countdown resumption and

322

00:19:14,630 --> 00:19:12,480

t-zero range status is go for launch

323

00:19:34,150 --> 00:19:14,640

what's your status for the new t0 here

324

00:19:38,070 --> 00:19:36,150

and we see the space station traveling

325

00:19:43,669 --> 00:19:38,080

over the kennedy space center on nasa

326

00:19:43,679 --> 00:19:48,630

a bright a bright dot in the sky

327

00:19:52,630 --> 00:19:50,710

residents throughout the world can find

328

00:19:54,830 --> 00:19:52,640

citing opportunities by going to nasa's

329

00:19:57,990 --> 00:19:54,840

website at

330

00:19:59,909 --> 00:19:58,000

www.nasa.gov and looking for sightings

331

00:20:01,190 --> 00:19:59,919

the space station is longer than a

332

00:20:04,470 --> 00:20:01,200

football field

333

00:20:06,549 --> 00:20:04,480

its solar arrays span 240 feet and it's

334

00:20:08,549 --> 00:20:06,559

45 feet tall

335

00:20:11,190 --> 00:20:08,559

it's a large object it's getting bigger

336

00:20:14,870 --> 00:20:13,350

permanent crew members are there today

337

00:20:16,950 --> 00:20:14,880

about to be joined by the seven crew

338

00:20:20,310 --> 00:20:16,960

members of space shuttle discovery to

339

00:20:22,149 --> 00:20:20,320

conduct science in space

340

00:20:24,630 --> 00:20:22,159

jrps go ahead

341

00:20:25,990 --> 00:20:24,640

I minus 15 recorder activation copy at

342

00:20:28,470 --> 00:20:26,000

this time the international space

343

00:20:32,549 --> 00:20:28,480

station is about 90 percent complete by

344

00:20:34,390 --> 00:20:32,559

mass and 98 complete by habitable volume

345

00:20:38,710 --> 00:20:34,400

we'll put in work

346

00:20:41,029 --> 00:20:38,720

ms-1 and ms4 otc activate v10 recorders

347

00:20:43,190 --> 00:20:41,039

the chase will be on beginning at 6 21

348

00:20:45,029 --> 00:20:43,200

a.m and 25 seconds when space shuttle

349

00:20:59,750 --> 00:20:45,039

discovery begins to track the

350

00:21:06,789 --> 00:21:03,430

ptc is go lps lps is go houston flight

351

00:21:10,230 --> 00:21:06,799

houston flight is go mila

352

00:21:15,270 --> 00:21:10,240

stm stm is go safety console safety

353

00:21:17,029 --> 00:21:15,280

consoles go spe sp is go lrd lrd is go

354

00:21:21,669 --> 00:21:17,039

sro

355

00:21:21,679 --> 00:21:25,270

ncdr

356

00:21:25,280 --> 00:21:32,230

discovery is go

357

00:21:37,350 --> 00:21:35,990

npdsro go ahead sro is go you have range

358

00:21:39,510 --> 00:21:37,360

clear launch

359

00:21:42,070 --> 00:21:39,520

copy go from sro thank you and launch

360

00:21:44,630 --> 00:21:42,080

director entity launch director go ahead

361

00:21:46,870 --> 00:21:44,640

launch team is ready to proceed i copy

362

00:21:48,950 --> 00:21:46,880

that i will conduct my poll

363

00:21:51,510 --> 00:21:48,960

kfc processing chief engineer verify no

364

00:21:53,909 --> 00:21:51,520

constraints to launch no constraints

365

00:21:55,990 --> 00:21:53,919

copy that thank you steve kfc shuttle

366

00:21:58,470 --> 00:21:56,000

safety mission assurance okay it's the

367

00:22:01,029 --> 00:21:58,480

fma is go for lunch please dr terry

368

00:22:03,270 --> 00:22:01,039

thank you fellow launch manager repeat

369

00:22:05,590 --> 00:22:03,280

the iss process and team skill help you

370

00:22:07,190 --> 00:22:05,600

thank you bill range weather weather has

371

00:22:09,830 --> 00:22:07,200

no constraints for launch

372

00:22:11,110 --> 00:22:09,840

okay thank you kathy and office manager

373

00:22:13,110 --> 00:22:11,120

pete looks like a great morning you're

374

00:22:14,390 --> 00:22:13,120

go to launch 131 all right captain that

375

00:22:17,669 --> 00:22:14,400

thank you sir

376

00:22:20,390 --> 00:22:17,679

discovery launch director

377

00:22:25,270 --> 00:22:22,149

the vehicle is clean

378

00:22:28,149 --> 00:22:25,280

weather is good and this team is ready

379

00:22:32,070 --> 00:22:28,159

it is time for you to rise to orbit

380

00:22:36,230 --> 00:22:35,029

thanks pete the crew of sds 131 is

381

00:22:37,830 --> 00:22:36,240

really honored to represent the

382

00:22:40,549 --> 00:22:37,840

thousands of dedicated people that make

383

00:22:42,310 --> 00:22:40,559

up all the entire nasa jaxa and

384

00:22:43,669 --> 00:22:42,320

contractor workforces

385

00:22:45,909 --> 00:22:43,679

we'll fly on the most capable and

386

00:22:47,510 --> 00:22:45,919

versatile spacecraft ever built and

387

00:22:49,830 --> 00:22:47,520

we'll see in a few weeks

388

00:22:52,230 --> 00:22:49,840

let's do it

389

00:22:53,750 --> 00:22:52,240

copy that thank you sir mtd launch

390

00:22:54,950 --> 00:22:53,760

structure you do the go to launch

391

00:22:57,909 --> 00:22:54,960

discovery

392

00:23:02,870 --> 00:22:57,919

copy thank you go to proceed with count

393

00:23:06,230 --> 00:23:04,470

pilot jim dutton is now flipping

394

00:23:07,830 --> 00:23:06,240

switches in the cockpit to directly

395

00:23:10,470 --> 00:23:07,840

connect the three fuel cells to the

396

00:23:13,270 --> 00:23:10,480

essential power buses

397

00:23:15,669 --> 00:23:13,280

otc vlt essential buses connected steel

398

00:23:24,310 --> 00:23:18,230

good news all three fuel cells operating

399

00:23:24,320 --> 00:23:30,070

t-minus seven minutes 30 seconds

400

00:23:33,669 --> 00:23:32,230

and discovery otc it's time to light up

401
00:23:35,270 --> 00:23:33,679
the skies on your mission to expand

402
00:23:37,510 --> 00:23:35,280
scientific research on the international

403
00:23:39,350 --> 00:23:37,520
space station that lacks sporties to

404
00:23:44,470 --> 00:23:39,360
ride a shuttle this vehicle is about to

405
00:23:49,590 --> 00:23:46,870
discovery copies thanks a lot best

406
00:23:52,549 --> 00:23:49,600
wishes from orbiter test conductor

407
00:23:54,230 --> 00:23:52,559
lori sally to the crew of space shuttle

408
00:23:59,909 --> 00:23:54,240
discovery

409
00:24:03,350 --> 00:24:01,350
the orbiter access arm has been

410
00:24:05,269 --> 00:24:03,360
retracted away from discovery this is

411
00:24:07,190 --> 00:24:05,279
the walkway used by the crew to gain

412
00:24:08,710 --> 00:24:07,200
entry into and out of the shuttle and it

413
00:24:22,950 --> 00:24:08,720

can be returned to position within

414

00:24:27,269 --> 00:24:25,669

t minus 6 minutes 30 seconds and

415

00:24:30,470 --> 00:24:27,279

counting

416

00:24:36,870 --> 00:24:30,480

s start apu display recorders

417

00:24:42,390 --> 00:24:40,789

tilt perform apa pre-start

418

00:24:44,630 --> 00:24:42,400

plp

419

00:24:46,710 --> 00:24:44,640

orbiter test conductor gave pilot jim

420

00:24:49,029 --> 00:24:46,720

dutton ago to perform the auxiliary

421

00:24:50,710 --> 00:24:49,039

power unit pre-start procedure

422

00:24:52,630 --> 00:24:50,720

the apu's provide pressure to the

423

00:24:55,190 --> 00:24:52,640

shuttle's three hydraulic systems which

424

00:25:04,549 --> 00:24:55,200

move the main engines and aero surfaces

425

00:25:08,950 --> 00:25:06,149

a final test of the flight control

426

00:25:10,950 --> 00:25:08,960

surfaces is being conducted

427

00:25:12,549 --> 00:25:10,960

this is a program pattern of movements

428

00:25:13,830 --> 00:25:12,559

designed to verify the readiness for

429

00:25:15,990 --> 00:25:13,840

launch of all the flight control

430

00:25:19,430 --> 00:25:16,000

surfaces the elevons speed brakes and

431

00:25:23,029 --> 00:25:21,190

and the main engines are being

432

00:25:24,950 --> 00:25:23,039

gimbaled through a pre-programmed series

433

00:25:26,470 --> 00:25:24,960

of maneuvers as a final test before

434

00:25:29,029 --> 00:25:26,480

launch

435

00:25:38,870 --> 00:25:29,039

t-minus 3 minutes 15 seconds and

436

00:25:43,510 --> 00:25:41,269

t minus 2 minutes 39 seconds and

437

00:25:45,190 --> 00:25:43,520

counting

438

00:25:52,070 --> 00:25:45,200

t clear caution and warning memory

439

00:25:56,310 --> 00:25:54,070

and the gaseous oxygen vent hood or

440

00:25:58,549 --> 00:25:56,320

beanie cap is being retracted away from

441

00:26:00,390 --> 00:25:58,559

the top of the external tank

442

00:26:07,750 --> 00:26:00,400

t-minus two minutes 20 seconds and

443

00:26:07,760 --> 00:26:17,430

discovering close and long

444

00:26:21,909 --> 00:26:19,990

t minus two minutes and counting liquid

445

00:26:24,470 --> 00:26:21,919

hydrogen replenish on the external tank

446

00:26:33,669 --> 00:26:24,480

is now being terminated

447

00:26:37,750 --> 00:26:36,070

t minus one minute 44 seconds and

448

00:26:49,909 --> 00:26:37,760

counting

449

00:27:03,110 --> 00:26:51,909

90 seconds away from the launch of space

450

00:27:17,029 --> 00:27:05,190

t-minus one minute 15 seconds and

451
00:27:21,110 --> 00:27:19,350
t minus one minute

452
00:27:22,710 --> 00:27:21,120
the ground launch sequencer will verify

453
00:27:25,110 --> 00:27:22,720
that the three main engines are ready to

454
00:27:30,470 --> 00:27:26,950
the booster joint heaters are being

455
00:27:35,350 --> 00:27:33,190
we're transferring to orbiter internal

456
00:27:39,750 --> 00:27:35,360
power discovery is now running off of

457
00:27:49,029 --> 00:27:42,549
t-minus 38 seconds and counting coming

458
00:27:55,430 --> 00:27:52,549
cls is go for auto sequence start

459
00:27:57,190 --> 00:27:55,440
t-minus 25 seconds discovery's onboard

460
00:27:59,190 --> 00:27:57,200
computers have primary control of the

461
00:28:03,990 --> 00:27:59,200
vehicle's critical functions

462
00:28:07,190 --> 00:28:05,750
t minus 15 seconds and the sound

463
00:28:09,269 --> 00:28:07,200

suppression water system has been

464

00:28:14,310 --> 00:28:09,279

activated

465

00:28:17,269 --> 00:28:16,389

three engines up and ready

466

00:28:18,149 --> 00:28:17,279

three

467

00:28:19,269 --> 00:28:18,159

two

468

00:28:21,669 --> 00:28:19,279

one

469

00:28:23,990 --> 00:28:21,679

zero booster ignition

470

00:28:25,990 --> 00:28:24,000

and liftoff of discovery

471

00:28:42,950 --> 00:28:26,000

blazing a trail to scientific

472

00:28:49,590 --> 00:28:46,789

putting it on force for 51.6 degree 136

473

00:29:00,710 --> 00:28:49,600

by 36 statute orbit and eventually the

474

00:29:04,149 --> 00:29:02,630

discovery's three liquid-fueled main

475

00:29:05,669 --> 00:29:04,159

engines are now throttling down to

476

00:29:07,750 --> 00:29:05,679

reduce stress on the shuttle as it

477

00:29:10,310 --> 00:29:07,760

travels through the area of maximum

478

00:29:14,389 --> 00:29:10,320

dynamic pressure discovery is already at

479

00:29:16,310 --> 00:29:14,399

an altitude of 4.7 miles or 26

480

00:29:17,750 --> 00:29:16,320

500 feet

481

00:29:21,990 --> 00:29:17,760

traveling

482

00:29:22,000 --> 00:29:26,149

roger

483

00:29:29,510 --> 00:29:27,830

traveling 1 000 miles per hour

484

00:29:31,029 --> 00:29:29,520

discovery's engines are now throttled

485

00:29:43,110 --> 00:29:31,039

back up and performing at full

486

00:29:45,990 --> 00:29:44,389

had lived off the shuttle weighed more

487

00:29:49,590 --> 00:29:46,000

than four and a half million pounds and

488

00:29:50,950 --> 00:29:49,600

now uh one minute and 27 seconds into

489

00:29:52,470 --> 00:29:50,960

the flight the main engines and solid

490

00:29:55,430 --> 00:29:52,480

rocket boosters have reduced that weight

491

00:29:57,750 --> 00:29:55,440

by about half solid rocket boosters

492

00:29:59,830 --> 00:29:57,760

alone are burning 11 000 pounds of

493

00:30:01,669 --> 00:29:59,840

propellant per second and the external

494

00:30:06,630 --> 00:30:01,679

tank is now 3 000 pounds lighter than

495

00:30:12,070 --> 00:30:09,510

discovery is now 21 miles away from its

496

00:30:13,230 --> 00:30:12,080

launch pad and 22 miles in altitude

497

00:30:15,990 --> 00:30:13,240

traveling

498

00:30:18,149 --> 00:30:16,000

2700 miles per hour all three main

499

00:30:19,750 --> 00:30:18,159

engines are working just as expected the

500

00:30:22,070 --> 00:30:19,760

three fuel cells are generating power

501
00:30:24,230 --> 00:30:22,080
and three auxiliary power units are all

502
00:30:27,029 --> 00:30:24,240
producing pressure in short everything

503
00:30:28,630 --> 00:30:27,039
performing well

504
00:30:35,510 --> 00:30:28,640
two minutes and seven seconds into the

505
00:30:38,230 --> 00:30:36,630
the booster officer in the mission

506
00:30:40,630 --> 00:30:38,240
control center has confirmed solid

507
00:30:50,070 --> 00:30:40,640
rocket booster separation all systems

508
00:30:53,590 --> 00:30:51,750
two orbital maneuvering system engines

509
00:30:55,909 --> 00:30:53,600
on discovery's tail are now firing as

510
00:30:58,389 --> 00:30:55,919
well providing the shut on extra boost

511
00:31:01,110 --> 00:30:58,399
into orbit the engine burn will last one

512
00:31:05,750 --> 00:31:01,120
minute and 44 seconds

513
00:31:05,760 --> 00:31:09,430

discovery copies

514

00:31:13,350 --> 00:31:11,430

that call indicates that discovery can

515

00:31:15,669 --> 00:31:13,360

now reach and spain should one of

516

00:31:17,029 --> 00:31:15,679

the three main engines fail however all

517

00:31:18,950 --> 00:31:17,039

three of those miniatures are currently

518

00:31:20,710 --> 00:31:18,960

working well

519

00:31:23,430 --> 00:31:20,720

two minutes and 59 seconds into the

520

00:31:26,149 --> 00:31:23,440

flight and discovery is now

521

00:31:28,070 --> 00:31:26,159

79 miles away from kennedy space center

522

00:31:30,870 --> 00:31:28,080

in florida

523

00:31:53,029 --> 00:31:30,880

48 miles in altitude and traveling at

524

00:31:57,430 --> 00:31:54,549

space shuttle discovery also seeing the

525

00:32:15,269 --> 00:31:57,440

first of many sunrises of the sts-3131

526

00:32:20,230 --> 00:32:17,509

discovery houston you are negative

527

00:32:25,909 --> 00:32:23,909

discovery copies negative return

528

00:32:27,590 --> 00:32:25,919

discovery is now flying too high and too

529

00:32:29,269 --> 00:32:27,600

fast to return to the kennedy space

530

00:32:31,190 --> 00:32:29,279

center in the event of an engine fair

531

00:32:33,190 --> 00:32:31,200

failure that's not currently a problem

532

00:32:35,350 --> 00:32:33,200

however as all engines are continuing to

533

00:32:36,789 --> 00:32:35,360

perform as expected

534

00:32:39,590 --> 00:32:36,799

four minutes and 15 seconds into

535

00:32:42,310 --> 00:32:39,600

discovery's flight shuttle's traveling 6

536

00:32:46,710 --> 00:32:42,320

000 miles per hour at an altitude of 63

537

00:33:06,389 --> 00:32:46,720

miles and is 181 miles away from

538

00:33:09,350 --> 00:33:07,909

environmental systems officer here in

539

00:33:10,950 --> 00:33:09,360

mission controls confirmed that the

540

00:33:12,549 --> 00:33:10,960

flash evaporator system has been

541

00:33:14,389 --> 00:33:12,559

activated to provide cooling to the

542

00:33:25,750 --> 00:33:14,399

shuttle system until the shuttle's cargo

543

00:33:25,760 --> 00:33:30,870

discovery press to ato

544

00:33:30,880 --> 00:33:35,590

discovery copies press to ato

545

00:33:38,630 --> 00:33:37,029

should two of the shuttle's three main

546

00:33:40,070 --> 00:33:38,640

engines fell after this point they can

547

00:33:42,230 --> 00:33:40,080

still reach us safe though lower than

548

00:33:44,149 --> 00:33:42,240

planned orbit as that call from capcom

549

00:33:46,310 --> 00:33:44,159

rickster co-indicated

550

00:33:48,310 --> 00:33:46,320

discovery is now five

551
00:33:56,950 --> 00:33:48,320
minutes and 42 minutes seconds until

552
00:34:01,509 --> 00:34:00,070
67 miles in altitude and 351 miles away

553
00:34:02,950 --> 00:34:01,519
from kennedy space center discovery

554
00:34:06,070 --> 00:34:02,960
could still make it across the atlantic

555
00:34:07,669 --> 00:34:06,080
for an abort landing even if two three

556
00:34:09,270 --> 00:34:07,679
three main engines failed at this point

557
00:34:13,510 --> 00:34:09,280
all engines are performing well every

558
00:34:13,520 --> 00:34:23,109
discovery copy single engine

559
00:34:27,829 --> 00:34:25,589
discovery now flying more than 10 000

560
00:34:30,629 --> 00:34:27,839
miles per hour

561
00:34:34,069 --> 00:34:30,639
66 miles in altitude and 430 miles away

562
00:34:38,149 --> 00:34:34,079
from kennedy space center

563
00:34:46,389 --> 00:34:41,669

discovery

564

00:34:48,629 --> 00:34:46,399

can reach its planned orbit of 136 by 36

565

00:34:50,310 --> 00:34:48,639

statute miles even if one of the engines

566

00:34:51,589 --> 00:34:50,320

fails all three engines are still

567

00:34:54,069 --> 00:34:51,599

working well

568

00:35:06,069 --> 00:34:54,079

as are the auxiliary power units and the

569

00:35:11,270 --> 00:35:08,150

discover you are single engine press

570

00:35:13,270 --> 00:35:11,280

your shutdown plan is nominal

571

00:35:21,430 --> 00:35:13,280

go for the plus x go for the pitch

572

00:35:24,950 --> 00:35:23,030

even if two engines were to fail at this

573

00:35:26,710 --> 00:35:24,960

point discovery could still make its

574

00:35:28,470 --> 00:35:26,720

planned orbit with just one that

575

00:35:29,910 --> 00:35:28,480

shouldn't be necessary however as all

576

00:35:32,550 --> 00:35:29,920

three engines are still performing at

577

00:35:34,390 --> 00:35:32,560

full capability

578

00:35:36,390 --> 00:35:34,400

also capcom rick sterkow there letting

579

00:35:38,069 --> 00:35:36,400

commander alan poindexter know that

580

00:35:39,589 --> 00:35:38,079

discovery will cut off its three main

581

00:35:41,750 --> 00:35:39,599

engines as planned and that he has the

582

00:35:44,069 --> 00:35:41,760

go ahead then to pitch discovery up to

583

00:35:45,990 --> 00:35:44,079

allow for photos of the external tank to

584

00:35:51,990 --> 00:35:46,000

be taken after its external after its

585

00:35:55,990 --> 00:35:54,470

discovery now 7 minutes and 48 seconds

586

00:35:58,550 --> 00:35:56,000

into its uh

587

00:36:01,510 --> 00:35:58,560

mission traveling at 15 000 miles per

588

00:36:33,910 --> 00:36:01,520

hour 63 miles in altitude and 730 miles

589

00:36:36,870 --> 00:36:35,270

the booster officer here in mission

590

00:36:39,109 --> 00:36:36,880

control is reporting that discovery's

591

00:36:43,349 --> 00:36:39,119

three main engines have been shut off

592

00:36:46,470 --> 00:36:43,359

now waiting for external tank separation

593

00:36:49,190 --> 00:36:46,480

discovery houston nominal miko ohms1 is

594

00:36:54,630 --> 00:36:49,200

not required

595

00:36:58,870 --> 00:36:57,109

there is the external tank separation

596

00:37:01,670 --> 00:36:58,880

eight minutes and 53 seconds into the

597

00:37:04,710 --> 00:37:01,680

sts-130 mission discovery now safely in

598

00:37:10,870 --> 00:37:07,750

66 miles above the earth and traveling

599

00:37:13,069 --> 00:37:10,880

at 17 500 miles per hour

600

00:37:15,510 --> 00:37:13,079

also uh

601
00:37:25,829 --> 00:37:15,520
1065 miles downrange from the kennedy

602
00:37:30,310 --> 00:37:28,310
commander alan poindexter is maneuvering

603
00:37:31,990 --> 00:37:30,320
the vehicle into position to take some

604
00:37:33,349 --> 00:37:32,000
photos of the external tank now

605
00:37:35,109 --> 00:37:33,359
separated from

606
00:37:36,710 --> 00:37:35,119
space shuttle discovery

607
00:37:38,230 --> 00:37:36,720
the tank provided fuel to the shuttle's

608
00:37:40,710 --> 00:37:38,240
three main engines for its climb into

609
00:37:42,470 --> 00:37:40,720
space weighed at 1.6 million pounds at

610
00:37:44,150 --> 00:37:42,480
liftoff but with the main engines

611
00:37:45,910 --> 00:37:44,160
sucking fuel out of it at a rate that

612
00:37:48,069 --> 00:37:45,920
would drain an average swimming pool in

613
00:37:49,589 --> 00:37:48,079

about 25 seconds it

614

00:37:51,349 --> 00:37:49,599

was just about emptying weighing less

615

00:38:27,510 --> 00:37:51,359

than 11 000 pounds by the time it

616

00:38:30,710 --> 00:38:29,190

this is mission control houston back now

617

00:38:32,150 --> 00:38:30,720

with a live view inside the space

618

00:38:33,990 --> 00:38:32,160

shuttle flight control room where the

619

00:38:36,230 --> 00:38:34,000

orbit 2 team is beginning handover

620

00:38:37,829 --> 00:38:36,240

activities with the orbit 3 team

621

00:38:39,430 --> 00:38:37,839

the orbit 3 team will take a look at

622

00:38:41,190 --> 00:38:39,440

tomorrow's timeline

623

00:38:43,109 --> 00:38:41,200

and we'll begin to fine-tune the

624

00:38:44,550 --> 00:38:43,119

activities for the crew of discovery you

625

00:38:47,430 --> 00:38:44,560

see mike massimino there on the lower

626

00:38:50,710 --> 00:38:47,440

left-hand corner of your screen

627

00:38:52,230 --> 00:38:50,720

he is the outgoing orbit 2 capcom

628

00:38:53,829 --> 00:38:52,240

there on the top right hand portion of

629

00:38:55,829 --> 00:38:53,839

your screen is paul dye he will be the

630

00:38:57,670 --> 00:38:55,839

orbit 3 flight director

631

00:38:59,750 --> 00:38:57,680

and standing up in the center portion of

632

00:39:01,349 --> 00:38:59,760

the frame is mike serafin he is giving