



1
00:00:05,430 --> 00:00:03,750
hi i'm barrett tobias and i'm amari

2
00:00:06,869 --> 00:00:05,440
forestill and we're the ecos flight

3
00:00:26,710 --> 00:00:06,879
controllers for the final shuttle

4
00:00:30,470 --> 00:00:28,790
from launch complex 39 at the kennedy

5
00:00:32,229 --> 00:00:30,480
space center in florida

6
00:00:35,190 --> 00:00:32,239
this is shuttle launch control at

7
00:00:37,030 --> 00:00:35,200
t-minus three hours and holding

8
00:00:39,590 --> 00:00:37,040
and we're now in the final five hours of

9
00:00:41,270 --> 00:00:39,600
the countdown for the launch of the last

10
00:00:45,110 --> 00:00:41,280
flight of the space shuttle program and

11
00:00:46,670 --> 00:00:45,120
space shuttle atlantis on sts-135

12
00:00:48,790 --> 00:00:46,680
this is the

13
00:00:51,590 --> 00:00:48,800

135th launch of the space shuttle

14

00:00:53,670 --> 00:00:51,600

program the 33rd launch of space shuttle

15

00:00:55,510 --> 00:00:53,680

atlantis it's 12th to the international

16

00:00:57,350 --> 00:00:55,520

space station

17

00:00:59,110 --> 00:00:57,360

and overall the 37th flight to the

18

00:01:00,229 --> 00:00:59,120

international space station by the space

19

00:01:02,069 --> 00:01:00,239

shuttle

20

00:01:03,590 --> 00:01:02,079

this is currently planned as a 12-day

21

00:01:05,910 --> 00:01:03,600

mission that would have the landing at

22

00:01:15,350 --> 00:01:05,920

kennedy space center occurring on july

23

00:01:19,590 --> 00:01:16,550

here's our

24

00:01:21,510 --> 00:01:19,600

commander chris ferguson he's in the

25

00:01:23,190 --> 00:01:21,520

suit up room

26

00:01:34,069 --> 00:01:23,200

he's

27

00:01:35,510 --> 00:01:34,079

commander on this flight and

28

00:01:45,590 --> 00:01:35,520

going over to

29

00:01:45,600 --> 00:01:50,870

this is his second trip into space

30

00:01:56,310 --> 00:01:52,789

he completed his first space flight on

31

00:02:05,670 --> 00:01:56,320

sts-122 and he's logged more than 376

32

00:02:10,389 --> 00:02:07,749

and here is mission specialist number

33

00:02:11,589 --> 00:02:10,399

one sandy magnus

34

00:02:14,309 --> 00:02:11,599

this is her

35

00:02:15,910 --> 00:02:14,319

third space flight she spent more than

36

00:02:18,630 --> 00:02:15,920

four months in space aboard the

37

00:02:19,869 --> 00:02:18,640

international space station

38

00:02:23,270 --> 00:02:19,879

she flew on

39

00:02:25,110 --> 00:02:23,280
sts-112 logged 11 days in space and then

40

00:02:27,190 --> 00:02:25,120
uh four and a half months

41

00:02:28,390 --> 00:02:27,200
after uh being on board the space

42

00:02:30,470 --> 00:02:28,400
station

43

00:02:31,190 --> 00:02:30,480
as a member of the expedition

44

00:02:32,949 --> 00:02:31,200
uh

45

00:02:35,110 --> 00:02:32,959
18 crew

46

00:02:37,350 --> 00:02:35,120
this is rex walheim

47

00:02:38,949 --> 00:02:37,360
he's our mission specialist number two

48

00:02:40,710 --> 00:02:38,959
he's making his

49

00:02:43,430 --> 00:02:40,720
third space flight he's spent more than

50

00:02:48,070 --> 00:02:43,440
24 days in space

51
00:03:02,229 --> 00:02:48,080
on sts-110 and sts-122 and he's had five

52
00:03:02,239 --> 00:03:19,430
and here they come

53
00:03:24,390 --> 00:03:21,270
crew going down the

54
00:03:26,550 --> 00:03:24,400
elevator where they'll be greeted by

55
00:03:28,949 --> 00:03:26,560
employees from kennedy space center and

56
00:03:30,830 --> 00:03:28,959
members of the news media

57
00:03:33,430 --> 00:03:30,840
this is the same

58
00:03:47,190 --> 00:03:33,440
elevator has been used by the astronauts

59
00:03:47,200 --> 00:04:23,590
hey

60
00:04:23,600 --> 00:04:58,390
ah

61
00:05:03,510 --> 00:05:00,629
this is shuttle launch control t minus

62
00:05:06,070 --> 00:05:03,520
two hours 38 minutes 26 seconds and

63
00:05:06,080 --> 00:05:08,550

the

64

00:05:14,550 --> 00:05:10,390

astrovan is now

65

00:05:20,550 --> 00:05:17,350

the crew will be disembarking in just

66

00:05:25,350 --> 00:05:20,560

about five minutes they'll be headed up

67

00:05:27,670 --> 00:05:25,360

to the white room to begin boarding our

68

00:05:38,150 --> 00:05:27,680

commander as his customary will be first

69

00:05:43,189 --> 00:05:40,469

crew is uh

70

00:05:45,029 --> 00:05:43,199

doing what many of the crews like to do

71

00:05:46,710 --> 00:05:45,039

before they go up and board they like

72

00:05:48,230 --> 00:05:46,720

five minutes or so to go up on the pad

73

00:05:50,710 --> 00:05:48,240

and

74

00:05:52,310 --> 00:05:50,720

take a look at atlantis pose for some

75

00:05:58,870 --> 00:05:52,320

pictures in front of the shuttle before

76

00:06:16,309 --> 00:06:00,390

and then head

77

00:06:21,749 --> 00:06:18,629

commander chris ferguson and pilot doug

78

00:06:24,390 --> 00:06:21,759

hurley will enter the white room shortly

79

00:06:27,350 --> 00:06:24,400

our mission specialists sandy magnus and

80

00:06:29,510 --> 00:06:27,360

rex walheim will probably

81

00:06:31,909 --> 00:06:29,520

wait outside a little bit and take the

82

00:06:33,350 --> 00:06:31,919

time to look around enjoy the view from

83

00:06:45,029 --> 00:06:33,360

up there

84

00:06:49,990 --> 00:06:47,670

the flight crew is now in the white room

85

00:06:52,309 --> 00:06:50,000

of the orbiter access arm

86

00:06:54,150 --> 00:06:52,319

members of the closeout crew are in the

87

00:06:55,430 --> 00:06:54,160

white coveralls and

88

00:06:58,150 --> 00:06:55,440

the astronauts of course are in the

89

00:06:59,909 --> 00:06:58,160

orange pressure suits the closeout crew

90

00:07:01,430 --> 00:06:59,919

will be assisting the astronauts with

91

00:07:02,390 --> 00:07:01,440

their helmets and other equipment as

92

00:07:05,749 --> 00:07:02,400

they

93

00:07:08,309 --> 00:07:06,870

and the

94

00:07:11,270 --> 00:07:08,319

closeout crew is scheduled to seal the

95

00:07:13,510 --> 00:07:11,280

orbiter access hatch at 6 56 a.m but

96

00:07:14,790 --> 00:07:13,520

this

97

00:07:16,390 --> 00:07:14,800

can be done

98

00:07:18,870 --> 00:07:16,400

up to an hour later if that's really

99

00:07:21,430 --> 00:07:18,880

necessary

100

00:07:23,189 --> 00:07:21,440

joining us right now here in the

101
00:07:23,990 --> 00:07:23,199
firing room

102
00:07:25,270 --> 00:07:24,000
is

103
00:07:31,350 --> 00:07:25,280
jim kelly

104
00:07:35,469 --> 00:07:31,360
nasa to become a nasa astronaut in 1996

105
00:07:39,510 --> 00:07:35,479
and he was pilot on sts-102 in 2001 and

106
00:07:40,390 --> 00:07:39,520
sts-14 in 2005.

107
00:07:41,510 --> 00:07:40,400
and i'll tell you just a little bit

108
00:07:42,710 --> 00:07:41,520
about the closeout crew here the

109
00:07:43,830 --> 00:07:42,720
closeout crew has been existence

110
00:07:45,430 --> 00:07:43,840
obviously since the beginning of the

111
00:07:46,710 --> 00:07:45,440
shuttle and they're just an outstanding

112
00:07:48,710 --> 00:07:46,720
group of folks

113
00:07:49,990 --> 00:07:48,720

they've been together for a long time we

114

00:07:51,270 --> 00:07:50,000

might not even see him here for a little

115

00:07:53,029 --> 00:07:51,280

while but travis thompson's the lead

116

00:07:54,950 --> 00:07:53,039

he's number one they all have numbers on

117

00:07:56,629 --> 00:07:54,960

the back of their gear and on their hats

118

00:07:59,189 --> 00:07:56,639

and things like that and number one is

119

00:08:00,070 --> 00:07:59,199

called the ovcc orbital vehicle closeout

120

00:08:02,469 --> 00:08:00,080

chief

121

00:08:04,309 --> 00:08:02,479

he's been the crew lead uh has 28 years

122

00:08:06,390 --> 00:08:04,319

on this team this is an incredibly

123

00:08:07,990 --> 00:08:06,400

experienced and dedicated team that gets

124

00:08:08,950 --> 00:08:08,000

the people on the orbiter and travis is

125

00:08:10,390 --> 00:08:08,960

in charge of the whole thing and not

126

00:08:12,230 --> 00:08:10,400

only is he in charge of this one but

127

00:08:15,029 --> 00:08:12,240

he's in charge of the whole uh whole

128

00:08:17,749 --> 00:08:16,469

we can see here chris ferguson getting

129

00:08:19,029 --> 00:08:17,759

put into a seat

130

00:08:21,510 --> 00:08:19,039

and the folks that are helping him get

131

00:08:22,629 --> 00:08:21,520

in their seat there are uh number two if

132

00:08:25,510 --> 00:08:22,639

you can see the number two on him is

133

00:08:27,350 --> 00:08:25,520

randy bresnik he's actually uh a marine

134

00:08:28,710 --> 00:08:27,360

uh marine corps colonel he's one of our

135

00:08:29,589 --> 00:08:28,720

astronauts you can see him in the one

136

00:08:31,589 --> 00:08:29,599

screen

137

00:08:32,310 --> 00:08:31,599

and uh randy is actually getting on

138

00:08:33,509 --> 00:08:32,320

there to help out with the

139

00:08:34,630 --> 00:08:33,519

communications sections and all those

140

00:08:35,670 --> 00:08:34,640

kind of things but the guy running the

141

00:08:36,469 --> 00:08:35,680

operation

142

00:08:39,509 --> 00:08:36,479

is

143

00:08:40,949 --> 00:08:39,519

drew billingsley who's number three

144

00:08:45,190 --> 00:08:40,959

and you can see him kind of climbing all

145

00:08:47,829 --> 00:08:46,870

they are complete doug has gotten in

146

00:08:48,949 --> 00:08:47,839

from the mid deck and you kind of have

147

00:08:50,070 --> 00:08:48,959

to go in through the mid deck through

148

00:08:52,150 --> 00:08:50,080

the hatch and in the mid deck you kind

149

00:08:53,670 --> 00:08:52,160

of take a right about a 90 degree right

150

00:08:54,790 --> 00:08:53,680

you have to go through the ladder access

151
00:08:55,829 --> 00:08:54,800
which normally when you're vertical

152
00:08:57,509 --> 00:08:55,839
you'd be climbing the ladder in this

153
00:08:59,509 --> 00:08:57,519
case you're going right and then you

154
00:09:00,870 --> 00:08:59,519
actually crawl on the aft panels and you

155
00:09:02,870 --> 00:09:00,880
can see that randy's actually standing

156
00:09:04,949 --> 00:09:02,880
on the aft panels there as he gets folks

157
00:09:06,790 --> 00:09:04,959
ready to get in in the vehicle so we've

158
00:09:08,870 --> 00:09:06,800
got uh things down there that protect

159
00:09:10,310 --> 00:09:08,880
the off panels a certain place where you

160
00:09:11,910 --> 00:09:10,320
can stand like you notice for instance

161
00:09:13,670 --> 00:09:11,920
randy's not standing on the switches we

162
00:09:14,870 --> 00:09:13,680
can't stand there but it's kind of

163
00:09:16,790 --> 00:09:14,880

intricate you have to weave your way

164

00:09:18,150 --> 00:09:16,800

around and so you come in the hatch you

165

00:09:19,750 --> 00:09:18,160

turn to your right for about 90 degrees

166

00:09:21,829 --> 00:09:19,760

go about five feet you drop down to the

167

00:09:23,110 --> 00:09:21,839

aft panels half lower panels of the

168

00:09:24,710 --> 00:09:23,120

flight deck and then you climb up on the

169

00:09:26,230 --> 00:09:24,720

mission specialist two seat and then you

170

00:09:27,990 --> 00:09:26,240

have to get yourself up in the pilot or

171

00:09:29,350 --> 00:09:28,000

commander seat so these are the hardest

172

00:09:31,430 --> 00:09:29,360

two seats to get into and it's kind of a

173

00:09:32,630 --> 00:09:31,440

monkey bar thing there's a grip up there

174

00:09:33,509 --> 00:09:32,640

that they grab with their hands and then

175

00:09:35,269 --> 00:09:33,519

they put their feet up there and

176

00:09:37,030 --> 00:09:35,279

oftentimes you'll see that the

177

00:09:38,710 --> 00:09:37,040

technicians either drew or randy helping

178

00:09:41,030 --> 00:09:38,720

them get their feet up there and get all

179

00:09:42,949 --> 00:09:41,040

situated and then the critical thing is

180

00:09:44,150 --> 00:09:42,959

is getting yourself on the the parachute

181

00:09:46,230 --> 00:09:44,160

correctly you want to get yourself all

182

00:09:47,590 --> 00:09:46,240

the way down in the seat as far as to

183

00:09:49,030 --> 00:09:47,600

the seat pan as you can because the

184

00:09:50,790 --> 00:09:49,040

shoulder straps of the parachute can be

185

00:09:52,389 --> 00:09:50,800

quite uh

186

00:09:53,509 --> 00:09:52,399

painful if you don't get a little bit

187

00:09:54,790 --> 00:09:53,519

those a little bit loose you want to

188

00:09:56,230 --> 00:09:54,800

make sure you're as far down to the seat

189

00:09:57,590 --> 00:09:56,240

pan as possible so you see a lot of

190

00:09:58,630 --> 00:09:57,600

adjustments here

191

00:09:59,910 --> 00:09:58,640

where they're pushing on them and

192

00:10:01,350 --> 00:09:59,920

pulling on people and getting them in

193

00:10:03,430 --> 00:10:01,360

the right place and it's kind of a

194

00:10:05,030 --> 00:10:03,440

manhandling task obviously with the suit

195

00:10:06,470 --> 00:10:05,040

the suit weighs a lot it usually weighs

196

00:10:08,230 --> 00:10:06,480

about 50 to 60 pounds and so they're

197

00:10:09,829 --> 00:10:08,240

creating a lot of extra weight and it's

198

00:10:11,509 --> 00:10:09,839

bulky and it's it's hard to get where

199

00:10:19,509 --> 00:10:11,519

you want to go and that's why we have so

200

00:10:21,750 --> 00:10:20,630

you can see back in the white room here

201

00:10:22,949 --> 00:10:21,760

you can see sandy saying goodbye

202

00:10:23,990 --> 00:10:22,959

everybody everybody gets pretty close

203

00:10:25,030 --> 00:10:24,000

like i talked these guys are really

204

00:10:26,389 --> 00:10:25,040

proud of the job they did we actually

205

00:10:27,590 --> 00:10:26,399

got a nice shot there of number six and

206

00:10:30,310 --> 00:10:27,600

number seven

207

00:10:32,630 --> 00:10:30,320

number six is the the guy that's not usc

208

00:10:34,310 --> 00:10:32,640

is actually nasa quality so usa has the

209

00:10:35,430 --> 00:10:34,320

contract to do all the operations there

210

00:10:37,030 --> 00:10:35,440

in the white room make sure everything's

211

00:10:38,389 --> 00:10:37,040

done right they're the guys getting all

212

00:10:39,590 --> 00:10:38,399

the equipment out of the vehicle they're

213

00:10:40,710 --> 00:10:39,600

the ones taking care of the hatch

214

00:10:42,790 --> 00:10:40,720

they're the ones taking care of all the

215

00:10:44,069 --> 00:10:42,800

crew equipment that has to go in but

216

00:10:45,350 --> 00:10:44,079

nasa has their own representative out

217

00:10:47,829 --> 00:10:45,360

there in this case it's jack burritt

218

00:10:49,350 --> 00:10:47,839

he's a number six on your screen before

219

00:10:52,150 --> 00:10:49,360

25 years in the space program he's done

220

00:10:53,509 --> 00:10:52,160

15 launches and his job is really to

221

00:10:55,110 --> 00:10:53,519

check everything else that's being done

222

00:10:57,110 --> 00:10:55,120

he's got the checklist that he looks at

223

00:10:58,310 --> 00:10:57,120

and he watches over and behind and goes

224

00:11:00,150 --> 00:10:58,320

after and makes sure that everything

225

00:11:02,630 --> 00:11:00,160

that the usa technicians do is

226

00:11:05,430 --> 00:11:02,640

absolutely perfect

227

00:11:07,190 --> 00:11:05,440

so sandy's in the back on the right and

228

00:11:08,870 --> 00:11:07,200

rex walheim is right in the center

229

00:11:09,910 --> 00:11:08,880

between the commander and the pilot is

230

00:11:11,430 --> 00:11:09,920

that his

231

00:11:12,790 --> 00:11:11,440

vantage point

232

00:11:14,470 --> 00:11:12,800

that is correct yeah the center seat

233

00:11:15,990 --> 00:11:14,480

which is actually where randy's standing

234

00:11:18,150 --> 00:11:16,000

right now he's actually standing on the

235

00:11:19,910 --> 00:11:18,160

seat that rex is going to go into

236

00:11:21,190 --> 00:11:19,920

and what he's doing is he's actually

237

00:11:22,310 --> 00:11:21,200

throwing some switches for the pilot

238

00:11:23,509 --> 00:11:22,320

commander make sure they can reach and

239

00:11:25,030 --> 00:11:23,519

make sure that they're in the correct

240

00:11:26,470 --> 00:11:25,040

configuration because there's a few

241

00:11:27,670 --> 00:11:26,480

switches that need to be thrown as well

242

00:11:29,509 --> 00:11:27,680

as checking the caution and warning

243

00:11:31,190 --> 00:11:29,519

system before they're done strapping

244

00:11:32,870 --> 00:11:31,200

things in

245

00:11:34,949 --> 00:11:32,880

not perform

246

00:11:43,269 --> 00:11:34,959

under the header

247

00:11:46,069 --> 00:11:44,150

see how the white one that's chris

248

00:11:47,590 --> 00:11:46,079

myrgan number five you get travis number

249

00:11:48,630 --> 00:11:47,600

one and they're just getting wrecked in

250

00:11:50,790 --> 00:11:48,640

so

251
00:11:52,790 --> 00:11:50,800
hopefully if things go well today this

252
00:11:54,829 --> 00:11:52,800
will be the last astronaut you'll see uh

253
00:11:57,990 --> 00:11:54,839
climbing into a vehicle to go fly in

254
00:11:59,990 --> 00:11:58,000
space on the shuttle

255
00:12:01,750 --> 00:12:00,000
you can see both doug and uh fergie in

256
00:12:02,949 --> 00:12:01,760
the front are both completely set up

257
00:12:03,910 --> 00:12:02,959
with their gloves they've got their

258
00:12:05,030 --> 00:12:03,920
helmets they've already done that

259
00:12:06,870 --> 00:12:05,040
pressure check i was talking to you

260
00:12:09,110 --> 00:12:06,880
about where they fill up the suit uh

261
00:12:10,310 --> 00:12:09,120
completely and and get that all done

262
00:12:11,509 --> 00:12:10,320
you can see sandy back there is doing

263
00:12:13,910 --> 00:12:11,519

her final adjustment she's getting her

264

00:12:15,670 --> 00:12:13,920

microphones her booms they come off the

265

00:12:17,430 --> 00:12:15,680

comm cap all set there

266

00:12:19,350 --> 00:12:17,440

randy's kind of going up above her now

267

00:12:20,470 --> 00:12:19,360

once drew gets done drew's responsible

268

00:12:21,269 --> 00:12:20,480

for making sure all the connections are

269

00:12:22,870 --> 00:12:21,279

good

270

00:12:24,790 --> 00:12:22,880

once he's done like i said everything

271

00:12:26,230 --> 00:12:24,800

gets double checked then randy will come

272

00:12:27,590 --> 00:12:26,240

by after him he'll chuck all those

273

00:12:29,030 --> 00:12:27,600

connections and then he'll ask the

274

00:12:30,790 --> 00:12:29,040

astronaut so he's talking to sandy right

275

00:12:32,069 --> 00:12:30,800

now he'll be asking her to check all her

276

00:12:34,310 --> 00:12:32,079

connections you know show me where your

277

00:12:36,790 --> 00:12:34,320

harness connection is show me where your

278

00:12:38,550 --> 00:12:36,800

bladder connections are for your uh your

279

00:12:40,310 --> 00:12:38,560

lumbar support the bladder for the

280

00:12:41,829 --> 00:12:40,320

lumbar support show me where your green

281

00:12:44,069 --> 00:12:41,839

apple is the green apple is the

282

00:12:45,509 --> 00:12:44,079

emergency oxygen they fly with and so on

283

00:12:47,030 --> 00:12:45,519

their right hip we've seen it a couple

284

00:12:48,949 --> 00:12:47,040

times with doug

285

00:12:50,389 --> 00:12:48,959

you can see um

286

00:12:51,509 --> 00:12:50,399

a green apple there as we call if you

287

00:12:52,949 --> 00:12:51,519

pull that out then you get an emergency

288

00:12:54,870 --> 00:12:52,959

supply of oxygen that goes into your

289

00:12:56,550 --> 00:12:54,880

suit so um

290

00:12:57,670 --> 00:12:56,560

randy is busy talking with sandy and

291

00:12:59,030 --> 00:12:57,680

making sure she can feel all those

292

00:13:02,310 --> 00:12:59,040

connections are all set for her she's

293

00:13:07,030 --> 00:13:02,320

all set and he's doing that ms1 this is

294

00:13:09,430 --> 00:13:07,040

otc i got too loud and clear how many

295

00:13:12,949 --> 00:13:09,440

and have you loud and close now

296

00:13:12,959 --> 00:13:39,269

good morning

297

00:13:42,790 --> 00:13:40,949

and attention all personnel this is the

298

00:13:45,110 --> 00:13:42,800

entity conducting the launch status

299

00:13:48,710 --> 00:13:45,120

check verify ready to resume count and

300

00:13:52,870 --> 00:13:48,720

go for launch otc otc is go tbc thank

301
00:13:55,910 --> 00:13:52,880
you booster go ptc ptc's go lps lps is

302
00:13:57,750 --> 00:13:55,920
good houston flight houston flight uh if

303
00:13:59,829 --> 00:13:57,760
you give me if you pull me at the end i

304
00:14:01,430 --> 00:13:59,839
would appreciate it stand by

305
00:14:03,350 --> 00:14:01,440
yes sir we'll pull you later

306
00:14:06,389 --> 00:14:03,360
mila milo

307
00:14:10,870 --> 00:14:06,399
stm stm is going safety console fifth

308
00:14:13,670 --> 00:14:10,880
cost for let's go spe sp is go lrd lrd

309
00:14:17,430 --> 00:14:13,680
is go sro at the rose go you have a

310
00:14:19,670 --> 00:14:17,440
range clear launch and cdr

311
00:14:21,910 --> 00:14:19,680
cdi is go

312
00:14:23,670 --> 00:14:21,920
and launch director ntd our launch team

313
00:14:25,030 --> 00:14:23,680

is ready to proceed with the exception

314

00:14:27,030 --> 00:14:25,040
of flight who still needs a little bit

315

00:14:28,629 --> 00:14:27,040
more time to make his evaluations on

316

00:14:31,030 --> 00:14:28,639
rtls weather

317

00:14:32,710 --> 00:14:31,040
i copy that i'll do my poll this time kc

318

00:14:34,710 --> 00:14:32,720
chief processing engineer verify no

319

00:14:36,550 --> 00:14:34,720
constraints for launch no constraints

320

00:14:40,710 --> 00:14:36,560
thank you steve kfc safety mission

321

00:14:44,310 --> 00:14:42,389
safety and mission insurance cisco mike

322

00:14:45,990 --> 00:14:44,320
thank you terry payload launch manager

323

00:14:47,509 --> 00:14:46,000
hey mike on behalf of the iss ground

324

00:14:48,870 --> 00:14:47,519
processing team want to say thanks to

325

00:14:50,949 --> 00:14:48,880
you and the shuttle team it's been a

326

00:14:53,269 --> 00:14:50,959

great partnership and we are go thank

327

00:14:54,870 --> 00:14:53,279

you bill appreciate that range weather

328

00:14:56,829 --> 00:14:54,880

march weather has no constraints for

329

00:14:58,710 --> 00:14:56,839

launch thank you kathy atlantis flow

330

00:15:00,710 --> 00:14:58,720

director

331

00:15:02,790 --> 00:15:00,720

on behalf of the government from kfc

332

00:15:04,230 --> 00:15:02,800

federal processing

333

00:15:06,550 --> 00:15:04,240

thank you angie

334

00:15:08,389 --> 00:15:06,560

opps manager

335

00:15:10,150 --> 00:15:08,399

see mike uh waiting to get final go from

336

00:15:14,150 --> 00:15:10,160

flight here let's hear what he says and

337

00:15:18,150 --> 00:15:15,990

atlantis launch director air-to-ground

338

00:15:19,829 --> 00:15:18,160

one

339

00:15:21,430 --> 00:15:19,839

atlantis go

340

00:15:22,550 --> 00:15:21,440

okay fergie uh we're starting to feel

341

00:15:25,189 --> 00:15:22,560

pretty good down here on the ground

342

00:15:26,949 --> 00:15:25,199

about this one today so on behalf of the

343

00:15:28,550 --> 00:15:26,959

greatest team in the world

344

00:15:31,030 --> 00:15:28,560

good luck to you and your crew on the

345

00:15:33,670 --> 00:15:31,040

final flight of this true american icon

346

00:15:35,030 --> 00:15:33,680

and so for the final time fergie

347

00:15:37,350 --> 00:15:35,040

doug

348

00:15:40,550 --> 00:15:37,360

sanding rex good luck godspeed and have

349

00:15:42,230 --> 00:15:40,560

a little fun up there

350

00:15:44,069 --> 00:15:42,240

hey thanks to you and your team mike

351
00:15:45,030 --> 00:15:44,079
until the very end you all made it look

352
00:15:46,310 --> 00:15:45,040
easy

353
00:15:47,990 --> 00:15:46,320
the shuttle's always going to be a

354
00:15:49,829 --> 00:15:48,000
reflection of what a great nation can do

355
00:15:51,030 --> 00:15:49,839
when it dares to be bold and commits to

356
00:15:52,550 --> 00:15:51,040
follow through

357
00:15:54,310 --> 00:15:52,560
without ending the journey today mike

358
00:15:55,829 --> 00:15:54,320
we're completing a chapter of a journey

359
00:15:57,350 --> 00:15:55,839
that will never end

360
00:15:59,189 --> 00:15:57,360
you and the thousands of men and women

361
00:16:01,110 --> 00:15:59,199
who gave their hearts souls and their

362
00:16:02,710 --> 00:16:01,120
lives for the cause of exploration have

363
00:16:04,710 --> 00:16:02,720

rewritten history

364

00:16:06,230 --> 00:16:04,720

let's light this fire one more time mike

365

00:16:08,150 --> 00:16:06,240

and witness this great nation at its

366

00:16:09,590 --> 00:16:08,160

best the crew of atlantis is ready for

367

00:16:11,110 --> 00:16:09,600

launch

368

00:16:13,509 --> 00:16:11,120

thank you sir we'll get you going here

369

00:16:17,350 --> 00:16:13,519

in a couple of minutes

370

00:16:22,230 --> 00:16:17,360

ntd houston slide on 212.

371

00:16:24,150 --> 00:16:22,240

go ahead fight for the record i'm go

372

00:16:25,350 --> 00:16:24,160

copies and launch director that is our

373

00:16:27,910 --> 00:16:25,360

entire launch team we are ready to

374

00:16:30,150 --> 00:16:27,920

proceed at this time i copy that ops

375

00:16:35,110 --> 00:16:30,160

manager

376

00:16:36,710 --> 00:16:35,120

yes sir he discussed it with the mmt

377

00:16:37,990 --> 00:16:36,720

and the flight director

378

00:16:40,069 --> 00:16:38,000

we are going to take a waiver to the

379

00:16:41,910 --> 00:16:40,079

rtls forecast no go

380

00:16:43,269 --> 00:16:41,920

based on uh

381

00:16:45,430 --> 00:16:43,279

the potential that there will be light

382

00:16:46,870 --> 00:16:45,440

precip if we ended up in an rtls if

383

00:16:49,030 --> 00:16:46,880

they've looked at that

384

00:16:51,110 --> 00:16:49,040

chances of thundershowers are very low

385

00:16:52,629 --> 00:16:51,120

and i believe that's an acceptable risk

386

00:16:54,150 --> 00:16:52,639

we have plenty of energy we only need

387

00:16:56,150 --> 00:16:54,160

one end of the runway on the rtls i

388

00:16:58,230 --> 00:16:56,160

think we got some sound rationale here

389

00:17:00,870 --> 00:16:58,240

to take that waiver on the rtls forecast

390

00:17:02,949 --> 00:17:00,880

being no go so with that uh we are clear

391

00:17:04,470 --> 00:17:02,959

networking which is your good launch

392

00:17:06,470 --> 00:17:04,480

okay thank you mike appreciate that and

393

00:17:07,669 --> 00:17:06,480

fergie you heard those words so uh we'll

394

00:17:10,870 --> 00:17:07,679

get you

395

00:17:14,069 --> 00:17:10,880

going here shortly good luck guys

396

00:17:15,510 --> 00:17:14,079

fantastic news thanks mike

397

00:17:16,949 --> 00:17:15,520

entity without you were clear to launch

398

00:17:21,669 --> 00:17:16,959

atlanta

399

00:17:24,949 --> 00:17:23,350

the countdown clock will resume on my

400

00:17:26,069 --> 00:17:24,959

mark

401
00:17:27,029 --> 00:17:26,079
three

402
00:17:27,990 --> 00:17:27,039
two

403
00:17:28,870 --> 00:17:28,000
one

404
00:17:31,029 --> 00:17:28,880
mark

405
00:17:36,310 --> 00:17:31,039
t minus nine minutes and counting

406
00:17:42,870 --> 00:17:39,669
plt otc connect essential buses to fuel

407
00:17:48,549 --> 00:17:42,880
cells for your checklist

408
00:17:53,590 --> 00:17:50,630
armory track

409
00:17:55,510 --> 00:17:53,600
atlantis this otc this day has been over

410
00:17:57,510 --> 00:17:55,520
30 years in the making there have been

411
00:18:01,270 --> 00:17:57,520
many fabulous missions throughout the

412
00:18:03,350 --> 00:18:01,280
years on behalf of ksc launch teams past

413
00:18:06,390 --> 00:18:03,360

and present we salute the entire

414

00:18:08,230 --> 00:18:06,400

astronaut corps for their dedication not

415

00:18:11,029 --> 00:18:08,240

only for our expanded knowledge of the

416

00:18:13,190 --> 00:18:11,039

universe but for the improvements you

417

00:18:16,789 --> 00:18:13,200

have contributed to on earth have an

418

00:18:19,510 --> 00:18:18,710

fantastic words roberta thank you very

419

00:18:22,630 --> 00:18:19,520

much

420

00:18:25,029 --> 00:18:22,640

great to your team thank you sir

421

00:18:32,470 --> 00:18:25,039

orbiter test conductor roberta wyrick

422

00:18:41,270 --> 00:18:36,549

plp otc perform apu pre-start

423

00:18:53,750 --> 00:18:43,669

tlt three great packs

424

00:18:53,760 --> 00:19:13,190

plt otc perform ap start

425

00:19:22,470 --> 00:19:16,150

flight crew otc close unlock your visors

426

00:19:22,480 --> 00:19:28,470

t-minus two minutes

427

00:19:28,480 --> 00:19:32,150

lh2 pressurization

428

00:19:38,470 --> 00:19:34,549

p-minus 40 seconds handing off to

429

00:19:40,549 --> 00:19:38,480

atlantis computers at t-minus 31.

430

00:19:43,029 --> 00:19:40,559

b minus 35

431

00:19:45,909 --> 00:19:43,039

33.

432

00:19:48,230 --> 00:19:45,919

31 seconds due to a failure

433

00:19:56,789 --> 00:19:48,240

and we have had a failure

434

00:19:59,270 --> 00:19:57,830

uh

435

00:20:01,909 --> 00:19:59,280

guys to go do the

436

00:20:04,950 --> 00:20:01,919

verification for the lcc please

437

00:20:09,510 --> 00:20:07,590

the ltc yeah we need to verify using a

438

00:20:12,310 --> 00:20:09,520

camera and we're

439

00:20:13,990 --> 00:20:12,320

positioning camera 62 right now okay let

440

00:20:15,990 --> 00:20:14,000

us know the center 62 is swung over and

441

00:20:18,070 --> 00:20:16,000

you can verify lcc for gva retract

442

00:20:21,750 --> 00:20:18,080

please

443

00:20:24,390 --> 00:20:21,760

this is cmec we verify uh retracted

444

00:20:26,789 --> 00:20:24,400

all right nfpe and ntd ste concurs they

445

00:20:28,549 --> 00:20:26,799

satisfy the requirements of gsc13 prepon

446

00:20:30,710 --> 00:20:28,559

contingency i'm go

447

00:20:45,830 --> 00:20:30,720

okay i copy and launch director yes sir

448

00:20:49,430 --> 00:20:48,070

and off to atlantis computers has

449

00:20:51,190 --> 00:20:49,440

occurred

450

00:20:53,029 --> 00:20:51,200

solid rocket booster nozzle steering

451
00:20:55,830 --> 00:20:53,039
check and work

452
00:20:55,840 --> 00:21:00,870
firing chain is armed

453
00:21:05,350 --> 00:21:03,190
go for main engine start

454
00:21:06,310 --> 00:21:05,360
t-minus ten nine

455
00:21:07,270 --> 00:21:06,320
eight

456
00:21:08,470 --> 00:21:07,280
seven

457
00:21:09,909 --> 00:21:08,480
six

458
00:21:12,549 --> 00:21:09,919
five

459
00:21:13,350 --> 00:21:12,559
all three engines up and burning

460
00:21:14,149 --> 00:21:13,360
two

461
00:21:17,350 --> 00:21:14,159
one

462
00:21:19,669 --> 00:21:17,360
zero and lift off the final liftoff of

463
00:21:25,909 --> 00:21:19,679

atlantis on the shoulders of the space

464

00:21:29,750 --> 00:21:28,230

roger roll atlantis

465

00:21:32,149 --> 00:21:29,760

houston now controlling the flight of

466

00:21:34,310 --> 00:21:32,159

atlantis the space shuttle spreads its

467

00:21:38,390 --> 00:21:34,320

wings one final time for the start of a

468

00:21:43,110 --> 00:21:41,029

24 seconds into the flight road program

469

00:21:44,789 --> 00:21:43,120

complete atlantis now heads down wings

470

00:21:46,549 --> 00:21:44,799

level on the proper alignment for its

471

00:21:47,909 --> 00:21:46,559

eight and a half minute ride to orbit

472

00:21:49,669 --> 00:21:47,919

four and a half million pounds of

473

00:21:53,350 --> 00:21:49,679

hardware and humans taking aim on the

474

00:21:57,190 --> 00:21:55,430

40 seconds into the flight the three

475

00:21:59,350 --> 00:21:57,200

liquid fuel main engines throttling back

476
00:22:00,950 --> 00:21:59,360
to 72 percent of rated performance in

477
00:22:02,630 --> 00:22:00,960
the bucket reducing stress on the

478
00:22:06,630 --> 00:22:02,640
shuttle as it goes transonic for the

479
00:22:25,350 --> 00:22:08,630
engine is now revving up standing by for

480
00:22:34,230 --> 00:22:28,070
atlantis go add throttle up no action

481
00:22:38,630 --> 00:22:36,230
that call from capcom barry wilmore a

482
00:22:45,590 --> 00:22:38,640
transducer instrumentation only no

483
00:22:50,230 --> 00:22:48,149
atlantis now 15 miles in altitude

484
00:22:51,990 --> 00:22:50,240
already 16 miles downrange from the

485
00:22:55,110 --> 00:22:52,000
kennedy space center one minute 40

486
00:22:57,350 --> 00:22:55,120
seconds into the flight

487
00:23:00,630 --> 00:22:57,360
atlantis flexing its muscles one final

488
00:23:05,669 --> 00:23:03,110

atlantis traveling almost 2600 miles an

489

00:23:08,070 --> 00:23:05,679

hour 21 miles in altitude 24 miles

490

00:23:21,990 --> 00:23:08,080

downrange standing by for solid rocket

491

00:23:26,390 --> 00:23:24,070

booster officer confirms staging a good

492

00:23:28,630 --> 00:23:26,400

solid rocket booster separation guidance

493

00:23:30,310 --> 00:23:28,640

now converging the main engine steering

494

00:23:33,029 --> 00:23:30,320

the shuttle on a pinpoint path to its

495

00:23:34,870 --> 00:23:33,039

preliminary orbit two minutes 20 seconds

496

00:23:37,590 --> 00:23:34,880

into the flight atlantis already

497

00:23:47,430 --> 00:23:37,600

traveling 3 200 miles an hour 35 miles

498

00:23:51,990 --> 00:23:49,430

8 minutes 15 seconds into the flight

499

00:23:53,590 --> 00:23:52,000

standing by for main engine cut off

500

00:23:55,190 --> 00:23:53,600

that'll be followed a few seconds later

501
00:24:02,149 --> 00:23:55,200
by the separation of the external fuel

502
00:24:05,990 --> 00:24:04,149
booster officer confirms main engine

503
00:24:07,669 --> 00:24:06,000
cutoff

504
00:24:10,230 --> 00:24:07,679
for the last time the space shuttle's

505
00:24:11,990 --> 00:24:10,240
main engines have fallen silent as the

506
00:24:15,430 --> 00:24:12,000
shuttle slips into the final chapter of

507
00:24:17,029 --> 00:24:15,440
a storied 30-year adventure

508
00:24:27,430 --> 00:24:17,039
now standing by for external tank

509
00:24:30,870 --> 00:24:29,510
atlantis off the tank

510
00:24:32,470 --> 00:24:30,880
commander chris ferguson will be

511
00:24:34,710 --> 00:24:32,480
maneuvering atlantis now into an

512
00:24:36,549 --> 00:24:34,720
orientation to enable sandy magnus to

513
00:24:38,789 --> 00:24:36,559

capture digital still imagery of the

514

00:24:40,789 --> 00:24:38,799

external fuel tank as it drifts away

515

00:24:46,310 --> 00:24:40,799

ohm's one is not required your

516

00:24:53,430 --> 00:24:46,320

preliminary owns two tig 37 minutes

517

00:24:57,909 --> 00:24:55,110

atlantis houston we're back with you

518

00:25:00,470 --> 00:24:57,919

after after an unexpected extended time

519

00:25:02,470 --> 00:25:00,480

off the tail how do you copy

520

00:25:04,070 --> 00:25:02,480

hey we got you a sort of rowdy houston

521

00:25:06,549 --> 00:25:04,080

but legible you want to go ahead with

522

00:25:09,029 --> 00:25:06,559

your tag up

523

00:25:10,710 --> 00:25:09,039

okay hopefully it'll stay with us

524

00:25:13,190 --> 00:25:10,720

here's what i have for you

525

00:25:15,110 --> 00:25:13,200

our energy observations are ongoing but

526

00:25:17,430 --> 00:25:15,120

so far we see nothing that would

527

00:25:19,190 --> 00:25:17,440

indicate any concern for the vehicle or

528

00:25:20,789 --> 00:25:19,200

success of the mission

529

00:25:24,070 --> 00:25:20,799

we've also taken a quick look at our

530

00:25:26,789 --> 00:25:24,080

cryo margins with h2 being the limiter

531

00:25:28,230 --> 00:25:26,799

and we see about 23 hours of margin so

532

00:25:29,750 --> 00:25:28,240

almost a full day so there's some good

533

00:25:31,990 --> 00:25:29,760

news there

534

00:25:33,190 --> 00:25:32,000

we'll take your window report when you

535

00:25:34,710 --> 00:25:33,200

have it

536

00:25:36,950 --> 00:25:34,720

and i personally want to let you know

537

00:25:38,630 --> 00:25:36,960

that was a beautiful launch and

538

00:25:40,950 --> 00:25:38,640

from where we were and of course those

539

00:25:42,549 --> 00:25:40,960

folks in florida had a great show

540

00:25:44,070 --> 00:25:42,559

and all of us here are pretty envious of

541

00:25:45,990 --> 00:25:44,080

your view as you pop through that cloud

542

00:25:48,870 --> 00:25:46,000

deck

543

00:25:51,990 --> 00:25:48,880

okay uh copy and if you wanted a bottoms

544

00:25:53,830 --> 00:25:52,000

report we went in at about 20 000 and

545

00:25:57,110 --> 00:25:53,840

out about um

546

00:25:59,909 --> 00:25:57,120

about a nanosecond later

547

00:26:01,350 --> 00:25:59,919

that's what we expected

548

00:26:02,789 --> 00:26:01,360

uh we are coming to the end of the

549

00:26:04,789 --> 00:26:02,799

ascent team we're in the process of

550

00:26:06,470 --> 00:26:04,799

turning over to your orbit two team and

551
00:26:07,669 --> 00:26:06,480
uh we twisted richard's arm and instead

552
00:26:10,549 --> 00:26:07,679
of talking through me we're gonna let

553
00:26:12,390 --> 00:26:10,559
him say a few words himself

554
00:26:14,310 --> 00:26:12,400
let's see fergie uh just wanted to say

555
00:26:17,669 --> 00:26:14,320
congratulations to you chunky sandy and

556
00:26:19,269 --> 00:26:17,679
rex uh on a spectacular ascent

557
00:26:20,950 --> 00:26:19,279
um

558
00:26:22,390 --> 00:26:20,960
as butch just said the essen team is

559
00:26:24,390 --> 00:26:22,400
signing off right now we just wanted to

560
00:26:27,110 --> 00:26:24,400
wish you all of our best

561
00:26:29,350 --> 00:26:27,120
and that we are are with you

562
00:26:32,789 --> 00:26:29,360
as you accomplish your historic flight

563
00:26:36,549 --> 00:26:34,710

hey richard uh i'll tell you the honor

564

00:26:38,310 --> 00:26:36,559

has been all ours i mean you know we're

565

00:26:39,590 --> 00:26:38,320

one of the fortunate few who get a

566

00:26:41,510 --> 00:26:39,600

chance to see the world from this

567

00:26:43,830 --> 00:26:41,520

perspective um

568

00:26:45,510 --> 00:26:43,840

and uh i do i want to thank you guys and

569

00:26:47,909 --> 00:26:45,520

boy i'll tell you i cannot wait to hear

570

00:26:50,950 --> 00:26:47,919

the story uh both a coming out of the

571

00:26:52,470 --> 00:26:50,960

t-minus nine hold and b at t-minus 31

572

00:26:54,470 --> 00:26:52,480

seconds i'm sure there were a few folks

573

00:26:56,710 --> 00:26:54,480

on the edge of their seats down there

574

00:26:58,230 --> 00:26:56,720

um you know if i could just pass to you

575

00:27:00,310 --> 00:26:58,240

and your team i know uh we're going to

576

00:27:02,470 --> 00:27:00,320

see a few of you for entry

577

00:27:03,909 --> 00:27:02,480

i would like to uh just kind of you know

578

00:27:05,590 --> 00:27:03,919

recognize a few folks that have been

579

00:27:07,350 --> 00:27:05,600

just key to this program for years and

580

00:27:08,710 --> 00:27:07,360

years uh the first one being mark

581

00:27:10,870 --> 00:27:08,720

mcdonald i don't think we're gonna see

582

00:27:13,590 --> 00:27:10,880

him for uh for entry

583

00:27:15,909 --> 00:27:13,600

uh tom arnold of course uh king of the

584

00:27:17,590 --> 00:27:15,919

boosters and uh

585

00:27:19,350 --> 00:27:17,600

uh joe jones i don't think we're gonna

586

00:27:24,950 --> 00:27:19,360

see you for entry either you guys are

587

00:27:29,990 --> 00:27:27,110

you guys are all heroes in our mind if

588

00:27:31,430 --> 00:27:30,000

for the uh you certainly deserve a

589

00:27:33,190 --> 00:27:31,440

round of applause and i'd like you to

590

00:27:35,830 --> 00:27:33,200

stand up and take one right now if you

591

00:27:49,750 --> 00:27:35,840

could it's been just a pleasure of a

592

00:27:52,870 --> 00:27:51,430

wow fergie those were great i think i

593

00:27:54,470 --> 00:27:52,880

heard one or two people clapping there

594

00:27:56,149 --> 00:27:54,480

that's wonderful

595

00:27:58,389 --> 00:27:56,159

i may have gotten a couple of claps in

596

00:28:00,149 --> 00:27:58,399

here fergie those were awesome words uh

597

00:28:01,590 --> 00:28:00,159

you guys have a tremendous flight we

598

00:28:02,789 --> 00:28:01,600

will be watching

599

00:28:06,310 --> 00:28:02,799

thanks and i'm going to address the team

600

00:28:13,590 --> 00:28:08,389

got speed richard

601
00:28:17,110 --> 00:28:15,350
and we've got our onboard video now live

602
00:28:18,549 --> 00:28:17,120
onboard space shuttle atlantis these are

603
00:28:19,990 --> 00:28:18,559
the first views of the cruise that we're

604
00:28:21,350 --> 00:28:20,000
getting

605
00:28:23,430 --> 00:28:21,360
you can see sandy magnus there on the

606
00:28:24,870 --> 00:28:23,440
far left hand side as we talked about

607
00:28:26,549 --> 00:28:24,880
before she's going to be sort of the

608
00:28:28,549 --> 00:28:26,559
load master during this flight she's got

609
00:28:29,830 --> 00:28:28,559
quite a bit of responsibility

610
00:28:31,669 --> 00:28:29,840
getting all the different payloads and

611
00:28:32,950 --> 00:28:31,679
cargo moved across the hatches there's

612
00:28:34,230 --> 00:28:32,960
quite a bit that's going over to the

613
00:28:36,389 --> 00:28:34,240

space station

614

00:28:38,230 --> 00:28:36,399

and a little bit coming home on board

615

00:28:40,870 --> 00:28:38,240

atlantis

616

00:28:43,590 --> 00:28:40,880

not only will the crew take care of 25

617

00:28:46,230 --> 00:28:43,600

478 pounds of cargo inside the

618

00:28:47,590 --> 00:28:46,240

multi-purpose logistics module

619

00:28:50,110 --> 00:28:47,600

but there's also quite a bit of cargo

620

00:28:52,230 --> 00:28:50,120

located on atlantis mid deck there's

621

00:28:53,990 --> 00:28:52,240

2281 pounds

622

00:28:55,350 --> 00:28:54,000

a little more than a ton

623

00:28:56,870 --> 00:28:55,360

so they will move all of that across to

624

00:28:58,389 --> 00:28:56,880

the international space station locate

625

00:29:00,590 --> 00:28:58,399

the places for it

626
00:29:03,510 --> 00:29:00,600
and then onboard the station is 1

627
00:29:05,750 --> 00:29:03,520
564 pounds of cargo that's going to be

628
00:29:07,909 --> 00:29:05,760
moved back from the station

629
00:29:18,950 --> 00:29:07,919
over to atlantis mid deck for the ride

630
00:29:21,750 --> 00:29:20,950
if you look closely you can see the test

631
00:29:23,590 --> 00:29:21,760
out

632
00:29:25,350 --> 00:29:23,600
of the latches on the end of the

633
00:29:27,029 --> 00:29:25,360
shuttle's robotic arm

634
00:29:28,710 --> 00:29:27,039
it's merely three cables that basically

635
00:29:30,310 --> 00:29:28,720
snap together and grab onto something a

636
00:29:31,750 --> 00:29:30,320
lot of people always ask us exactly how

637
00:29:33,029 --> 00:29:31,760
the robotic arm

638
00:29:34,389 --> 00:29:33,039

latches onto something but you saw it

639

00:29:35,350 --> 00:29:34,399

happen just there it's fairly quick but

640

00:29:37,110 --> 00:29:35,360

those three

641

00:29:39,269 --> 00:29:37,120

snare basically pull across each other

642

00:29:40,950 --> 00:29:39,279

and pull taut