1
00:00:06,070 --> 00:00:04,550
welcome to this launch status news

2
00:00:07,909 --> 00:00:06,080
conference for space shuttle endeavors

3
00:00:10,070 --> 00:00:07,919
sts-134 mission to the international

4
00:00:11,830 --> 00:00:10,080
space station we have two nasa managers

5
00:00:13,430 --> 00:00:11,840
here today to give us a update on the

6
00:00:14,709 --> 00:00:13,440
latest preparations for our next launch

7
00:00:17,349 --> 00:00:14,719
attempt for endeavor

8
00:00:19,510 --> 00:00:17,359
first we have the space shuttle launch

9
00:00:20,630 --> 00:00:19,520
integration manager mike moses good

10
00:00:22,070 --> 00:00:20,640
afternoon

11
00:00:24,230 --> 00:00:22,080
and finally we have shuttle launch

12
00:00:25,349 --> 00:00:24,240
director mike leinbach good afternoon

13
00:00:27,269 --> 00:00:25,359

we'll start with opening comments and

14
00:00:29,269 --> 00:00:27,279
then go to questions sir all right

15
00:00:30,710 --> 00:00:29,279
thanks ellen

16
00:00:32,630 --> 00:00:30,720
let's see just to recap you know the

17
00:00:34,709 --> 00:00:32,640
failure that uh that caused us to scrub

18
00:00:37,270 --> 00:00:34,719
on launch day was a uh the signature we

19
00:00:39,910 --> 00:00:37,280
saw was a heater over on apu1 that's

20
00:00:42,150 --> 00:00:39,920
auxiliary power unit number one uh a

21
00:00:44,150 --> 00:00:42,160
system that uh burns off hydrazine to

22
00:00:45,430 --> 00:00:44,160
spin a turbine and create

23
00:00:47,190 --> 00:00:45,440
or spin a pump then that creates

24
00:00:48,470 --> 00:00:47,200
hydraulic pressure and provides

25
00:00:51,110 --> 00:00:48,480
hydraulic pressure to the the

26
00:00:53,189 --> 00:00:51,120
aerosurfaces and the main engines

27
00:00:54,630 --> 00:00:53,199
one of the fuel line heaters

28
00:00:56,389 --> 00:00:54,640
was not working we saw the temperatures

29
00:00:57,910 --> 00:00:56,399
dropping really low

30
00:00:59,670 --> 00:00:57,920
turns out after doing all the data

31
00:01:01,430 --> 00:00:59,680
review and and and taking in what we've

32
00:01:03,430 --> 00:01:01,440
learned on ship testing there were

33
00:01:05,830 --> 00:01:03,440
actually five separate heaters that had

34
00:01:07,670 --> 00:01:05,840
failed uh and we traced the commonality

35
00:01:10,550 --> 00:01:07,680
back to a power supply

36
00:01:12,390 --> 00:01:10,560
uh what we call a hybrid driver up in a

37
00:01:14,310 --> 00:01:12,400
box we call the the

38
00:01:16,310 --> 00:01:14,320

lca the load controller assembly in this

39
00:01:17,990 --> 00:01:16,320
case it's uh number two there's three of

40
00:01:20,149 --> 00:01:18,000
them uh in the aft compartment that feed

41
00:01:23,270 --> 00:01:20,159
power back to the the systems in the

42
00:01:25,830 --> 00:01:23,280
back of the orbiter so uh alc number two

43
00:01:27,510 --> 00:01:25,840
load control assembly number two failed

44
00:01:29,030 --> 00:01:27,520
a party inside it

45
00:01:30,469 --> 00:01:29,040
and that that's a common cause so we

46
00:01:32,630 --> 00:01:30,479
went in and we looked and we pulled that

47
00:01:34,550 --> 00:01:32,640
box out um and we've done

48
00:01:35,510 --> 00:01:34,560
troubleshooting on it and inside that

49
00:01:37,190 --> 00:01:35,520
box

50
00:01:38,310 --> 00:01:37,200
there's a whole bunch of cards and

51
00:01:39,590 --> 00:01:38,320
circuits

52
00:01:41,030 --> 00:01:39,600
on the particular one that we were

53
00:01:43,030 --> 00:01:41,040
interested in we saw what we call a

54
00:01:45,109 --> 00:01:43,040
fusible link which is literally a little

55
00:01:46,870 --> 00:01:45,119
piece of gold wire that bridges a gap

56
00:01:49,830 --> 00:01:46,880
between the two elements of that circuit

57
00:01:52,630 --> 00:01:49,840
card uh head blown which effectively is

58
00:01:55,350 --> 00:01:52,640
a fuse uh to tell us that

59
00:01:57,030 --> 00:01:55,360
that that piece had seen high current um

60
00:01:58,870 --> 00:01:57,040
and the the cause of that high current

61
00:02:00,630 --> 00:01:58,880
is still kind of unknown and we're not

62
00:02:02,469 --> 00:02:00,640
sure exactly where it came from but but

63
00:02:04,630 --> 00:02:02,479

we know where it impacted and by blowing

64
00:02:06,069 --> 00:02:04,640
that link that took that driver offline

65
00:02:07,910 --> 00:02:06,079
and prevented it from providing any

66
00:02:09,190 --> 00:02:07,920
power downstream so the failure on

67
00:02:11,029 --> 00:02:09,200
launch day was a

68
00:02:12,309 --> 00:02:11,039
failure of having power supplied to the

69
00:02:14,309 --> 00:02:12,319
heaters

70
00:02:15,190 --> 00:02:14,319
the cause of that failure to supply

71
00:02:17,350 --> 00:02:15,200
power

72
00:02:19,030 --> 00:02:17,360
we're still not exactly sure of and so

73
00:02:21,190 --> 00:02:19,040
we went through what we call our

74
00:02:22,869 --> 00:02:21,200
unexplained anomaly troubleshooting

75
00:02:24,470 --> 00:02:22,879
which basically when you don't have an

76
00:02:26,390 --> 00:02:24,480
exact root cause what are you going to

77
00:02:28,150 --> 00:02:26,400
do next

78
00:02:29,589 --> 00:02:28,160
and for that we basically started

79
00:02:31,110 --> 00:02:29,599
attacking the different components in

80
00:02:33,110 --> 00:02:31,120
the system we knew we were going to

81
00:02:34,309 --> 00:02:33,120
change that box itself out the alc

82
00:02:36,390 --> 00:02:34,319
number two the load control assembly

83
00:02:38,150 --> 00:02:36,400
number two box and we we had the new box

84
00:02:39,270 --> 00:02:38,160
ready to go and put in and i think we

85
00:02:40,790 --> 00:02:39,280
actually have some video right we might

86
00:02:43,430 --> 00:02:40,800
as well go ahead and run that while i'm

87
00:02:44,710 --> 00:02:43,440
talking uh this will be uh showing you

88
00:02:46,070 --> 00:02:44,720

the technicians

89
00:02:47,350 --> 00:02:46,080
going into the endeavor out at the

90
00:02:49,430 --> 00:02:47,360
launch pad

91
00:02:51,270 --> 00:02:49,440
going in through the aft access door

92
00:02:53,270 --> 00:02:51,280
which you see right there

93
00:02:55,270 --> 00:02:53,280
to get into the aft compartment and head

94
00:02:57,270 --> 00:02:55,280
into avbay number five which in this

95
00:02:59,430 --> 00:02:57,280
view is over their heads

96
00:03:01,350 --> 00:02:59,440
and remove that failed box and it's

97
00:03:03,670 --> 00:03:01,360
about the size of a

98
00:03:04,949 --> 00:03:03,680
a pretty good size

99
00:03:06,470 --> 00:03:04,959
and it's got a whole lot of electrical

100
00:03:07,990 --> 00:03:06,480
connections on the back end of it so you

101
00:03:17,190 --> 00:03:08,000
can see the technicians removing that

102
00:03:20,790 --> 00:03:18,550
as we've told you before the big issue

103
00:03:22,710 --> 00:03:20,800
with this box is uh is after you put a

104
00:03:24,550 --> 00:03:22,720
new one in retesting all the components

105
00:03:25,830 --> 00:03:24,560
that it feeds once you disconnect all

106
00:03:27,990 --> 00:03:25,840
those electrical connections and you'll

107
00:03:28,949 --> 00:03:28,000
see a shot here shortly of the uh of the

108
00:03:30,550 --> 00:03:28,959
side of that box where all the

109
00:03:32,949 --> 00:03:30,560
electrical connections are there you are

110
00:03:35,110 --> 00:03:32,959
each one of those has uh multiple cables

111
00:03:36,550 --> 00:03:35,120
hooked up to it and hundreds of wires

112
00:03:38,869 --> 00:03:36,560
and so every one of those functions has

113
00:03:41,670 --> 00:03:38,879

to be checked the box went down to our

114
00:03:43,350 --> 00:03:41,680
our logistics depot the nsld down in

115
00:03:44,550 --> 00:03:43,360
cape canaveral where they removed the

116
00:03:45,430 --> 00:03:44,560
cover here you'll see what i'm talking

117
00:03:46,949 --> 00:03:45,440
about

118
00:03:48,470 --> 00:03:46,959
a whole bunch of wire in there and a

119
00:03:51,110 --> 00:03:48,480
whole bunch of little gold cards each

120
00:03:53,270 --> 00:03:51,120
one of those is a module that affects

121
00:03:54,949 --> 00:03:53,280
given systems so in addition to trying

122
00:03:57,110 --> 00:03:54,959
to find the cause of the short in this

123
00:03:58,630 --> 00:03:57,120
box we have to retest each one of those

124
00:04:00,229 --> 00:03:58,640
systems because we've reconnected the

125
00:04:02,789 --> 00:04:00,239
lines and you want to make sure you had

126
00:04:04,229 --> 00:04:02,799
good copper path electrical connections

127
00:04:05,910 --> 00:04:04,239
so you can see they'll show you a

128
00:04:07,110 --> 00:04:05,920
close-up here one of the gold chips we

129
00:04:09,030 --> 00:04:07,120
know the failures on one of those little

130
00:04:10,710 --> 00:04:09,040
cards but you don't know if it's on any

131
00:04:12,630 --> 00:04:10,720
of this wiring up stream there's still a

132
00:04:14,149 --> 00:04:12,640
whole lot of what we call external

133
00:04:16,150 --> 00:04:14,159
failures and that doesn't necessarily

134
00:04:18,310 --> 00:04:16,160
mean necessarily mean external to the

135
00:04:20,870 --> 00:04:18,320
box it just means external to the little

136
00:04:22,310 --> 00:04:20,880
hybrid driver uh electrical component on

137
00:04:23,749 --> 00:04:22,320
that box

138
00:04:25,189 --> 00:04:23,759

and so the box the failure still could

139
00:04:27,350 --> 00:04:25,199
be inside that box or it could be

140
00:04:29,110 --> 00:04:27,360
outside and and here you're back in nav

141
00:04:31,510 --> 00:04:29,120
bay five again and they're doing some

142
00:04:33,670 --> 00:04:31,520
checks on the wiring uh in the actual

143
00:04:37,990 --> 00:04:33,680
orbiter

144
00:04:39,350 --> 00:04:38,000
and uh and basically the wiring run

145
00:04:40,550 --> 00:04:39,360
so let me let me back up for a second so

146
00:04:42,310 --> 00:04:40,560
that that takes care of the box we're

147
00:04:43,909 --> 00:04:42,320
gonna put a new box in we don't know

148
00:04:45,350 --> 00:04:43,919
exactly that the failure was or was not

149
00:04:46,390 --> 00:04:45,360
inside the box

150
00:04:47,909 --> 00:04:46,400
we're going to continue to do some

151
00:04:49,590 --> 00:04:47,919
failure testing on the box itself but

152
00:04:51,030 --> 00:04:49,600
it's going to take a little while so we

153
00:04:52,950 --> 00:04:51,040
started off with the next component on

154
00:04:54,390 --> 00:04:52,960
the ship which is the orbiter wiring and

155
00:04:55,990 --> 00:04:54,400
so if you think about it the wiring

156
00:04:57,670 --> 00:04:56,000
takes it outside this avebay which is

157
00:04:59,749 --> 00:04:57,680
basically a giant set of racks where we

158
00:05:01,270 --> 00:04:59,759
hook up all our electronic components in

159
00:05:03,830 --> 00:05:01,280
the aft compartment this particular one

160
00:05:05,189 --> 00:05:03,840
is on a cold plate a freon cooled plate

161
00:05:07,830 --> 00:05:05,199
to keep it cool and take the heat away

162
00:05:09,110 --> 00:05:07,840
from it um and so

163
00:05:10,950 --> 00:05:09,120

in that avebay there's a whole bunch of

164
00:05:12,710 --> 00:05:10,960
connections and wiring that runs and

165
00:05:13,990 --> 00:05:12,720
goes through a bulkhead and then passes

166
00:05:15,990 --> 00:05:14,000
out into the aft compartment itself

167
00:05:17,110 --> 00:05:16,000
which is the big i call it the open area

168
00:05:19,029 --> 00:05:17,120
if you've ever looked inside there it's

169
00:05:20,629 --> 00:05:19,039
not very open with all the plumbing and

170
00:05:22,790 --> 00:05:20,639
electrical systems and main engine power

171
00:05:24,310 --> 00:05:22,800
heads and apus and water spray boilers

172
00:05:25,990 --> 00:05:24,320
and everything else on the back end of

173
00:05:27,830 --> 00:05:26,000
the ship is back there

174
00:05:29,590 --> 00:05:27,840
so it's not really open but that's where

175
00:05:30,950 --> 00:05:29,600
the wiring would then run across from

176
00:05:31,830 --> 00:05:30,960
the uh

177
00:05:33,189 --> 00:05:31,840
from the

178
00:05:35,909 --> 00:05:33,199
left side the starboard side over to the

179
00:05:37,270 --> 00:05:35,919
port side and then down to apu one

180
00:05:39,909 --> 00:05:37,280
here's a good picture of the wiring

181
00:05:41,670 --> 00:05:39,919
itself you see in typical protection we

182
00:05:44,070 --> 00:05:41,680
uh we have convoluted tubing that's the

183
00:05:45,590 --> 00:05:44,080
black uh the black tubes running

184
00:05:47,590 --> 00:05:45,600
basically those are covering up all the

185
00:05:49,110 --> 00:05:47,600
bundles so the the wiring is inside

186
00:05:50,469 --> 00:05:49,120
there you can't see it

187
00:05:52,710 --> 00:05:50,479
there's chafe protection you can see on

188
00:05:55,110 --> 00:05:52,720

all the clamps the orange foam material

189
00:05:56,629 --> 00:05:55,120
is chafe protection there's over wrap

190
00:05:57,670 --> 00:05:56,639
and arc protection put on that's some of

191
00:06:00,309 --> 00:05:57,680
the clear

192
00:06:02,309 --> 00:06:00,319
white and light brown material

193
00:06:03,749 --> 00:06:02,319
and and what we did was we i'm getting

194
00:06:05,189 --> 00:06:03,759
ahead of myself but while the picture's

195
00:06:06,070 --> 00:06:05,199
up you can kind of see running right

196
00:06:08,550 --> 00:06:06,080
through the middle of the picture

197
00:06:10,950 --> 00:06:08,560
there's a a twisted pair of two wires

198
00:06:12,629 --> 00:06:10,960
black and white um it's been called the

199
00:06:14,230 --> 00:06:12,639
licorice wiring running across but

200
00:06:16,710 --> 00:06:14,240
basically you can see what's the

201
00:06:18,710 --> 00:06:16,720
equivalent of four wires running along a

202
00:06:20,230 --> 00:06:18,720
cable so we didn't want to go in and rip

203
00:06:22,469 --> 00:06:20,240
open all these cables and replace all

204
00:06:23,909 --> 00:06:22,479
the wiring but we did want to put a new

205
00:06:25,590 --> 00:06:23,919
run in just in case the short was in

206
00:06:27,110 --> 00:06:25,600
that orbiter wiring so you can see we

207
00:06:28,550 --> 00:06:27,120
kind of spot tied along the outside and

208
00:06:30,150 --> 00:06:28,560
this is a typical

209
00:06:32,150 --> 00:06:30,160
way we'd hook up in case we needed to

210
00:06:34,870 --> 00:06:32,160
bypass orbiter wiring so we basically

211
00:06:36,790 --> 00:06:34,880
redid and relayed in wiring runs and

212
00:06:39,909 --> 00:06:36,800
that runs all the way down from the av

213
00:06:42,710 --> 00:06:41,189

so let's see while that picture is up i

214
00:06:44,390 --> 00:06:42,720
can talk a little more we can take that

215
00:06:45,189 --> 00:06:44,400
down if everybody's got a handle on it

216
00:06:46,390 --> 00:06:45,199
so

217
00:06:48,309 --> 00:06:46,400
i was kind of talking about the av bay

218
00:06:50,550 --> 00:06:48,319
itself so we replace the wiring from the

219
00:06:51,749 --> 00:06:50,560
the box connection inside the av bay

220
00:06:53,670 --> 00:06:51,759
until we go out of the bulkhead of the

221
00:06:55,110 --> 00:06:53,680
out bay and then we replace the wiring

222
00:06:56,469 --> 00:06:55,120
from the outside of that bulkhead in the

223
00:06:57,510 --> 00:06:56,479
av bay all the way down to the heater

224
00:06:59,110 --> 00:06:57,520
itself

225
00:07:01,110 --> 00:06:59,120
and i forget the total number of feet

226
00:07:02,550 --> 00:07:01,120
that we we replaced but

227
00:07:03,670 --> 00:07:02,560
it did go from one side of the ship over

228
00:07:05,430 --> 00:07:03,680
to the other

229
00:07:06,790 --> 00:07:05,440
and so that's kind of a typical response

230
00:07:08,629 --> 00:07:06,800
when you get an unexplained anomaly an

231
00:07:11,189 --> 00:07:08,639
orbiter wiring that is a potential short

232
00:07:12,870 --> 00:07:11,199
condition you really want to find it

233
00:07:14,870 --> 00:07:12,880
because it is an electrical short or an

234
00:07:17,189 --> 00:07:14,880
electrical open circuit and if you can't

235
00:07:18,710 --> 00:07:17,199
find it uh the kind of the common cause

236
00:07:20,790 --> 00:07:18,720
or the common method of troubleshooting

237
00:07:22,469 --> 00:07:20,800
that is to replace what you can do so we

238
00:07:24,390 --> 00:07:22,479

replaced the box we didn't want to

239
00:07:26,309 --> 00:07:24,400
replace per se the wiring but we did lay

240
00:07:27,990 --> 00:07:26,319
in brand new wiring so we've kind of

241
00:07:29,270 --> 00:07:28,000
effectively taken the existing orbiter

242
00:07:31,430 --> 00:07:29,280
wiring out of the

243
00:07:32,629 --> 00:07:31,440
the equation by re-running it

244
00:07:35,029 --> 00:07:32,639
and then the last thing left is the

245
00:07:37,350 --> 00:07:35,039
heater itself on the lines and this line

246
00:07:39,270 --> 00:07:37,360
runs from the apu fuel tank down to the

247
00:07:40,710 --> 00:07:39,280
apu itself and then there's various test

248
00:07:42,230 --> 00:07:40,720
ports and service lines that run off of

249
00:07:44,230 --> 00:07:42,240
there all of that has to have heaters

250
00:07:45,830 --> 00:07:44,240
wrapped around it to keep it warm while

251
00:07:47,909 --> 00:07:45,840
it's in orbit you don't want that stuff

252
00:07:50,550 --> 00:07:47,919
to freeze hydrazine freezes about the

253
00:07:51,990 --> 00:07:50,560
same temperature as water close enough

254
00:07:53,830 --> 00:07:52,000
anyway and you don't want to let that

255
00:07:55,749 --> 00:07:53,840
freeze up and then thaw you could put

256
00:07:57,830 --> 00:07:55,759
some pretty pretty high pressure cycles

257
00:07:59,189 --> 00:07:57,840
into the system and that could then

258
00:08:01,029 --> 00:07:59,199
cause the plumbing to rupture and cause

259
00:08:02,390 --> 00:08:01,039
a leak hydrazine leaking into the aft

260
00:08:03,670 --> 00:08:02,400
compartment would be really bad once we

261
00:08:05,990 --> 00:08:03,680
got back in the atmosphere and got

262
00:08:07,510 --> 00:08:06,000
oxygen in there you'd likely have a fire

263
00:08:09,270 --> 00:08:07,520

condition so

264
00:08:10,390 --> 00:08:09,280
our rules and our procedures are set up

265
00:08:12,629 --> 00:08:10,400
to do everything we can to make sure we

266
00:08:13,830 --> 00:08:12,639
have no leakage of hydrazine in the f

267
00:08:15,830 --> 00:08:13,840
compartment

268
00:08:17,510 --> 00:08:15,840
so we looked at the heaters replacing

269
00:08:19,110 --> 00:08:17,520
all the heaters would be a very invasive

270
00:08:20,790 --> 00:08:19,120
process because

271
00:08:22,710 --> 00:08:20,800
there's two heaters on each line an a

272
00:08:24,150 --> 00:08:22,720
and a b they're kind of over wrapped

273
00:08:26,390 --> 00:08:24,160
around each other they're wrapped around

274
00:08:27,909 --> 00:08:26,400
that line and then that line itself has

275
00:08:29,430 --> 00:08:27,919
insulation put around it so they're

276
00:08:31,670 --> 00:08:29,440
they're effectively double protected

277
00:08:33,750 --> 00:08:31,680
from an insulation standpoint um and

278
00:08:36,310 --> 00:08:33,760
you'd have to basically go in and remove

279
00:08:38,149 --> 00:08:36,320
all of the heaters on apu one

280
00:08:40,230 --> 00:08:38,159
and and you really risk a lot of

281
00:08:41,670 --> 00:08:40,240
collateral damage to other systems while

282
00:08:42,709 --> 00:08:41,680
you're doing that so we talked a lot

283
00:08:45,430 --> 00:08:42,719
about

284
00:08:47,430 --> 00:08:45,440
confidence in the heaters since we

285
00:08:49,829 --> 00:08:47,440
didn't really want to replace those

286
00:08:51,829 --> 00:08:49,839
heaters from a from an intrusive

287
00:08:53,030 --> 00:08:51,839
standpoint there's thermostats that on

288
00:08:54,470 --> 00:08:53,040

each of these heaters there's a control

289
00:08:55,750 --> 00:08:54,480
thermostat just like you have in your

290
00:08:57,750 --> 00:08:55,760
house to say if it gets too cold turn

291
00:08:59,509 --> 00:08:57,760
the heat on if it gets too hot turn it

292
00:09:00,790 --> 00:08:59,519
off and then we have a second thermostat

293
00:09:02,710 --> 00:09:00,800
a little further downstream called an

294
00:09:04,310 --> 00:09:02,720
over temp thermostat which is basically

295
00:09:06,470 --> 00:09:04,320
an independent thermostat that says if

296
00:09:08,070 --> 00:09:06,480
this heater failed on

297
00:09:09,829 --> 00:09:08,080
turn the power off so that you wouldn't

298
00:09:11,030 --> 00:09:09,839
want to heat this line up again just

299
00:09:12,550 --> 00:09:11,040
like you don't want to let hydrazine

300
00:09:14,710 --> 00:09:12,560
freeze you don't want to let it go get

301
00:09:15,990 --> 00:09:14,720
so hot it starts to boil and cook off uh

302
00:09:18,150 --> 00:09:16,000
that could cause a problem as well so

303
00:09:19,990 --> 00:09:18,160
there's over temp thermostats to prevent

304
00:09:21,590 --> 00:09:20,000
failed on heaters so we went in and we

305
00:09:23,190 --> 00:09:21,600
replaced all those thermostats that was

306
00:09:24,230 --> 00:09:23,200
a fairly easy thing to do on the heaters

307
00:09:26,470 --> 00:09:24,240
but again we didn't want to touch the

308
00:09:29,030 --> 00:09:26,480
heater elements themselves

309
00:09:30,630 --> 00:09:29,040
so we ran a whole bunch of tests

310
00:09:33,030 --> 00:09:30,640
and and have a whole bunch of fancy

311
00:09:34,870 --> 00:09:33,040
names but effectively we did continuity

312
00:09:36,790 --> 00:09:34,880
checks which is what you'd do if you

313
00:09:38,150 --> 00:09:36,800

basically hooked up a a volt meter from

314
00:09:40,150 --> 00:09:38,160
one end to the other and made sure that

315
00:09:41,910 --> 00:09:40,160
that wire was intact it didn't go to

316
00:09:43,750 --> 00:09:41,920
ground anywhere the resistance we

317
00:09:45,190 --> 00:09:43,760
measured the resistance of that line it

318
00:09:46,550 --> 00:09:45,200
measured within family of what the

319
00:09:48,470 --> 00:09:46,560
resistance of this heater measured the

320
00:09:49,269 --> 00:09:48,480
last time it was checked about two years

321
00:09:50,870 --> 00:09:49,279
ago

322
00:09:52,870 --> 00:09:50,880
so we saw no changes in the resistance

323
00:09:55,030 --> 00:09:52,880
of these heaters we saw no open circuits

324
00:09:57,509 --> 00:09:55,040
with the continuity checks uh we did

325
00:09:59,750 --> 00:09:57,519
what we call a a high pot or a high

326
00:10:00,949 --> 00:09:59,760
potential check of all the orbiter

327
00:10:03,350 --> 00:10:00,959
wiring and the heaters where you

328
00:10:05,190 --> 00:10:03,360
basically put in a high voltage but low

329
00:10:07,350 --> 00:10:05,200
current into the system and you'll see

330
00:10:08,949 --> 00:10:07,360
that voltage jump across any gaps if

331
00:10:10,630 --> 00:10:08,959
there is an insulation breakdown it

332
00:10:12,150 --> 00:10:10,640
would show up as that high pot test

333
00:10:13,509 --> 00:10:12,160
grounded itself out

334
00:10:15,590 --> 00:10:13,519
and we found no problems in either the

335
00:10:17,910 --> 00:10:15,600
orbiter wiring or in the heaters and

336
00:10:19,509 --> 00:10:17,920
then we did functional checks which

337
00:10:21,190 --> 00:10:19,519
culminated we did various checks all

338
00:10:23,190 --> 00:10:21,200

along the point but culminated last

339
00:10:25,030 --> 00:10:23,200
night in our full-up re-test of this apu

340
00:10:27,030 --> 00:10:25,040
system where we basically

341
00:10:29,509 --> 00:10:27,040
operated the heaters on both an external

342
00:10:31,269 --> 00:10:29,519
power supply and then the new lca2 power

343
00:10:32,870 --> 00:10:31,279
supply which was done last night and we

344
00:10:34,150 --> 00:10:32,880
saw full functionality out of all five

345
00:10:35,430 --> 00:10:34,160
of these heaters

346
00:10:37,269 --> 00:10:35,440
as they were supposed to work so we've

347
00:10:38,470 --> 00:10:37,279
kind of end to end checked and run out

348
00:10:39,990 --> 00:10:38,480
the whole system

349
00:10:41,750 --> 00:10:40,000
you could say that we did the same tests

350
00:10:42,870 --> 00:10:41,760
on the orbiter wiring and saw no

351
00:10:44,949 --> 00:10:42,880
problems

352
00:10:47,269 --> 00:10:44,959
so you'd ask why we replaced that wire

353
00:10:49,030 --> 00:10:47,279
and literally it came down to we could

354
00:10:50,230 --> 00:10:49,040
do it easily enough and it removed a

355
00:10:51,829 --> 00:10:50,240
variable

356
00:10:53,350 --> 00:10:51,839
one of the concerns we had on launch day

357
00:10:55,350 --> 00:10:53,360
the reasons why we weren't ready to talk

358
00:10:56,790 --> 00:10:55,360
about launching with one of two heaters

359
00:10:59,670 --> 00:10:56,800
failed in addition to the loss of

360
00:11:02,069 --> 00:10:59,680
redundancy is kind of the unknown cause

361
00:11:03,430 --> 00:11:02,079
could this failure be a problem inside

362
00:11:05,269 --> 00:11:03,440
the control box which could take out

363
00:11:06,310 --> 00:11:05,279

other functions in the box so we didn't

364
00:11:07,829 --> 00:11:06,320
want to go

365
00:11:09,269 --> 00:11:07,839
with that we now know that this was

366
00:11:10,550 --> 00:11:09,279
isolated to a single circuit that's not

367
00:11:12,150 --> 00:11:10,560
a problem anymore

368
00:11:13,269 --> 00:11:12,160
and you didn't want to go if you had a

369
00:11:15,030 --> 00:11:13,279
problem in a wire bundle that could

370
00:11:16,790 --> 00:11:15,040
propagate itself to other wires in that

371
00:11:18,310 --> 00:11:16,800
bundle if you remember that picture of

372
00:11:20,310 --> 00:11:18,320
the the wiring covered up by that

373
00:11:22,550 --> 00:11:20,320
convoluted tube there's probably 100 to

374
00:11:24,150 --> 00:11:22,560
200 wires in that bundle so in addition

375
00:11:25,829 --> 00:11:24,160
to the five heater circuits that we're

376
00:11:27,910 --> 00:11:25,839
talking about on this apu there's a

377
00:11:29,509 --> 00:11:27,920
hundred or more other circuits and you'd

378
00:11:31,430 --> 00:11:29,519
hate for one of those to take a short

379
00:11:33,190 --> 00:11:31,440
and also lose functionality

380
00:11:34,870 --> 00:11:33,200
and so we'd be worried about wiring

381
00:11:36,790 --> 00:11:34,880
adding this new external wiring run

382
00:11:38,310 --> 00:11:36,800
effectively removes that from our risk

383
00:11:40,470 --> 00:11:38,320
charts as well so we don't have to worry

384
00:11:42,630 --> 00:11:40,480
about a wire to wire problem inside a

385
00:11:44,550 --> 00:11:42,640
bundle by running new wires

386
00:11:46,870 --> 00:11:44,560
so that kind of leaves us with of all

387
00:11:48,790 --> 00:11:46,880
the components the box the power supply

388
00:11:50,790 --> 00:11:48,800

the wiring to get you the power out to

389
00:11:52,230 --> 00:11:50,800
the heater and then the heater itself

390
00:11:53,829 --> 00:11:52,240
we've replaced everything except the

391
00:11:56,069 --> 00:11:53,839
heaters and we've rung those out with at

392
00:11:58,310 --> 00:11:56,079
least five separate checks and full

393
00:12:00,230 --> 00:11:58,320
functionals afterwards and now have

394
00:12:02,550 --> 00:12:00,240
extremely high confidence that the the

395
00:12:05,269 --> 00:12:02,560
problem is no longer on the ship uh or

396
00:12:07,829 --> 00:12:05,279
in any of the in any of the electronics

397
00:12:09,990 --> 00:12:07,839
we don't still exactly have root cause

398
00:12:12,230 --> 00:12:10,000
but we basically have really good

399
00:12:14,150 --> 00:12:12,240
comprehensive proof to show that uh we

400
00:12:15,430 --> 00:12:14,160
have managed to remove that failure if

401
00:12:16,949 --> 00:12:15,440
you if you remember that picture of what

402
00:12:19,190 --> 00:12:16,959
the the box looked like and all the

403
00:12:20,870 --> 00:12:19,200
little wiring inside that box to go sort

404
00:12:23,110 --> 00:12:20,880
through wire by wire to look for a sign

405
00:12:24,949 --> 00:12:23,120
of a burnt wire or scorch mark is going

406
00:12:27,509 --> 00:12:24,959
to take a very very long time

407
00:12:29,509 --> 00:12:27,519
we kind of took a a a high level

408
00:12:31,110 --> 00:12:29,519
approach and we put that box on the on

409
00:12:32,790 --> 00:12:31,120
the bench and we vibrated it to see if

410
00:12:34,310 --> 00:12:32,800
anything shorted and we saw nothing and

411
00:12:35,590 --> 00:12:34,320
now they're going through some some

412
00:12:37,269 --> 00:12:35,600
deeper tests but it's going to take a

413
00:12:39,110 --> 00:12:37,279

long time until we could say that we've

414
00:12:39,990 --> 00:12:39,120
definitively found a problem inside that

415
00:12:41,190 --> 00:12:40,000
box

416
00:12:42,470 --> 00:12:41,200
and so we wanted to make sure our flight

417
00:12:44,790 --> 00:12:42,480
rationale didn't need us to have that

418
00:12:46,150 --> 00:12:44,800
root cause and by replacing the box

419
00:12:47,269 --> 00:12:46,160
and replacing the wiring we think we

420
00:12:48,629 --> 00:12:47,279
have that

421
00:12:51,350 --> 00:12:48,639
now i have some new data that just came

422
00:12:53,590 --> 00:12:51,360
in literally as i was walking over here

423
00:12:55,590 --> 00:12:53,600
we did test these heaters uh we were

424
00:12:57,829 --> 00:12:55,600
testing thermostats actually back in

425
00:13:00,069 --> 00:12:57,839
june uh in the processing facility and

426
00:13:01,750 --> 00:13:00,079
we saw uh what you're really testing is

427
00:13:03,590 --> 00:13:01,760
that when you when you heat up the over

428
00:13:05,430 --> 00:13:03,600
temp thermostat that it does cut out and

429
00:13:06,629 --> 00:13:05,440
and stop the circuit and so it did what

430
00:13:08,389 --> 00:13:06,639
it was supposed to it stopped

431
00:13:10,230 --> 00:13:08,399
functioning but if you look really close

432
00:13:12,629 --> 00:13:10,240
at the data there was a spike

433
00:13:14,069 --> 00:13:12,639
of of current right before that happened

434
00:13:15,829 --> 00:13:14,079
uh much higher than we've ever seen

435
00:13:17,190 --> 00:13:15,839
before now this is really preliminary

436
00:13:19,430 --> 00:13:17,200
and we're not exactly sure what caused

437
00:13:21,509 --> 00:13:19,440
it but if it was a short that would be

438
00:13:23,030 --> 00:13:21,519

an indication of this was isolated to

439
00:13:25,110 --> 00:13:23,040
either the heater or the thermostat on

440
00:13:27,430 --> 00:13:25,120
one of these circuits and and we've

441
00:13:29,269 --> 00:13:27,440
actually replaced all that wiring as a

442
00:13:30,470 --> 00:13:29,279
result of our troubleshooting and so we

443
00:13:31,829 --> 00:13:30,480
should be in really good shape now we

444
00:13:33,829 --> 00:13:31,839
have to finish all that data review

445
00:13:35,670 --> 00:13:33,839
verify that that truly was the problem

446
00:13:37,670 --> 00:13:35,680
and then re-verify that we ran that test

447
00:13:39,030 --> 00:13:37,680
again literally last night and then it

448
00:13:40,949 --> 00:13:39,040
didn't reoccur at all all the

449
00:13:42,710 --> 00:13:40,959
preliminary looks like that look all the

450
00:13:44,470 --> 00:13:42,720
preliminary looks make it look like

451
00:13:46,310 --> 00:13:44,480
that's exactly the case and we've we

452
00:13:47,750 --> 00:13:46,320
actually have if this truly turns out to

453
00:13:49,350 --> 00:13:47,760
be the root cause we've removed it from

454
00:13:51,350 --> 00:13:49,360
the ship but again that's pretty

455
00:13:52,710 --> 00:13:51,360
preliminary and so i was about to say we

456
00:13:54,150 --> 00:13:52,720
have extremely high confidence so we got

457
00:13:56,230 --> 00:13:54,160
nothing nothing in front of us to

458
00:13:57,990 --> 00:13:56,240
prevent us from launching on the 16th

459
00:13:59,670 --> 00:13:58,000
pending this review of this new data

460
00:14:01,350 --> 00:13:59,680
assuming it turns out the way we we

461
00:14:03,030 --> 00:14:01,360
think it does we've already done the

462
00:14:04,790 --> 00:14:03,040
work that would be required so there

463
00:14:07,350 --> 00:14:04,800

should be no threats to the uh to the

464
00:14:09,110 --> 00:14:07,360
16th launch date so let me stop talking

465
00:14:11,350 --> 00:14:09,120
about wiring in boxes for a second and

466
00:14:13,110 --> 00:14:11,360
let you know so uh we went ahead this

467
00:14:15,430 --> 00:14:13,120
morning and said looking at the work in

468
00:14:17,350 --> 00:14:15,440
front of us and talking to mike's team

469
00:14:18,870 --> 00:14:17,360
we uh we finish up ordinance and retest

470
00:14:20,790 --> 00:14:18,880
and that effectively puts us on what we

471
00:14:22,870 --> 00:14:20,800
call a a normal close-out and prep for

472
00:14:24,550 --> 00:14:22,880
launch and so his team and the flow

473
00:14:26,230 --> 00:14:24,560
managers had very high confidence in our

474
00:14:27,590 --> 00:14:26,240
ability to make that schedule and so we

475
00:14:30,629 --> 00:14:27,600
did set the launch date officially for

476
00:14:33,910 --> 00:14:30,639
516 with a launch time of 8 56 a.m

477
00:14:36,150 --> 00:14:33,920
eastern time on on monday the 16th

478
00:14:37,910 --> 00:14:36,160
um now part of that analysis was

479
00:14:39,509 --> 00:14:37,920
happening back in houston as well to

480
00:14:41,030 --> 00:14:39,519
make sure that we could uh we could

481
00:14:43,590 --> 00:14:41,040
understand the mission impacts you know

482
00:14:44,949 --> 00:14:43,600
we talked back uh when we scrubbed that

483
00:14:47,910 --> 00:14:44,959
one of the things we needed to look at

484
00:14:49,829 --> 00:14:47,920
was that the 25 soyuz crew undocks on

485
00:14:51,990 --> 00:14:49,839
the 23rd of may and we wanted to make

486
00:14:53,910 --> 00:14:52,000
sure that our mission uh overlapping

487
00:14:55,269 --> 00:14:53,920
that wouldn't be a problem so we've done

488
00:14:57,030 --> 00:14:55,279

our technical reviews to make sure that

489
00:14:58,790 --> 00:14:57,040
nobody has any problem as a soyuz

490
00:15:00,310 --> 00:14:58,800
undocks and leaves the station there

491
00:15:02,069 --> 00:15:00,320
would be no adverse effects to any of

492
00:15:03,430 --> 00:15:02,079
the shuttle hardware uh any of the

493
00:15:05,030 --> 00:15:03,440
things in the payload bay and we think

494
00:15:07,189 --> 00:15:05,040
that all is coming out just fine and we

495
00:15:08,230 --> 00:15:07,199
won't have any issues but uh but more

496
00:15:10,470 --> 00:15:08,240
importantly we wanted to make sure we

497
00:15:13,110 --> 00:15:10,480
had a crew timeline worked out um it

498
00:15:16,470 --> 00:15:13,120
gets pretty tricky the uh the soyuz crew

499
00:15:18,710 --> 00:15:16,480
of uh of dimitri uh condraidev uh paulo

500
00:15:20,550 --> 00:15:18,720
nespoli and katie coleman undock and

501
00:15:23,030 --> 00:15:20,560
then effectively land that same calendar

502
00:15:25,750 --> 00:15:23,040
day of oh it's a good i think it's about

503
00:15:27,750 --> 00:15:25,760
10 hours 12 hours later but but they uh

504
00:15:29,509 --> 00:15:27,760
they have a very long day and to get

505
00:15:31,030 --> 00:15:29,519
that lined up over a russian ground site

506
00:15:33,030 --> 00:15:31,040
if you look at the time that that undock

507
00:15:34,550 --> 00:15:33,040
has to occur based on the time that the

508
00:15:36,949 --> 00:15:34,560
shuttle crew needs to be on a sleep

509
00:15:38,629 --> 00:15:36,959
shift to set up for their undocking uh

510
00:15:40,150 --> 00:15:38,639
that soyuz undock will occur about an

511
00:15:41,189 --> 00:15:40,160
hour or so after the shuttle crew goes

512
00:15:42,629 --> 00:15:41,199
to sleep

513
00:15:44,230 --> 00:15:42,639

so we wanted to make sure we knew how to

514
00:15:45,670 --> 00:15:44,240
deconflict the two crews from each other

515
00:15:47,829 --> 00:15:45,680
we're effectively kind of setting up a

516
00:15:49,749 --> 00:15:47,839
second shift uh we'll leave the station

517
00:15:51,430 --> 00:15:49,759
crew on the timeline they need to be on

518
00:15:53,110 --> 00:15:51,440
the shuttle crew will be on the timeline

519
00:15:55,030 --> 00:15:53,120
that they need to be on and there'll be

520
00:15:58,069 --> 00:15:55,040
a little disconnect between the two so

521
00:15:59,910 --> 00:15:58,079
uh at at worst on the 16th right before

522
00:16:01,189 --> 00:15:59,920
undocking that'll be about a four-hour

523
00:16:02,949 --> 00:16:01,199
disconnect so

524
00:16:04,310 --> 00:16:02,959
what i mean literally is the shuttle

525
00:16:06,949 --> 00:16:04,320
crew will wake up start their morning

526
00:16:09,189 --> 00:16:06,959
get their their post sleep hygiene break

527
00:16:10,710 --> 00:16:09,199
get breakfast get stuff ready and about

528
00:16:12,949 --> 00:16:10,720
three and four hours later the station

529
00:16:14,470 --> 00:16:12,959
crew will wake up and start that task so

530
00:16:15,749 --> 00:16:14,480
for about the first three or four hours

531
00:16:18,069 --> 00:16:15,759
of the shuttle cruise day the station

532
00:16:19,509 --> 00:16:18,079
crew will be still asleep um for the

533
00:16:21,030 --> 00:16:19,519
most most of that part the shuttle crew

534
00:16:22,870 --> 00:16:21,040
is actually in the shuttle doing their

535
00:16:25,269 --> 00:16:22,880
their normal shuttle activities and

536
00:16:26,230 --> 00:16:25,279
equipment and and hygiene stuff but

537
00:16:27,990 --> 00:16:26,240
eventually they're going to have to move

538
00:16:30,310 --> 00:16:28,000

into the station and start working uh

539
00:16:32,550 --> 00:16:30,320
katie coleman and paulo uh nespoli are

540
00:16:34,629 --> 00:16:32,560
sleeping in the node two crew quarters

541
00:16:36,710 --> 00:16:34,639
uh but they've talked to them and they

542
00:16:37,910 --> 00:16:36,720
they've done this before we understand

543
00:16:39,590 --> 00:16:37,920
that if they're in their crew quarters

544
00:16:40,790 --> 00:16:39,600
they're fairly isolated with uh with ear

545
00:16:42,629 --> 00:16:40,800
plugs in and they should be able to

546
00:16:44,150 --> 00:16:42,639
sleep pretty soundly we're not doing any

547
00:16:45,749 --> 00:16:44,160
work in node two we're just literally

548
00:16:47,509 --> 00:16:45,759
passing through on the way to the

549
00:16:50,150 --> 00:16:47,519
airlock uh to do some of the eva preps

550
00:16:51,910 --> 00:16:50,160
or the the cupola to do robotic preps uh

551
00:16:53,430 --> 00:16:51,920
and and it's not very big of an overlap

552
00:16:55,749 --> 00:16:53,440
with their crew getting up and starting

553
00:16:57,110 --> 00:16:55,759
their sleep activities and i say that's

554
00:16:59,189 --> 00:16:57,120
that's at the worst case because every

555
00:17:01,590 --> 00:16:59,199
day we slowly sleep the crew the sleep

556
00:17:02,790 --> 00:17:01,600
shift the shuttle crew back to the left

557
00:17:05,029 --> 00:17:02,800
uh to get them set up for their

558
00:17:06,230 --> 00:17:05,039
undocking time so like on eva days

559
00:17:08,949 --> 00:17:06,240
there's only about a two or three hour

560
00:17:10,789 --> 00:17:08,959
overlap uh with that crew so the the

561
00:17:12,630 --> 00:17:10,799
teams in houston looked really hard at

562
00:17:13,829 --> 00:17:12,640
that it's a pretty confusing thing to

563
00:17:15,350 --> 00:17:13,839

try to figure out but when you set it

564
00:17:17,110 --> 00:17:15,360
down and you look at you look at the

565
00:17:18,230 --> 00:17:17,120
relative shift times

566
00:17:19,750 --> 00:17:18,240
they were all comfortable the crew

567
00:17:21,189 --> 00:17:19,760
office was very comfortable that uh it's

568
00:17:22,949 --> 00:17:21,199
a doable thing and it's an achievable

569
00:17:25,590 --> 00:17:22,959
thing so really what that kind of comes

570
00:17:28,069 --> 00:17:25,600
down to is after they've left uh what

571
00:17:29,270 --> 00:17:28,079
tasks were katie and paulo doing that

572
00:17:31,430 --> 00:17:29,280
they were now no longer going to be

573
00:17:32,710 --> 00:17:31,440
there for ron garan is coming up on or

574
00:17:35,270 --> 00:17:32,720
he's actually already there so he'll be

575
00:17:36,710 --> 00:17:35,280
there as the expedition 28 crew uh what

576
00:17:38,950 --> 00:17:36,720
tasks will he pick up that he maybe

577
00:17:40,630 --> 00:17:38,960
didn't train for and it turns out uh

578
00:17:42,070 --> 00:17:40,640
that everybody was trained to kind of do

579
00:17:45,029 --> 00:17:42,080
each other's job so it shouldn't be too

580
00:17:47,029 --> 00:17:45,039
big of a problem apollo was a a set of

581
00:17:48,710 --> 00:17:47,039
hands in the eevee during the evas in

582
00:17:50,390 --> 00:17:48,720
the airlock uh and we'll kind of

583
00:17:52,390 --> 00:17:50,400
backfill that with some of this the the

584
00:17:54,630 --> 00:17:52,400
shuttle crew and then katie was doing

585
00:17:57,110 --> 00:17:54,640
what we call m2 which is the the second

586
00:17:59,029 --> 00:17:57,120
robotics operator on the station arm

587
00:18:00,710 --> 00:17:59,039
we'll back that up either with ron garan

588
00:18:01,830 --> 00:18:00,720

or when he's not available the ground

589
00:18:03,110 --> 00:18:01,840
will be able to do that and that's a

590
00:18:05,190 --> 00:18:03,120
typical thing they do on station they

591
00:18:07,110 --> 00:18:05,200
use the ground as a look over your

592
00:18:08,470 --> 00:18:07,120
shoulder kind of double check so the

593
00:18:10,230 --> 00:18:08,480
sleep shifting is tough but they think

594
00:18:11,669 --> 00:18:10,240
they have a plan to manage it so they

595
00:18:13,669 --> 00:18:11,679
came back and said that the 16th is a

596
00:18:15,029 --> 00:18:13,679
good launch day as well

597
00:18:16,549 --> 00:18:15,039
that does mean we're not going to try to

598
00:18:17,990 --> 00:18:16,559
do even though the soyuz is leaving

599
00:18:19,110 --> 00:18:18,000
we're not going to try to do a fly-out

600
00:18:21,190 --> 00:18:19,120
because it will be while the shuttle

601
00:18:22,789 --> 00:18:21,200
crews asleep and we would not want them

602
00:18:24,070 --> 00:18:22,799
asleep if they were going to kind of do

603
00:18:25,029 --> 00:18:24,080
a fly around to the station to take

604
00:18:26,710 --> 00:18:25,039
pictures

605
00:18:27,909 --> 00:18:26,720
the other big constraint to that is

606
00:18:30,870 --> 00:18:27,919
they're actually buttoned up in their

607
00:18:32,870 --> 00:18:30,880
descent module and ready to land the the

608
00:18:34,789 --> 00:18:32,880
high quality optical window in the soyuz

609
00:18:36,470 --> 00:18:34,799
is out in the orbital module and it'll

610
00:18:38,470 --> 00:18:36,480
be either packed full of return gear and

611
00:18:39,510 --> 00:18:38,480
the hatch is closed so that soyuz crew

612
00:18:41,029 --> 00:18:39,520
does not want to get up out of their

613
00:18:43,029 --> 00:18:41,039

seats and then go open up and get into

614
00:18:44,310 --> 00:18:43,039
that that high quality optical window

615
00:18:45,510 --> 00:18:44,320
they have a window through their hatch

616
00:18:46,950 --> 00:18:45,520
and i'm sure they'll take a picture of

617
00:18:48,789 --> 00:18:46,960
what they can see but we're not going to

618
00:18:49,990 --> 00:18:48,799
do any dedicated maneuvers and we don't

619
00:18:51,750 --> 00:18:50,000
expect those pictures to be very high

620
00:18:54,150 --> 00:18:51,760
quality in the first place just because

621
00:18:56,150 --> 00:18:54,160
it's not a window meant for photographs

622
00:18:57,270 --> 00:18:56,160
and so we'll probably get some some uh

623
00:18:58,950 --> 00:18:57,280
some rough pictures but we're not

624
00:19:01,110 --> 00:18:58,960
expecting much we're not doing anything

625
00:19:02,310 --> 00:19:01,120
specifically to try to take a a family

626
00:19:04,150 --> 00:19:02,320
portrait of the shuttle dock to the

627
00:19:06,150 --> 00:19:04,160
station on this mission we do have that

628
00:19:07,510 --> 00:19:06,160
laid into the sts-135 plan and it looks

629
00:19:09,029 --> 00:19:07,520
like it's going to work

630
00:19:10,549 --> 00:19:09,039
for that

631
00:19:12,950 --> 00:19:10,559
so i think that that covers a whole

632
00:19:15,270 --> 00:19:12,960
bunch of stuff um let's see so

633
00:19:17,270 --> 00:19:15,280
uh oh mission timelines we did add two

634
00:19:19,110 --> 00:19:17,280
extra days we were at a 14-day mission

635
00:19:20,710 --> 00:19:19,120
we knew we had two extra days to use we

636
00:19:23,029 --> 00:19:20,720
went ahead and gave the

637
00:19:24,630 --> 00:19:23,039
the mod guys that those two days right

638
00:19:27,270 --> 00:19:24,640

up front to let them put them where they

639
00:19:29,590 --> 00:19:27,280
need to they'll use one uh effectively

640
00:19:30,950 --> 00:19:29,600
the day before the soyuz undocks that'll

641
00:19:32,070 --> 00:19:30,960
be the kind of the day off where the

642
00:19:34,070 --> 00:19:32,080
shuttle crew can kind of leave the

643
00:19:36,070 --> 00:19:34,080
station crew alone to let them get their

644
00:19:37,750 --> 00:19:36,080
their sleep shift down uh to be able to

645
00:19:39,350 --> 00:19:37,760
be ready to undock soyuz and then we'll

646
00:19:40,630 --> 00:19:39,360
add another one in between evas three

647
00:19:41,669 --> 00:19:40,640
and four which is kind of where we were

648
00:19:43,669 --> 00:19:41,679
planning on putting some extra

649
00:19:45,909 --> 00:19:43,679
activities in the first place that moves

650
00:19:47,510 --> 00:19:45,919
our plan landing out to june 1st i think

651
00:19:49,270 --> 00:19:47,520
the landing time will be sometime around

652
00:19:51,110 --> 00:19:49,280
2 30 a.m eastern

653
00:19:52,549 --> 00:19:51,120
that's always kind of subject to change

654
00:19:55,110 --> 00:19:52,559
based on little orbital tweaks but it'll

655
00:19:56,870 --> 00:19:55,120
be approximately around 2 30 a.m on june

656
00:19:58,470 --> 00:19:56,880
1st

657
00:19:59,990 --> 00:19:58,480
and i mentioned 135 so let me go ahead

658
00:20:02,310 --> 00:20:00,000
and answer right now we're not going to

659
00:20:04,230 --> 00:20:02,320
be able to tell you launch date for 135

660
00:20:05,430 --> 00:20:04,240
so for everybody who works at nasa who's

661
00:20:07,270 --> 00:20:05,440
listening everybody who doesn't work at

662
00:20:10,789 --> 00:20:07,280
nasa who's listening i'm really sorry

663
00:20:12,230 --> 00:20:10,799

but we cannot estimate that 135 day

664
00:20:14,310 --> 00:20:12,240
every time we think we have a plan

665
00:20:16,070 --> 00:20:14,320
something else comes up for example uh

666
00:20:19,190 --> 00:20:16,080
mike and i were just talking and and we

667
00:20:20,470 --> 00:20:19,200
had a rollout plan uh for uh that looked

668
00:20:21,750 --> 00:20:20,480
like we were going to be rolling out a

669
00:20:23,430 --> 00:20:21,760
couple days after launch but then we

670
00:20:25,029 --> 00:20:23,440
recognized that the vab rollout would be

671
00:20:26,310 --> 00:20:25,039
at the same time as landing and so we

672
00:20:27,430 --> 00:20:26,320
got to go deconflict that we don't

673
00:20:29,190 --> 00:20:27,440
obviously want to be doing that at the

674
00:20:30,230 --> 00:20:29,200
same time we do know we're going to have

675
00:20:31,430 --> 00:20:30,240
to slip the launch and it's going to

676
00:20:33,029 --> 00:20:31,440
slip a few weeks we're going to be in

677
00:20:34,390 --> 00:20:33,039
early june

678
00:20:35,830 --> 00:20:34,400
more than that i'm really hesitant to

679
00:20:37,430 --> 00:20:35,840
say because every time like i said we

680
00:20:39,110 --> 00:20:37,440
look at a schedule uh something else

681
00:20:40,789 --> 00:20:39,120
changes and makes us rebalance it so

682
00:20:42,390 --> 00:20:40,799
we're gonna wait till we get 134 up in

683
00:20:43,909 --> 00:20:42,400
orbit and out of the way we'll look at

684
00:20:45,350 --> 00:20:43,919
the damage to the pad to see what work

685
00:20:46,789 --> 00:20:45,360
we have to do to turn it around and then

686
00:20:48,549 --> 00:20:46,799
we'll set the hard and fast launch date

687
00:20:49,990 --> 00:20:48,559
for sts-135

688
00:20:51,270 --> 00:20:50,000

so i think i've talked enough and i

689
00:20:52,549 --> 00:20:51,280
think i've taken away almost everything

690
00:20:54,390 --> 00:20:52,559
mike had talked to you about

691
00:20:55,750 --> 00:20:54,400
but i'll let him see what he can do no

692
00:20:57,990 --> 00:20:55,760
that's always i always learn something

693
00:20:59,510 --> 00:20:58,000
sitting next to mike let's see uh i

694
00:21:01,029 --> 00:20:59,520
don't have a lot to add folks we're

695
00:21:02,950 --> 00:21:01,039
pretty much we are done with all the

696
00:21:04,390 --> 00:21:02,960
troubleshooting of the of the problem

697
00:21:06,870 --> 00:21:04,400
now we're into our standard

698
00:21:08,310 --> 00:21:06,880
pre-countdown pad closeout work we'll

699
00:21:10,789 --> 00:21:08,320
get into our ordinance installation

700
00:21:12,710 --> 00:21:10,799
again tonight at about 200 hours eastern

701
00:21:14,070 --> 00:21:12,720
time that'll take us over the evening

702
00:21:16,630 --> 00:21:14,080
and then tomorrow we'll get into the aft

703
00:21:17,990 --> 00:21:16,640
closeout in earnest and that sets us up

704
00:21:19,350 --> 00:21:18,000
for the beginning of launch countdown

705
00:21:20,549 --> 00:21:19,360
friday morning

706
00:21:24,070 --> 00:21:20,559
shooting for an opening of the launch

707
00:21:26,950 --> 00:21:24,080
window at 8 56 eastern time next monday

708
00:21:28,549 --> 00:21:26,960
the 16th right now that all looks good

709
00:21:30,070 --> 00:21:28,559
and uh you know there was a heck of a

710
00:21:32,230 --> 00:21:30,080
lot of work that's been done since the

711
00:21:34,070 --> 00:21:32,240
since the scrub on the 29th of april and

712
00:21:36,470 --> 00:21:34,080
and one thing to mention we were very

713
00:21:38,870 --> 00:21:36,480

cognizant of the workers out of the pad

714
00:21:40,230 --> 00:21:38,880
and all the analysts both here and over

715
00:21:42,470 --> 00:21:40,240
in houston made sure that throughout the

716
00:21:44,149 --> 00:21:42,480
whole process they got sufficient rest

717
00:21:45,430 --> 00:21:44,159
throughout throughout the process and so

718
00:21:47,350 --> 00:21:45,440
we feel real good about that we didn't

719
00:21:49,029 --> 00:21:47,360
stress anybody there was a lot of work

720
00:21:50,230 --> 00:21:49,039
going on it was 24 hours a day but we

721
00:21:52,070 --> 00:21:50,240
had different people working on at

722
00:21:54,789 --> 00:21:52,080
different times so everybody got

723
00:21:56,390 --> 00:21:54,799
sufficient rest and they're ready to go

724
00:21:57,909 --> 00:21:56,400
we'll have our pre-test briefing later

725
00:21:59,510 --> 00:21:57,919
this week for launch countdown that will

726
00:22:01,270 --> 00:21:59,520
happen on thursday where all the systems

727
00:22:03,110 --> 00:22:01,280
come back together and and verify

728
00:22:05,110 --> 00:22:03,120
they're ready for the countdown itself

729
00:22:07,029 --> 00:22:05,120
we'll just go over different uh

730
00:22:09,029 --> 00:22:07,039
deltas from the from the initial

731
00:22:10,870 --> 00:22:09,039
pre-test briefing that we did about

732
00:22:12,149 --> 00:22:10,880
three weeks or so ago

733
00:22:14,230 --> 00:22:12,159
don't expect anything to come out of

734
00:22:15,669 --> 00:22:14,240
that so right now we're in good shape

735
00:22:16,950 --> 00:22:15,679
endeavors looking good the team is

736
00:22:19,430 --> 00:22:16,960
upbeat we went to the meeting this

737
00:22:21,430 --> 00:22:19,440
morning and and they're ready to go and

738
00:22:23,029 --> 00:22:21,440

uh hopefully this time the heaters will

739
00:22:24,870 --> 00:22:23,039
work and and we'll be able to launch on

740
00:22:26,630 --> 00:22:24,880
time next monday morning so

741
00:22:28,310 --> 00:22:26,640
thanks and uh be glad to take your

742
00:22:29,750 --> 00:22:28,320
questions

743
00:22:32,149 --> 00:22:29,760
okay please wait for the microphone give

744
00:22:33,270 --> 00:22:32,159
your name news affiliation and to whom

745
00:22:34,470 --> 00:22:33,280
you would like to have your question

746
00:22:35,190 --> 00:22:34,480
answered and we'll start with the front

747
00:22:37,830 --> 00:22:35,200
row

748
00:22:43,110 --> 00:22:40,070
hi robert perlman with collectsbase.com

749
00:22:46,310 --> 00:22:43,120
and space.com um with a question i think

750
00:22:47,029 --> 00:22:46,320
from mike moses

751
00:22:48,950 --> 00:22:47,039
if

752
00:22:50,710 --> 00:22:48,960
given the crew timeline

753
00:22:52,549 --> 00:22:50,720
and sleep shifting and everything else

754
00:22:54,470 --> 00:22:52,559
if you cannot launch on the 16th and

755
00:22:56,630 --> 00:22:54,480
weather delays you a couple more days

756
00:22:57,350 --> 00:22:56,640
how does that affect the plans in terms

757
00:22:59,110 --> 00:22:57,360
of

758
00:23:01,750 --> 00:22:59,120
and is there a point that you can't

759
00:23:04,789 --> 00:23:01,760
launch because the soyuz undocking's too

760
00:23:06,230 --> 00:23:04,799
early in the in the mission timeline

761
00:23:07,909 --> 00:23:06,240
so from a sleep shift standpoint we

762
00:23:09,750 --> 00:23:07,919
think we have a good plan to get us

763
00:23:11,190 --> 00:23:09,760

through most of that window uh the only

764
00:23:14,870 --> 00:23:11,200
days right now we'd probably want to

765
00:23:16,870 --> 00:23:14,880
avoid would be around the 20th or 21st

766
00:23:18,789 --> 00:23:16,880
that that day would put shuttle docking

767
00:23:20,870 --> 00:23:18,799
the same day as the soyuz undocking even

768
00:23:21,909 --> 00:23:20,880
if we added an extra day in there and

769
00:23:22,870 --> 00:23:21,919
that's obviously something we want to

770
00:23:24,390 --> 00:23:22,880
avoid

771
00:23:26,149 --> 00:23:24,400
and the reason i say it's the 20th of

772
00:23:27,909 --> 00:23:26,159
the 21st the 21st is the day that it

773
00:23:29,669 --> 00:23:27,919
would occur but we could change how we

774
00:23:31,590 --> 00:23:29,679
use our our extension days to move that

775
00:23:32,390 --> 00:23:31,600
around a little bit um

776
00:23:34,789 --> 00:23:32,400
that's

777
00:23:36,870 --> 00:23:34,799
the work to do that math is pretty hard

778
00:23:37,830 --> 00:23:36,880
and so we're gonna start it but put it

779
00:23:39,110 --> 00:23:37,840
on the back burner so i won't have an

780
00:23:40,549 --> 00:23:39,120
answer for a while but if we find

781
00:23:42,070 --> 00:23:40,559
ourselves getting there we'll obviously

782
00:23:44,789 --> 00:23:42,080
figure out exactly what day we can and

783
00:23:46,470 --> 00:23:44,799
can't launch but um but basically

784
00:23:48,310 --> 00:23:46,480
besides that little bit of cutout of a

785
00:23:50,230 --> 00:23:48,320
day or two to avoid docking the same day

786
00:23:51,830 --> 00:23:50,240
as soyuz undocking we'd be good all the

787
00:23:55,029 --> 00:23:51,840
way through the end of our window which

788
00:23:58,070 --> 00:23:55,039

i think runs to the 26th or 27th before

789
00:23:59,590 --> 00:23:58,080
we hit the 27s docking which we do not

790
00:24:02,310 --> 00:23:59,600
want to be there for so we would that

791
00:24:05,350 --> 00:24:02,320
would be the end of our window

792
00:24:06,710 --> 00:24:05,360
and with regards to um root cause uh

793
00:24:08,950 --> 00:24:06,720
understanding that you don't need to

794
00:24:12,070 --> 00:24:08,960
know root cause to launch this mission

795
00:24:14,870 --> 00:24:12,080
do you need to have root cause in uh

796
00:24:16,230 --> 00:24:14,880
for the the failed box before 135 can

797
00:24:17,990 --> 00:24:16,240
fly

798
00:24:19,590 --> 00:24:18,000
uh no not necessarily you know these

799
00:24:21,669 --> 00:24:19,600
kind of things are kind of ship unique

800
00:24:23,430 --> 00:24:21,679
events if it's a wiring short it might

801
00:24:26,149 --> 00:24:23,440
be some damage that occurred in

802
00:24:28,149 --> 00:24:26,159
servicing if it's a uh a heater problem

803
00:24:30,390 --> 00:24:28,159
that that occurred again it's probably

804
00:24:31,669 --> 00:24:30,400
uh something that's collateral damage so

805
00:24:33,510 --> 00:24:31,679
there's no reason to suspect that the

806
00:24:35,830 --> 00:24:33,520
same thing happened to the other wiring

807
00:24:37,269 --> 00:24:35,840
if this late-breaking data uh that i

808
00:24:39,350 --> 00:24:37,279
talked about that showed that when we

809
00:24:41,750 --> 00:24:39,360
were doing over temp thermostat testing

810
00:24:43,110 --> 00:24:41,760
um if that in fair analysis anyway shows

811
00:24:44,630 --> 00:24:43,120
that maybe that was an induced failure

812
00:24:46,149 --> 00:24:44,640
then obviously we need to go check

813
00:24:48,549 --> 00:24:46,159

atlantis to make sure nothing happened

814
00:24:50,549 --> 00:24:48,559
there but uh but the odds of where this

815
00:24:52,549 --> 00:24:50,559
is in the circuit and that occurring are

816
00:24:54,149 --> 00:24:52,559
are pretty slim we couldn't really come

817
00:24:55,830 --> 00:24:54,159
up with any ways that that would

818
00:24:57,830 --> 00:24:55,840
that that would occur that our

819
00:24:59,190 --> 00:24:57,840
our actual test caused the problem but

820
00:25:00,470 --> 00:24:59,200
if you think about it the techs are back

821
00:25:02,230 --> 00:25:00,480
there right near that hardware they're

822
00:25:03,190 --> 00:25:02,240
flexing in and moving it so if there was

823
00:25:04,230 --> 00:25:03,200
a little bit of an issue in one of the

824
00:25:05,990 --> 00:25:04,240
wire bundles they might have

825
00:25:07,110 --> 00:25:06,000
inadvertently uh

826
00:25:08,710 --> 00:25:07,120
the movement might have inadvertently

827
00:25:10,630 --> 00:25:08,720
caused metal to metal contact which

828
00:25:12,310 --> 00:25:10,640
which then could have caused that spike

829
00:25:15,350 --> 00:25:12,320
um there's no reason to suspect that

830
00:25:17,190 --> 00:25:15,360
would happen on any other ship though

831
00:25:18,789 --> 00:25:17,200
cheers

832
00:25:20,390 --> 00:25:18,799
james dean with florida today i think

833
00:25:22,630 --> 00:25:20,400
for mike leinbach um you're talking a

834
00:25:23,909 --> 00:25:22,640
little bit about the workforce i wonder

835
00:25:26,390 --> 00:25:23,919
if you could say

836
00:25:29,190 --> 00:25:26,400
if the uh the pace of the repairs you've

837
00:25:31,190 --> 00:25:29,200
just uh completed was affected at all by

838
00:25:33,269 --> 00:25:31,200

reduced staffing you've been through in

839
00:25:35,029 --> 00:25:33,279
recent months and whether what was or

840
00:25:36,149 --> 00:25:35,039
wasn't

841
00:25:38,070 --> 00:25:36,159
just speak a little bit about your

842
00:25:40,230 --> 00:25:38,080
ability to to overcome some challenges

843
00:25:41,590 --> 00:25:40,240
these last couple of flows while all

844
00:25:43,269 --> 00:25:41,600
that's been going on

845
00:25:45,830 --> 00:25:43,279
yeah relative to the to the reduced

846
00:25:47,750 --> 00:25:45,840
workforce it did cause a

847
00:25:50,630 --> 00:25:47,760
couple little problems in our apu

848
00:25:52,470 --> 00:25:50,640
engineering group where we're down a guy

849
00:25:54,470 --> 00:25:52,480
or two in that group

850
00:25:56,230 --> 00:25:54,480
so we had to we had to do some creative

851
00:25:57,430 --> 00:25:56,240
creative work around their schedules but

852
00:25:58,950 --> 00:25:57,440
again they all got their their

853
00:26:00,950 --> 00:25:58,960
sufficient rest

854
00:26:02,230 --> 00:26:00,960
and and that's probably typical of any

855
00:26:03,669 --> 00:26:02,240
problem we're going to pick up between

856
00:26:04,549 --> 00:26:03,679
here and and the end of the program

857
00:26:06,630 --> 00:26:04,559
we're going to have to look at the

858
00:26:08,950 --> 00:26:06,640
people we have left look at the critical

859
00:26:10,470 --> 00:26:08,960
skills we require to to solve those

860
00:26:13,029 --> 00:26:10,480
problems and then work around the people

861
00:26:14,710 --> 00:26:13,039
and and if it causes to to delay a

862
00:26:16,390 --> 00:26:14,720
launch or a major milestone a day or two

863
00:26:17,750 --> 00:26:16,400

to give the the people sufficient rest

864
00:26:19,350 --> 00:26:17,760
that's what we'll do

865
00:26:20,789 --> 00:26:19,360
in fact we asked that specific question

866
00:26:22,950 --> 00:26:20,799
during this whole process you know we

867
00:26:24,630 --> 00:26:22,960
were very clear with the team that if we

868
00:26:25,669 --> 00:26:24,640
if they felt they needed more time off

869
00:26:27,110 --> 00:26:25,679
that they would speak up their

870
00:26:28,230 --> 00:26:27,120
management would speak up and we'd give

871
00:26:30,149 --> 00:26:28,240
them the time

872
00:26:31,669 --> 00:26:30,159
and uh to a person they said no we're

873
00:26:33,430 --> 00:26:31,679
ready to go we're all getting we're all

874
00:26:34,710 --> 00:26:33,440
getting good rest and and uh so we

875
00:26:37,029 --> 00:26:34,720
should be good

876
00:26:39,669 --> 00:26:37,039
uh the reductions you know we're we're

877
00:26:41,750 --> 00:26:39,679
kind of at a steady steady state right

878
00:26:43,269 --> 00:26:41,760
now uh through the end of the program so

879
00:26:45,830 --> 00:26:43,279
i wouldn't expect any any further

880
00:26:47,110 --> 00:26:45,840
impacts from a from a workforce

881
00:26:48,549 --> 00:26:47,120
perspective

882
00:26:50,230 --> 00:26:48,559
again we meet monthly with the

883
00:26:52,310 --> 00:26:50,240
contractor team and nasa management and

884
00:26:54,230 --> 00:26:52,320
we look at each group relative to to

885
00:26:56,230 --> 00:26:54,240
their their strength

886
00:26:58,390 --> 00:26:56,240
that's engineering technicians quality

887
00:27:00,070 --> 00:26:58,400
safety everybody logistics

888
00:27:01,830 --> 00:27:00,080

payloads everybody and make sure that

889
00:27:03,830 --> 00:27:01,840
we're ready to go and and

890
00:27:05,430 --> 00:27:03,840
again we wouldn't go if we weren't ready

891
00:27:07,350 --> 00:27:05,440
this time we worked around a couple of

892
00:27:09,350 --> 00:27:07,360
schedules and and got to the 16th of the

893
00:27:11,110 --> 00:27:09,360
launch date so i feel good about i mean

894
00:27:13,190 --> 00:27:11,120
the process works exactly right people

895
00:27:14,870 --> 00:27:13,200
are free to speak up and and

896
00:27:16,710 --> 00:27:14,880
believe me they do their our workforce

897
00:27:20,630 --> 00:27:16,720
is not shy they'll speak up when they

898
00:27:23,990 --> 00:27:22,549
marcia done associated press for mike

899
00:27:26,149 --> 00:27:24,000
moses i know you

900
00:27:27,590 --> 00:27:26,159
didn't have the exact wiring

901
00:27:29,110 --> 00:27:27,600
of feet you know how many feet were

902
00:27:31,029 --> 00:27:29,120
replaced but could you hazard a guess

903
00:27:32,789 --> 00:27:31,039
that how long that strip is that you had

904
00:27:34,230 --> 00:27:32,799
to put in

905
00:27:35,669 --> 00:27:34,240
i don't think i could even guess yeah

906
00:27:37,830 --> 00:27:35,679
we've we've talked a couple of different

907
00:27:39,350 --> 00:27:37,840
lengths of wiring and uh i think it's

908
00:27:40,149 --> 00:27:39,360
maybe in the 20 feet

909
00:27:42,389 --> 00:27:40,159
yeah

910
00:27:43,830 --> 00:27:42,399
it's probably in the in the 20 feet plus

911
00:27:46,470 --> 00:27:43,840
or minus 10 feet

912
00:27:49,510 --> 00:27:46,480
i would have said 20 yeah roughly how

913
00:27:52,149 --> 00:27:49,520

many 20. yeah mike mike and i kind of

914
00:27:53,350 --> 00:27:52,159
ballpark spot 20 feet okay plus or minus

915
00:27:54,789 --> 00:27:53,360
and um

916
00:27:56,630 --> 00:27:54,799
what about the crowds do you think a

917
00:27:58,470 --> 00:27:56,640
monday morning launch early is going to

918
00:28:00,470 --> 00:27:58,480
attract as many crowds as a nice friday

919
00:28:01,909 --> 00:28:00,480
afternoon end of the week lunch

920
00:28:03,909 --> 00:28:01,919
i'll say we asked that we asked those

921
00:28:05,909 --> 00:28:03,919
very questions of the of the

922
00:28:08,070 --> 00:28:05,919
the local communities the titusville

923
00:28:09,269 --> 00:28:08,080
police department uh highway patrol

924
00:28:11,110 --> 00:28:09,279
everybody

925
00:28:12,789 --> 00:28:11,120
and and typical for for a scrub

926
00:28:13,750 --> 00:28:12,799
turnaround especially a lengthy scrub

927
00:28:15,669 --> 00:28:13,760
turnaround

928
00:28:17,830 --> 00:28:15,679
some people won't come back monday

929
00:28:20,230 --> 00:28:17,840
morning at 9 00 a.m is not as attractive

930
00:28:22,070 --> 00:28:20,240
as friday afternoon at 4 30 so that'll

931
00:28:24,149 --> 00:28:22,080
keep some of the crowds down it's still

932
00:28:26,389 --> 00:28:24,159
going to be quite full and and we're

933
00:28:28,870 --> 00:28:26,399
going to stick to our plan of assessing

934
00:28:30,470 --> 00:28:28,880
if we do scrub on on monday morning

935
00:28:32,710 --> 00:28:30,480
looking at the at the time of the scrub

936
00:28:34,389 --> 00:28:32,720
relative to the traffic in town so it

937
00:28:36,389 --> 00:28:34,399
will be less but it'll be a heck of a

938
00:28:39,590 --> 00:28:36,399

lot more than we have for 133 and that's

939
00:28:43,990 --> 00:28:40,470
bill

940
00:28:45,669 --> 00:28:44,000
for mike moses can you give me some more

941
00:28:47,909 --> 00:28:45,679
detail on that spike that late breaking

942
00:28:49,990 --> 00:28:47,919
thing i'm unclear what the test was

943
00:28:52,310 --> 00:28:50,000
were you only testing that over temp

944
00:28:54,070 --> 00:28:52,320
thermostat when when they saw that

945
00:28:55,750 --> 00:28:54,080
whatever the spike was

946
00:28:57,430 --> 00:28:55,760
and also i'm curious how you know that

947
00:28:58,470 --> 00:28:57,440
whatever might have caused that isn't in

948
00:29:00,149 --> 00:28:58,480
a heater

949
00:29:01,990 --> 00:29:00,159
that you didn't replace that could cause

950
00:29:04,070 --> 00:29:02,000
the problem again

951
00:29:05,350 --> 00:29:04,080
yeah so i would have thought that what

952
00:29:06,710 --> 00:29:05,360
25 minutes of talking gave you enough

953
00:29:08,549 --> 00:29:06,720
details but yeah

954
00:29:10,630 --> 00:29:08,559
i have a whole lot to talk about so

955
00:29:12,389 --> 00:29:10,640
that data like i said is pretty late

956
00:29:13,990 --> 00:29:12,399
breaking so uh

957
00:29:16,789 --> 00:29:14,000
to answer your second question we don't

958
00:29:17,830 --> 00:29:16,799
know uh exactly the course of that so we

959
00:29:21,110 --> 00:29:17,840
do know we were working on that

960
00:29:23,029 --> 00:29:21,120
thermostat um and and the the test was

961
00:29:24,870 --> 00:29:23,039
literally to heat up the thermostat the

962
00:29:26,870 --> 00:29:24,880
overtime thermostat which effectively

963
00:29:28,630 --> 00:29:26,880

says uh fake it out to make it think

964
00:29:30,870 --> 00:29:28,640
that the heaters are running uh and see

965
00:29:32,870 --> 00:29:30,880
if it opens up and kills the the power

966
00:29:34,310 --> 00:29:32,880
and it did exactly that so the check

967
00:29:35,830 --> 00:29:34,320
that the guys on console were doing was

968
00:29:37,909 --> 00:29:35,840
making sure the current being drawn by

969
00:29:39,110 --> 00:29:37,919
that heater dropped to zero uh and so

970
00:29:40,789 --> 00:29:39,120
the techs are in the back heating it up

971
00:29:42,070 --> 00:29:40,799
the guy's watching the data he sees it

972
00:29:44,230 --> 00:29:42,080
drop off

973
00:29:45,909 --> 00:29:44,240
only in now looking back with a with a

974
00:29:46,950 --> 00:29:45,919
weather eye at the high speed data we

975
00:29:49,029 --> 00:29:46,960
see that

976
00:29:50,870 --> 00:29:49,039
literally milliseconds before that a 10

977
00:29:52,549 --> 00:29:50,880
amp spike came in and that's what

978
00:29:54,389 --> 00:29:52,559
actually removed power not the over

979
00:29:55,669 --> 00:29:54,399
thermostat itself opening up

980
00:29:56,950 --> 00:29:55,679
that's the theory being postulated on

981
00:29:58,950 --> 00:29:56,960
the table right now we got to let the

982
00:30:00,310 --> 00:29:58,960
guys review the high speed data again to

983
00:30:01,269 --> 00:30:00,320
make sure that there's nothing else

984
00:30:02,789 --> 00:30:01,279
going on

985
00:30:04,789 --> 00:30:02,799
some of this is you have the electrical

986
00:30:06,630 --> 00:30:04,799
team who's reviewed that data trying to

987
00:30:07,830 --> 00:30:06,640
judge what the apu team was doing at the

988
00:30:09,350 --> 00:30:07,840

time the two of them need to sit in the

989
00:30:11,029 --> 00:30:09,360
room together at the same computer

990
00:30:12,630 --> 00:30:11,039
monitor and make sure they they truly

991
00:30:13,909 --> 00:30:12,640
understand exactly the timeline events

992
00:30:15,590 --> 00:30:13,919
and the teams building that timeline

993
00:30:18,230 --> 00:30:15,600
right now um

994
00:30:19,669 --> 00:30:18,240
we we don't know exactly uh where that

995
00:30:21,510 --> 00:30:19,679
would have been we've we've removed that

996
00:30:23,110 --> 00:30:21,520
thermostat and the leads

997
00:30:24,389 --> 00:30:23,120
we're it's down at the depot right now

998
00:30:26,070 --> 00:30:24,399
they're going to do failure analysis to

999
00:30:28,149 --> 00:30:26,080
see if we see any kind of short on the

1000
00:30:29,909 --> 00:30:28,159
wiring of that thermostat or inside the

1001
00:30:31,350 --> 00:30:29,919
thermostat you wouldn't expect it inside

1002
00:30:33,590 --> 00:30:31,360
the thermostat but the wiring could have

1003
00:30:36,149 --> 00:30:33,600
been a problem in fact this type of

1004
00:30:37,990 --> 00:30:36,159
wiring in the past has had some problems

1005
00:30:39,909 --> 00:30:38,000
um on thermostats like this before with

1006
00:30:40,950 --> 00:30:39,919
some some faulty wiring

1007
00:30:42,070 --> 00:30:40,960
and so we're going to take a look at

1008
00:30:44,070 --> 00:30:42,080
that

1009
00:30:45,350 --> 00:30:44,080
but again our confidence to fly goes to

1010
00:30:47,029 --> 00:30:45,360
the we didn't really know need to know

1011
00:30:49,029 --> 00:30:47,039
root cause because we've done

1012
00:30:50,870 --> 00:30:49,039
functionals uh in multiple ways on all

1013
00:30:52,070 --> 00:30:50,880

the components and then we went ahead

1014
00:30:53,510 --> 00:30:52,080
and replaced a whole bunch of them and

1015
00:30:54,470 --> 00:30:53,520
then repeated all those functionals so

1016
00:30:55,990 --> 00:30:54,480
we know

1017
00:30:57,750 --> 00:30:56,000
uh we have really good power heading out

1018
00:30:59,110 --> 00:30:57,760
to those heaters we've turned them on

1019
00:31:00,630 --> 00:30:59,120
we've run them we've checked those over

1020
00:31:01,830 --> 00:31:00,640
temp thermostats

1021
00:31:04,950 --> 00:31:01,840
we've literally run through all their

1022
00:31:06,389 --> 00:31:04,960
paces and they're performing just fine

1023
00:31:07,990 --> 00:31:06,399
so we'll button the ship back up we'll

1024
00:31:09,990 --> 00:31:08,000
go into launch countdown we'll chill

1025
00:31:12,149 --> 00:31:10,000
things down as we load the et and we'll

1026
00:31:13,269 --> 00:31:12,159
go see how these heaters perform again

1027
00:31:14,230 --> 00:31:13,279
and like i said we have very high

1028
00:31:15,909 --> 00:31:14,240
confidence that nothing's going to

1029
00:31:17,430 --> 00:31:15,919
happen but again that'll be yet another

1030
00:31:19,750 --> 00:31:17,440
check that the problem's not there in

1031
00:31:22,230 --> 00:31:19,760
the ship and then we'll be good to fly

1032
00:31:23,909 --> 00:31:22,240
okay thanks and one more from me um

1033
00:31:25,909 --> 00:31:23,919
realizing that you can't tell us when

1034
00:31:27,029 --> 00:31:25,919
135 might end up going i believe you

1035
00:31:29,110 --> 00:31:27,039
said in your remarks it could be a

1036
00:31:30,470 --> 00:31:29,120
couple of weeks you guys have the 60-day

1037
00:31:32,389 --> 00:31:30,480
notices i think for the next round of

1038
00:31:33,750 --> 00:31:32,399

layoffs are supposed to go out this week

1039
00:31:35,350 --> 00:31:33,760
and i think some of those layoffs would

1040
00:31:37,430 --> 00:31:35,360
kick if you really did slip that launch

1041
00:31:38,950 --> 00:31:37,440
two weeks to around the 15th of july or

1042
00:31:41,029 --> 00:31:38,960
somewhere in that ballpark

1043
00:31:43,269 --> 00:31:41,039
i mean these things would be happening

1044
00:31:45,029 --> 00:31:43,279
they could impact processing or not i

1045
00:31:46,710 --> 00:31:45,039
may be confused about that i was just

1046
00:31:48,630 --> 00:31:46,720
curious what you have to do right away

1047
00:31:49,990 --> 00:31:48,640
to to kind of straighten that out yeah

1048
00:31:52,310 --> 00:31:50,000
you're right the warnac notices are

1049
00:31:53,909 --> 00:31:52,320
going out um but you got to decouple a

1050
00:31:55,350 --> 00:31:53,919
warnac notice doesn't mean you're you

1051
00:31:56,710 --> 00:31:55,360
are being laid off it just gives you

1052
00:31:58,870 --> 00:31:56,720
notice that you have the potential to be

1053
00:32:00,789 --> 00:31:58,880
laid off um the date originally targeted

1054
00:32:03,269 --> 00:32:00,799
for those was going to be

1055
00:32:04,789 --> 00:32:03,279
starting around the 15th of july

1056
00:32:05,990 --> 00:32:04,799
kind of in a phased approach just due to

1057
00:32:08,149 --> 00:32:06,000
the magnitude of the number of people

1058
00:32:09,509 --> 00:32:08,159
that we'll be processing out um and then

1059
00:32:11,509 --> 00:32:09,519
kind of there'll be another batch coming

1060
00:32:14,630 --> 00:32:11,519
in on july 22nd that was the original

1061
00:32:15,830 --> 00:32:14,640
plan based on a june 28 launch date um

1062
00:32:17,509 --> 00:32:15,840
the rub of it is you got to make sure

1063
00:32:19,110 --> 00:32:17,519

the cart stays behind the horse on this

1064
00:32:20,310 --> 00:32:19,120
one the shuttle launch schedule and

1065
00:32:22,230 --> 00:32:20,320
support in the manifest is the true

1066
00:32:23,750 --> 00:32:22,240
driver and if we need more time those

1067
00:32:24,950 --> 00:32:23,760
people will not be let go and they will

1068
00:32:27,269 --> 00:32:24,960
stick around and work as long as we need

1069
00:32:29,110 --> 00:32:27,279
them to so the plan to send out word

1070
00:32:30,630 --> 00:32:29,120
notices still has to happen uh because

1071
00:32:32,549 --> 00:32:30,640
we're required by law to do that and

1072
00:32:34,389 --> 00:32:32,559
notify people there's the potential that

1073
00:32:36,389 --> 00:32:34,399
that you will be laid off on the 15th of

1074
00:32:39,110 --> 00:32:36,399
july or the 22nd of july whatever that

1075
00:32:41,190 --> 00:32:39,120
specific date happens to be so just like

1076
00:32:43,190 --> 00:32:41,200
we have to reassess the launch date the

1077
00:32:45,110 --> 00:32:43,200
the the human resource departments and

1078
00:32:46,470 --> 00:32:45,120
our contractors need to reassess when

1079
00:32:47,990 --> 00:32:46,480
they need to officially notify the

1080
00:32:49,669 --> 00:32:48,000
employees and and what you're going to

1081
00:32:51,669 --> 00:32:49,679
see us do is basically cover the bases

1082
00:32:53,509 --> 00:32:51,679
by going ahead and notifying them that

1083
00:32:54,870 --> 00:32:53,519
there's still the potential of a layoff

1084
00:32:56,789 --> 00:32:54,880
and it doesn't mean that that will

1085
00:32:58,870 --> 00:32:56,799
actually occur on the date we warned you

1086
00:33:00,630 --> 00:32:58,880
about but it's it's coming and everybody

1087
00:33:01,990 --> 00:33:00,640
knows it's coming and mike said that

1088
00:33:03,909 --> 00:33:02,000

pretty eloquently in the past this is

1089
00:33:05,350 --> 00:33:03,919
nothing new to our workforce the

1090
00:33:07,110 --> 00:33:05,360
specific day

1091
00:33:09,269 --> 00:33:07,120
is really what it's going to be

1092
00:33:11,669 --> 00:33:09,279
what we're talking about the concept of

1093
00:33:13,590 --> 00:33:11,679
we're here until 135 flies is still what

1094
00:33:14,950 --> 00:33:13,600
the team knows is the is the true

1095
00:33:16,549 --> 00:33:14,960
milestone

1096
00:33:17,590 --> 00:33:16,559
and just briefly you did say a couple of

1097
00:33:19,190 --> 00:33:17,600
weeks i mean you said that i'm just

1098
00:33:21,029 --> 00:33:19,200
making sure that's what you meant to say

1099
00:33:22,310 --> 00:33:21,039
yeah so a couple weeks might be less

1100
00:33:23,509 --> 00:33:22,320
than that right so it's again the plus

1101
00:33:24,630 --> 00:33:23,519
or minus so i'll say a couple weeks plus

1102
00:33:26,310 --> 00:33:24,640
or minus a week

1103
00:33:27,269 --> 00:33:26,320
um we're looking at

1104
00:33:29,269 --> 00:33:27,279
you know i could say we're looking at

1105
00:33:31,430 --> 00:33:29,279
the the second week of july but is that

1106
00:33:32,870 --> 00:33:31,440
the second full week of july since july

1107
00:33:34,470 --> 00:33:32,880
1st is on the middle of the week you

1108
00:33:35,909 --> 00:33:34,480
know so we're looking in that time frame

1109
00:33:38,070 --> 00:33:35,919
and and i'm not trying to be coy about

1110
00:33:40,070 --> 00:33:38,080
it it literally if i if i mentioned a

1111
00:33:41,669 --> 00:33:40,080
time frame everybody and not just the

1112
00:33:42,789 --> 00:33:41,679
public would lock in on that

1113
00:33:44,630 --> 00:33:42,799

and we really don't want to do that

1114
00:33:45,990 --> 00:33:44,640
until we truly sit down and do the work

1115
00:33:47,269 --> 00:33:46,000
this is another one of those things that

1116
00:33:48,630 --> 00:33:47,279
kind of we were talking about is we're

1117
00:33:49,909 --> 00:33:48,640
being affected by our workforce

1118
00:33:52,070 --> 00:33:49,919
reductions

1119
00:33:53,750 --> 00:33:52,080
we know we can't do roll outs on the

1120
00:33:55,350 --> 00:33:53,760
same day we do launch we can't do on the

1121
00:33:56,789 --> 00:33:55,360
same day we're doing landing in the past

1122
00:33:57,909 --> 00:33:56,799
we would have had extra teams to be able

1123
00:33:59,190 --> 00:33:57,919
to help with that

1124
00:34:00,950 --> 00:33:59,200
and so we really do need to make sure

1125
00:34:02,549 --> 00:34:00,960
that in addition to what the schedule

1126
00:34:03,909 --> 00:34:02,559
says on the calendar we then put the

1127
00:34:05,430 --> 00:34:03,919
workforce profile to that as well and

1128
00:34:07,110 --> 00:34:05,440
make sure we have the right teams and

1129
00:34:08,069 --> 00:34:07,120
we're not working anybody too hard it's

1130
00:34:10,149 --> 00:34:08,079
just going to take us a lot of work

1131
00:34:13,589 --> 00:34:10,159
through it

1132
00:34:17,510 --> 00:34:16,310
thanks um irene klotz with reuters for

1133
00:34:18,629 --> 00:34:17,520
mike moses

1134
00:34:21,190 --> 00:34:18,639
the um

1135
00:34:23,430 --> 00:34:21,200
was it was it a factor to uh go ahead

1136
00:34:25,750 --> 00:34:23,440
and add the two extension days that only

1137
00:34:27,909 --> 00:34:25,760
half the station crew would be there for

1138
00:34:29,589 --> 00:34:27,919

the tail part of the mission

1139
00:34:31,669 --> 00:34:29,599
uh not really it was more just to put

1140
00:34:33,109 --> 00:34:31,679
that flexibility in up front uh when we

1141
00:34:34,790 --> 00:34:33,119
were talking about this before we were

1142
00:34:36,310 --> 00:34:34,800
trying to launch on the 29th we were

1143
00:34:38,230 --> 00:34:36,320
going to hold those two days back we

1144
00:34:39,750 --> 00:34:38,240
knew we were going to use them uh but

1145
00:34:41,589 --> 00:34:39,760
exactly when and where we would commit

1146
00:34:43,190 --> 00:34:41,599
them we kind of wanted to make sure uh

1147
00:34:45,430 --> 00:34:43,200
that we docked on flight day three that

1148
00:34:46,550 --> 00:34:45,440
we we we had all the understanding of

1149
00:34:47,829 --> 00:34:46,560
what was going to happen in the station

1150
00:34:49,909 --> 00:34:47,839
timelines

1151
00:34:51,750 --> 00:34:49,919
those concerns are all still there but

1152
00:34:53,510 --> 00:34:51,760
uh but the complexity of being able to

1153
00:34:55,669 --> 00:34:53,520
accommodate the soyuz undocking in the

1154
00:34:58,310 --> 00:34:55,679
middle of all this and to some extent

1155
00:35:00,150 --> 00:34:58,320
the loss of the crewmen um really made

1156
00:35:02,470 --> 00:35:00,160
it more sense to give the the planners

1157
00:35:04,150 --> 00:35:02,480
up front and the crew a definite

1158
00:35:06,230 --> 00:35:04,160
schedule that was probably locked in so

1159
00:35:07,510 --> 00:35:06,240
we've identified already kind of where

1160
00:35:10,950 --> 00:35:07,520
those plus one and plus two days would

1161
00:35:12,790 --> 00:35:10,960
go and i say kind of because uh based on

1162
00:35:14,470 --> 00:35:12,800
the specific time of the launch every

1163
00:35:16,310 --> 00:35:14,480

day we slip they're gonna have to redo

1164
00:35:17,829 --> 00:35:16,320
their plan they might choose to switch

1165
00:35:20,069 --> 00:35:17,839
to a different day either before an eva

1166
00:35:22,630 --> 00:35:20,079
or after an eva to just alleviate that

1167
00:35:24,470 --> 00:35:22,640
particular sleep shifting

1168
00:35:26,550 --> 00:35:24,480
so it wasn't a direct thing to say hey

1169
00:35:27,829 --> 00:35:26,560
we're losing uh four hands after

1170
00:35:28,790 --> 00:35:27,839
undocking so we need to add an extra day

1171
00:35:30,550 --> 00:35:28,800
to keep the shuttle crew around to get

1172
00:35:32,550 --> 00:35:30,560
those tasks done they were kind of bonus

1173
00:35:34,310 --> 00:35:32,560
tasks to begin with it's more of giving

1174
00:35:36,310 --> 00:35:34,320
the team the flexibility to put the time

1175
00:35:38,310 --> 00:35:36,320
in the schedule to deconflict the two

1176
00:35:40,630 --> 00:35:38,320
events uh and and really not make it a

1177
00:35:42,390 --> 00:35:40,640
push and and kind of like we do with our

1178
00:35:44,069 --> 00:35:42,400
workforce down here let the folks back

1179
00:35:45,190 --> 00:35:44,079
in houston know

1180
00:35:46,710 --> 00:35:45,200
we're not going to push to make

1181
00:35:47,670 --> 00:35:46,720
everything fit

1182
00:35:50,069 --> 00:35:47,680
take the time you need to get the

1183
00:35:52,710 --> 00:35:50,079
activities done the right way

1184
00:35:54,470 --> 00:35:52,720
and also on that note um i can't recall

1185
00:35:56,230 --> 00:35:54,480
any other time that the shuttle crew

1186
00:35:57,910 --> 00:35:56,240
would have been there when the station

1187
00:36:00,870 --> 00:35:57,920
crew is leaving it's kind of like having

1188
00:36:02,470 --> 00:36:00,880

your host take off and you stay around

1189
00:36:03,829 --> 00:36:02,480
is there anything aside from sleep

1190
00:36:06,550 --> 00:36:03,839
shifting that

1191
00:36:09,510 --> 00:36:06,560
is kind of an operational or any kind of

1192
00:36:11,349 --> 00:36:09,520
concern or issue that you or the station

1193
00:36:12,950 --> 00:36:11,359
people are having to deal with

1194
00:36:14,950 --> 00:36:12,960
well we call this um generically we call

1195
00:36:17,349 --> 00:36:14,960
this dual dock ops and so anytime

1196
00:36:19,109 --> 00:36:17,359
there's a docking or an undocking uh of

1197
00:36:21,750 --> 00:36:19,119
both vehicles either the shuttle the

1198
00:36:23,670 --> 00:36:21,760
soyuz or the uh the progress and i throw

1199
00:36:24,710 --> 00:36:23,680
the htv and the atv onto that list as

1200
00:36:26,310 --> 00:36:24,720
well

1201
00:36:28,069 --> 00:36:26,320
we need to evaluate the specific

1202
00:36:29,430 --> 00:36:28,079
constraints on both the shuttling

1203
00:36:31,190 --> 00:36:29,440
station

1204
00:36:33,349 --> 00:36:31,200
to make sure that that dual

1205
00:36:35,430 --> 00:36:33,359
docking or undocking can occur

1206
00:36:37,030 --> 00:36:35,440
in this case a soyuz undocking is pretty

1207
00:36:38,470 --> 00:36:37,040
straightforward it literally backs

1208
00:36:39,910 --> 00:36:38,480
straight out of a port

1209
00:36:41,910 --> 00:36:39,920
there are certain docking ports on the

1210
00:36:43,750 --> 00:36:41,920
station that uh for a soyuz or a

1211
00:36:45,670 --> 00:36:43,760
progress undocking those thrusters if

1212
00:36:47,510 --> 00:36:45,680
they come off a little off axis

1213
00:36:49,349 --> 00:36:47,520

those thrusters plumes could head

1214
00:36:51,510 --> 00:36:49,359
towards the orbiter windows which is a

1215
00:36:53,430 --> 00:36:51,520
sensitive area for us and so we've ruled

1216
00:36:54,710 --> 00:36:53,440
out dock dual dock operations if

1217
00:36:56,790 --> 00:36:54,720
undocking was occurring from any of

1218
00:36:58,390 --> 00:36:56,800
those ports uh this is not one of those

1219
00:36:59,190 --> 00:36:58,400
so we know that's been cleared so we

1220
00:37:01,030 --> 00:36:59,200
have a whole bunch of hardware

1221
00:37:02,470 --> 00:37:01,040
constraints that we wanted to check

1222
00:37:04,390 --> 00:37:02,480
for example the payload bay is sitting

1223
00:37:06,710 --> 00:37:04,400
there open uh the radiators are there

1224
00:37:08,150 --> 00:37:06,720
can be impinged upon we have the obss

1225
00:37:09,349 --> 00:37:08,160
with all the sensitive optics on the end

1226
00:37:10,390 --> 00:37:09,359
of it we want to make sure it's not in

1227
00:37:11,829 --> 00:37:10,400
the way

1228
00:37:13,030 --> 00:37:11,839
if you're going to do a relocation

1229
00:37:14,150 --> 00:37:13,040
you're going to take the soyuz of the

1230
00:37:16,069 --> 00:37:14,160
progress and fly it around to a

1231
00:37:18,550 --> 00:37:16,079
different port make sure that on its way

1232
00:37:20,470 --> 00:37:18,560
back in if it had a failure such that it

1233
00:37:22,310 --> 00:37:20,480
needed to abort that abort trajectory

1234
00:37:24,150 --> 00:37:22,320
wouldn't cause any problems all that has

1235
00:37:25,829 --> 00:37:24,160
been generically analyzed

1236
00:37:28,069 --> 00:37:25,839
and we've kind of given a generic

1237
00:37:29,750 --> 00:37:28,079
blessing to duel to do

1238
00:37:30,950 --> 00:37:29,760

dual docked operations from certain

1239
00:37:32,870 --> 00:37:30,960
locations

1240
00:37:34,710 --> 00:37:32,880
so when this one came up we knew all

1241
00:37:36,390 --> 00:37:34,720
that work was behind us then it was just

1242
00:37:38,310 --> 00:37:36,400
the flight specific analysis which is

1243
00:37:40,550 --> 00:37:38,320
the stuff like the timeline the sleep

1244
00:37:42,150 --> 00:37:40,560
shifting the workload on the crew

1245
00:37:44,069 --> 00:37:42,160
and that really depends on the specific

1246
00:37:45,349 --> 00:37:44,079
orbital mechanics of the day to say when

1247
00:37:47,109 --> 00:37:45,359
are the two events occurring relative to

1248
00:37:49,109 --> 00:37:47,119
each other and can you build a timeline

1249
00:37:51,430 --> 00:37:49,119
that allows it this one's pretty close

1250
00:37:52,710 --> 00:37:51,440
to the edge a sleep shift another hour

1251
00:37:54,230 --> 00:37:52,720
or two worse than this would would

1252
00:37:55,990 --> 00:37:54,240
probably tell us we can't do it so this

1253
00:37:57,829 --> 00:37:56,000
is about uh the furthest we'd want to

1254
00:37:59,430 --> 00:37:57,839
stretch for a dual docked operation uh

1255
00:38:01,349 --> 00:37:59,440
but we know conceptually it's it's

1256
00:38:03,190 --> 00:38:01,359
feasible both in terms of uh the crew

1257
00:38:05,190 --> 00:38:03,200
timelines and the vehicle physical hard

1258
00:38:06,310 --> 00:38:05,200
constraints

1259
00:38:07,670 --> 00:38:06,320
we'll take one more question here and

1260
00:38:09,349 --> 00:38:07,680
then we'll go to a question we have on

1261
00:38:12,550 --> 00:38:09,359
the telephone

1262
00:38:13,349 --> 00:38:12,560
thank you naomi takimoto with nhk

1263
00:38:15,190 --> 00:38:13,359

um

1264
00:38:17,030 --> 00:38:15,200
i just would like to make sure what i

1265
00:38:18,950 --> 00:38:17,040
heard is correct

1266
00:38:21,270 --> 00:38:18,960
you said um

1267
00:38:22,790 --> 00:38:21,280
you can't tell about the launch date for

1268
00:38:26,150 --> 00:38:22,800
the 135

1269
00:38:28,470 --> 00:38:26,160
but um can you tell us um when exactly

1270
00:38:30,150 --> 00:38:28,480
the rollover to the voyab building is

1271
00:38:31,990 --> 00:38:30,160
going to be occurred

1272
00:38:36,790 --> 00:38:32,000
you said a couple days after the launch

1273
00:38:40,630 --> 00:38:36,800
of 134 means about may 18th or 19th then

1274
00:38:43,910 --> 00:38:40,640
when it is going to be rolled out to

1275
00:38:46,630 --> 00:38:43,920
pad launch pad i heard that it's gonna

1276
00:38:48,069 --> 00:38:46,640
take about two weeks to repair the pad

1277
00:38:52,550 --> 00:38:48,079
after the lunch

1278
00:38:58,390 --> 00:38:54,710
i would like to know is it going to be

1279
00:39:00,870 --> 00:38:58,400
around may 30th that 135 atlantis is

1280
00:39:03,990 --> 00:39:00,880
going to be to the pad could you tell us

1281
00:39:05,829 --> 00:39:04,000
about those dates if it's possible

1282
00:39:07,750 --> 00:39:05,839
we'll see a couple couple ways to answer

1283
00:39:09,190 --> 00:39:07,760
that first of all we don't want to bring

1284
00:39:10,870 --> 00:39:09,200
atlantis over from the orbiter

1285
00:39:13,670 --> 00:39:10,880
processing facility to the vehicle

1286
00:39:15,589 --> 00:39:13,680
assembly building until we launch

1287
00:39:18,069 --> 00:39:15,599
we just don't want to get that vehicle

1288
00:39:20,710 --> 00:39:18,079

in front of the launch vehicle and so

1289
00:39:22,150 --> 00:39:20,720
it's going to follow the launch

1290
00:39:23,910 --> 00:39:22,160
right now on paper it's a day or two

1291
00:39:25,349 --> 00:39:23,920
later when again we're going to need to

1292
00:39:28,150 --> 00:39:25,359
to study that to make sure from a

1293
00:39:29,829 --> 00:39:28,160
workforce perspective it makes sense and

1294
00:39:31,750 --> 00:39:29,839
then what you mentioned about the launch

1295
00:39:34,230 --> 00:39:31,760
pad turnaround is exactly right we

1296
00:39:35,750 --> 00:39:34,240
normally book keep 14 days to turn the

1297
00:39:37,190 --> 00:39:35,760
launch pad around to get it ready for

1298
00:39:38,710 --> 00:39:37,200
the next vehicle

1299
00:39:40,710 --> 00:39:38,720
if we don't have

1300
00:39:42,310 --> 00:39:40,720
as much damage as we typically do we

1301
00:39:44,470 --> 00:39:42,320
could shorten that if we have more then

1302
00:39:46,870 --> 00:39:44,480
it's going to take longer and so you

1303
00:39:48,470 --> 00:39:46,880
know a couple of days after launch we'll

1304
00:39:49,910 --> 00:39:48,480
know the condition of the launch pad and

1305
00:39:51,589 --> 00:39:49,920
then we'll be able to set those dates

1306
00:39:53,589 --> 00:39:51,599
very very firmly

1307
00:39:55,430 --> 00:39:53,599
so until then it's kind of speculation

1308
00:39:57,589 --> 00:39:55,440
but that's the sequence of events anyway

1309
00:39:59,510 --> 00:39:57,599
leading up to taking atlantis out to the

1310
00:40:00,950 --> 00:39:59,520
pad for the final mission

1311
00:40:02,069 --> 00:40:00,960
and and one thing just because there's a

1312
00:40:04,790 --> 00:40:02,079
lot of folks trying to do the math at

1313
00:40:06,470 --> 00:40:04,800

home um the vab flow when we normally go

1314
00:40:07,750 --> 00:40:06,480
in the vb that's typically a week by the

1315
00:40:09,109 --> 00:40:07,760
time we get in the via beat we roll out

1316
00:40:11,109 --> 00:40:09,119
to the pad we know we're going to be in

1317
00:40:12,950 --> 00:40:11,119
there longer this time than a week

1318
00:40:15,270 --> 00:40:12,960
because the pad turnaround itself is

1319
00:40:16,630 --> 00:40:15,280
what's holding us up so uh we'll get

1320
00:40:18,390 --> 00:40:16,640
atlantis over we want a couple extra

1321
00:40:20,790 --> 00:40:18,400
contingency days in case something goes

1322
00:40:22,630 --> 00:40:20,800
goes wrong while we're doing the mate um

1323
00:40:24,950 --> 00:40:22,640
but but so that the time that we

1324
00:40:26,870 --> 00:40:24,960
normally would have between opf rollout

1325
00:40:28,790 --> 00:40:26,880
and vab rollout is going to be a little

1326
00:40:30,230 --> 00:40:28,800
longer than normal and then our pad flow

1327
00:40:31,910 --> 00:40:30,240
is going to be a whole lot longer than

1328
00:40:34,069 --> 00:40:31,920
normal because we're going to have to do

1329
00:40:36,550 --> 00:40:34,079
a tanking test on our external tank et

1330
00:40:38,069 --> 00:40:36,560
138 has the crack stringer condition

1331
00:40:39,430 --> 00:40:38,079
that we're worried about and we added

1332
00:40:41,430 --> 00:40:39,440
reinforcing

1333
00:40:42,870 --> 00:40:41,440
on the flanges of the inner tank and so

1334
00:40:44,870 --> 00:40:42,880
we want to go load that up with

1335
00:40:46,630 --> 00:40:44,880
cryogenic propellants and then drain it

1336
00:40:47,910 --> 00:40:46,640
and then go in an x-ray the whole flange

1337
00:40:50,069 --> 00:40:47,920
and that's about a five to six day

1338
00:40:51,990 --> 00:40:50,079

process to do those x-rays so the act of

1339
00:40:53,510 --> 00:40:52,000
doing that tanking test configuring for

1340
00:40:55,349 --> 00:40:53,520
it deconfiguring for it taking all the

1341
00:40:57,510 --> 00:40:55,359
pictures makes this pad flow a very

1342
00:40:59,349 --> 00:40:57,520
non-standard pad flow so if you're

1343
00:41:00,790 --> 00:40:59,359
trying to do the math at home of what if

1344
00:41:01,910 --> 00:41:00,800
we say we're going to roll on the 18th

1345
00:41:03,109 --> 00:41:01,920
or we're going to do two days after

1346
00:41:04,870 --> 00:41:03,119
launch and then you need a week and then

1347
00:41:06,630 --> 00:41:04,880
you need 36 days you're going to come up

1348
00:41:08,470 --> 00:41:06,640
with the wrong answer because it's not

1349
00:41:09,589 --> 00:41:08,480
that typical pad flow and that's one of

1350
00:41:11,349 --> 00:41:09,599
the reasons why this one's so

1351
00:41:16,870 --> 00:41:11,359
challenging there are a lot of extra

1352
00:41:21,589 --> 00:41:19,030
i heard a little rumors that you are

1353
00:41:23,910 --> 00:41:21,599
considering about the july 4th launch

1354
00:41:26,230 --> 00:41:23,920
for the last space shuttle

1355
00:41:28,230 --> 00:41:26,240
is that right is it is that possible

1356
00:41:30,150 --> 00:41:28,240
yeah so that was never a target from a

1357
00:41:32,230 --> 00:41:30,160
from a standpoint of a fly on july 4th

1358
00:41:34,710 --> 00:41:32,240
we knew we were on june 28th uh and we

1359
00:41:35,829 --> 00:41:34,720
knew fairly early on uh within about a

1360
00:41:37,510 --> 00:41:35,839
month or two ago that we were going to

1361
00:41:39,030 --> 00:41:37,520
need a little extra time that had the

1362
00:41:40,870 --> 00:41:39,040
potential then to move us to july 4th a

1363
00:41:41,829 --> 00:41:40,880

lot of folks locked in on that i think

1364
00:41:43,670 --> 00:41:41,839
the delays we're looking at here are

1365
00:41:45,349 --> 00:41:43,680
going to push us past that and so we'll

1366
00:41:47,109 --> 00:41:45,359
be looking past july 4th before we're

1367
00:41:49,990 --> 00:41:47,119
ready to launch but no it was never a

1368
00:41:52,390 --> 00:41:50,000
specific target for us

1369
00:41:56,710 --> 00:41:52,400
so much my pao plans okay um we'll go to

1370
00:42:00,870 --> 00:41:58,390
uh yeah mark kirkman with interspace

1371
00:42:02,710 --> 00:42:00,880
news can you hear me

1372
00:42:04,069 --> 00:42:02,720
we can

1373
00:42:05,990 --> 00:42:04,079
uh yeah um it was definitely a good

1374
00:42:08,230 --> 00:42:06,000
briefing by mr moses and thorough but i

1375
00:42:10,470 --> 00:42:08,240
do have just a couple of clarifications

1376
00:42:12,550 --> 00:42:10,480
i'd like um the first is regarding the

1377
00:42:14,550 --> 00:42:12,560
test you did in the opf it's my

1378
00:42:17,109 --> 00:42:14,560
understanding that the only time those

1379
00:42:20,150 --> 00:42:17,119
heaters usually get tested is through

1380
00:42:23,030 --> 00:42:20,160
the on-orbit mid-flight cycling of the

1381
00:42:24,710 --> 00:42:23,040
strings so i was just wondering what the

1382
00:42:27,430 --> 00:42:24,720
whether this particular opf test is

1383
00:42:28,710 --> 00:42:27,440
considered an abnormal test for a flow

1384
00:42:30,470 --> 00:42:28,720
and then the

1385
00:42:32,309 --> 00:42:30,480
next question is i

1386
00:42:33,270 --> 00:42:32,319
just want to make sure that i i think i

1387
00:42:35,510 --> 00:42:33,280
already know the answer but i just want

1388
00:42:38,309 --> 00:42:35,520

to make sure i hear it from you if the

1389
00:42:40,550 --> 00:42:38,319
heaters do not come on during the launch

1390
00:42:42,870 --> 00:42:40,560
count that effectively kills your

1391
00:42:45,030 --> 00:42:42,880
current flight rationale and is an lcc

1392
00:42:47,030 --> 00:42:45,040
violation is that correct

1393
00:42:48,870 --> 00:42:47,040
let's see mark on your first question um

1394
00:42:51,109 --> 00:42:48,880
a full functional heater check does not

1395
00:42:52,710 --> 00:42:51,119
occur normally as part of the flow but

1396
00:42:54,550 --> 00:42:52,720
they do check functionality over temp

1397
00:42:55,990 --> 00:42:54,560
thermostats and so that is a

1398
00:42:58,390 --> 00:42:56,000
checked every opf

1399
00:43:00,390 --> 00:42:58,400
we added some a mod to this system a

1400
00:43:03,190 --> 00:43:00,400
couple flights ago to put an extra

1401
00:43:04,710 --> 00:43:03,200
heater like down in the uh the gn2 quick

1402
00:43:07,270 --> 00:43:04,720
disconnect area to keep that line from

1403
00:43:08,309 --> 00:43:07,280
getting cold um and uh and about the

1404
00:43:09,589 --> 00:43:08,319
same time in reviewing all the

1405
00:43:11,430 --> 00:43:09,599
procedures we decided that it would be

1406
00:43:13,589 --> 00:43:11,440
prudent to to check out the overtime

1407
00:43:15,589 --> 00:43:13,599
thermostat functionality uh to prevent a

1408
00:43:17,030 --> 00:43:15,599
hazard uh and so that was what was going

1409
00:43:18,790 --> 00:43:17,040
on it was the over temp thermostat

1410
00:43:21,430 --> 00:43:18,800
checkout that was occurring in the opf

1411
00:43:24,309 --> 00:43:21,440
and that is a standard standard test uh

1412
00:43:25,670 --> 00:43:24,319
as far as the lcc violation um we're

1413
00:43:27,670 --> 00:43:25,680

gonna be in a much different posture on

1414
00:43:29,349 --> 00:43:27,680
launch day than we were the last time if

1415
00:43:30,630 --> 00:43:29,359
this failure reoccurs

1416
00:43:32,230 --> 00:43:30,640
i'm not committing to say that that

1417
00:43:33,190 --> 00:43:32,240
means we can launch without one of these

1418
00:43:34,630 --> 00:43:33,200
heaters

1419
00:43:36,230 --> 00:43:34,640
we'd have to go assess that and that's

1420
00:43:37,750 --> 00:43:36,240
exactly what the teams are doing but a

1421
00:43:38,790 --> 00:43:37,760
lot of the unknowns would be taken off

1422
00:43:41,270 --> 00:43:38,800
the plate

1423
00:43:43,829 --> 00:43:41,280
on launch day we we didn't know if this

1424
00:43:46,309 --> 00:43:43,839
was a uh a failure in a heater you know

1425
00:43:47,990 --> 00:43:46,319
wiring bundle in an lca box that has

1426
00:43:49,990 --> 00:43:48,000
hundreds of functions in it you didn't

1427
00:43:52,550 --> 00:43:50,000
know if it was going to get worse as you

1428
00:43:54,710 --> 00:43:52,560
started vibrating the system on launch

1429
00:43:57,109 --> 00:43:54,720
and we've basically gone away and we're

1430
00:43:59,109 --> 00:43:57,119
able to remove a whole lot of uh of root

1431
00:44:00,470 --> 00:43:59,119
cause from that problem such that you

1432
00:44:03,030 --> 00:44:00,480
could postulate that you could get

1433
00:44:04,390 --> 00:44:03,040
yourself comfortable potentially uh that

1434
00:44:05,670 --> 00:44:04,400
you could isolate if this heater failed

1435
00:44:07,349 --> 00:44:05,680
again that you knew it was in the heater

1436
00:44:08,790 --> 00:44:07,359
element itself and only that since

1437
00:44:10,390 --> 00:44:08,800
that's the only component we did not

1438
00:44:11,910 --> 00:44:10,400

change out and therefore it's an

1439
00:44:14,069 --> 00:44:11,920
isolated failure you don't worry about

1440
00:44:16,150 --> 00:44:14,079
it propagating and you might be ready to

1441
00:44:17,990 --> 00:44:16,160
go now i'm postulating we have not had

1442
00:44:19,270 --> 00:44:18,000
those discussions but that's what that's

1443
00:44:21,990 --> 00:44:19,280
what's going to be occurring between now

1444
00:44:23,670 --> 00:44:22,000
and launch day

1445
00:44:26,950 --> 00:44:23,680
right thank you very much any other

1446
00:44:27,910 --> 00:44:26,960
questions in here um

1447
00:44:33,030 --> 00:44:27,920
marcia

1448
00:44:37,109 --> 00:44:34,630
you mentioned that you have to stop the

1449
00:44:39,670 --> 00:44:37,119
window before the next soyuz arrival is

1450
00:44:42,069 --> 00:44:39,680
that in a problem port or why couldn't

1451
00:44:44,630 --> 00:44:42,079
you bring in a soyuz while the shuttle

1452
00:44:46,630 --> 00:44:44,640
is there in this circumstance uh it kind

1453
00:44:48,390 --> 00:44:46,640
of falls toward generic constraints

1454
00:44:49,589 --> 00:44:48,400
on an undocking you're basically leaving

1455
00:44:51,430 --> 00:44:49,599
and departing the area that's a fairly

1456
00:44:52,950 --> 00:44:51,440
easy trajectory to analysis

1457
00:44:54,870 --> 00:44:52,960
to do an analysis on when you're coming

1458
00:44:56,630 --> 00:44:54,880
back in and re-docking that's when

1459
00:44:57,829 --> 00:44:56,640
things get a little tricky

1460
00:44:59,910 --> 00:44:57,839
i can't tell you that i looked at the

1461
00:45:01,190 --> 00:44:59,920
specifics of why this one is not a dual

1462
00:45:02,710 --> 00:45:01,200
dock ops

1463
00:45:04,630 --> 00:45:02,720

candidate although i know it's on the

1464
00:45:06,470 --> 00:45:04,640
list of one that isn't probably because

1465
00:45:07,670 --> 00:45:06,480
it's going to a different port

1466
00:45:09,030 --> 00:45:07,680
but again marsha i haven't looked at the

1467
00:45:09,750 --> 00:45:09,040
specifics for that one

1468
00:45:11,510 --> 00:45:09,760
and

1469
00:45:13,349 --> 00:45:11,520
mike you talked to law authorities did

1470
00:45:15,190 --> 00:45:13,359
they give you any kind of crowd estimate

1471
00:45:17,349 --> 00:45:15,200
that they're expecting monday

1472
00:45:19,510 --> 00:45:17,359
no we haven't gotten an update from from

1473
00:45:20,870 --> 00:45:19,520
that we've asked that that for that data

1474
00:45:23,430 --> 00:45:20,880
we'll get that later this week i don't

1475
00:45:25,270 --> 00:45:23,440
have it for you today

1476
00:45:27,430 --> 00:45:25,280
james james dean with florida florida

1477
00:45:29,750 --> 00:45:27,440
today again um

1478
00:45:31,030 --> 00:45:29,760
um sleep shifting sorry um

1479
00:45:33,510 --> 00:45:31,040
mike leinbach wonder if you could speak

1480
00:45:35,430 --> 00:45:33,520
a little bit to the how the launch teams

1481
00:45:37,030 --> 00:45:35,440
handle that when will they start and i

1482
00:45:38,950 --> 00:45:37,040
know you've you know done it many times

1483
00:45:39,910 --> 00:45:38,960
before but um how much of a strain is

1484
00:45:41,750 --> 00:45:39,920
that

1485
00:45:45,030 --> 00:45:41,760
on to the folks on on the ground

1486
00:45:47,030 --> 00:45:45,040
obviously uh they have to be around

1487
00:45:49,109 --> 00:45:47,040
families living there their lives on

1488
00:45:51,990 --> 00:45:49,119

normal time how do you deal with that

1489
00:45:53,670 --> 00:45:52,000
well you know it varies by system uh

1490
00:45:55,190 --> 00:45:53,680
some systems power up at the beginning

1491
00:45:56,470 --> 00:45:55,200
of launch countdown and remain powered

1492
00:45:58,630 --> 00:45:56,480
up through the whole launch countdown

1493
00:46:00,470 --> 00:45:58,640
some don't come up until the final day

1494
00:46:01,910 --> 00:46:00,480
so really kind of really kind of depends

1495
00:46:03,030 --> 00:46:01,920
on the on the on the system we're

1496
00:46:05,910 --> 00:46:03,040
talking about

1497
00:46:07,670 --> 00:46:05,920
but going into a countdown every every

1498
00:46:10,390 --> 00:46:07,680
individual that works the counter works

1499
00:46:12,790 --> 00:46:10,400
the pad close out operations uh

1500
00:46:14,550 --> 00:46:12,800
or on an analysis team they understand

1501
00:46:16,950 --> 00:46:14,560
the time of day and when their expertise

1502
00:46:19,349 --> 00:46:16,960
is required and and typically i'd i'd

1503
00:46:21,349 --> 00:46:19,359
say about two or three days before

1504
00:46:23,270 --> 00:46:21,359
your key time on console you're going to

1505
00:46:25,270 --> 00:46:23,280
start thinking about sleep shifting a

1506
00:46:27,030 --> 00:46:25,280
little bit i do about two days out

1507
00:46:28,470 --> 00:46:27,040
myself and

1508
00:46:31,430 --> 00:46:28,480
you know you want to start getting ready

1509
00:46:32,390 --> 00:46:31,440
for it uh it very it varies a lot by

1510
00:46:34,710 --> 00:46:32,400
system

1511
00:46:36,870 --> 00:46:34,720
um you know you kind of get used to it

1512
00:46:38,230 --> 00:46:36,880
that that's that's one of the reasons we

1513
00:46:40,150 --> 00:46:38,240

don't like doing three in a row at an

1514
00:46:42,390 --> 00:46:40,160
odd time of day because because that

1515
00:46:45,510 --> 00:46:42,400
does throw off your your circadian

1516
00:46:47,349 --> 00:46:45,520
rhythms uh to it to an extent uh but

1517
00:46:49,190 --> 00:46:47,359
people people are used to it people get

1518
00:46:50,630 --> 00:46:49,200
you know they they they're they're in it

1519
00:46:51,990 --> 00:46:50,640
to launch the shuttle and we're going to

1520
00:46:54,230 --> 00:46:52,000
do that and we're going to feel good

1521
00:46:56,710 --> 00:46:54,240
about it

1522
00:46:58,230 --> 00:46:56,720
hey bill no good alright just one quick

1523
00:46:59,270 --> 00:46:58,240
one for me for mike moses just to follow

1524
00:47:00,470 --> 00:46:59,280
mark kirkman's question make sure you

1525
00:47:02,069 --> 00:47:00,480
understand that if you get down to

1526
00:47:03,670 --> 00:47:02,079
launch day and you fuel it up and for

1527
00:47:05,270 --> 00:47:03,680
whatever reason one of those heater

1528
00:47:06,390 --> 00:47:05,280
strings isn't working you're saying

1529
00:47:07,670 --> 00:47:06,400
there's some chance you could launch

1530
00:47:09,109 --> 00:47:07,680
anyway even though you wouldn't have any

1531
00:47:10,630 --> 00:47:09,119
redundancy in that system yeah we're

1532
00:47:12,550 --> 00:47:10,640
gonna go talk about that and see if

1533
00:47:13,829 --> 00:47:12,560
that's the right answer

1534
00:47:15,510 --> 00:47:13,839
i could give you my personal opinion now

1535
00:47:16,550 --> 00:47:15,520
but it's not based on all the details so

1536
00:47:17,510 --> 00:47:16,560
i'm not ready to make my personal

1537
00:47:19,750 --> 00:47:17,520
opinion

1538
00:47:21,030 --> 00:47:19,760

or make my decision yet so we're gonna

1539
00:47:23,270 --> 00:47:21,040
ask all those questions and see how

1540
00:47:24,549 --> 00:47:23,280
people think uh you know it's uh there's

1541
00:47:26,710 --> 00:47:24,559
a reason why we need to um in the first

1542
00:47:27,990 --> 00:47:26,720
place and uh and some of that is for the

1543
00:47:29,670 --> 00:47:28,000
functionality of the system but some of

1544
00:47:31,670 --> 00:47:29,680
that is also for that you don't know why

1545
00:47:32,950 --> 00:47:31,680
the failure happened um if we can take

1546
00:47:34,549 --> 00:47:32,960
the why the failure happened off the

1547
00:47:36,790 --> 00:47:34,559
plate uh this could become a different

1548
00:47:38,309 --> 00:47:36,800
risk discussion uh with respect to the

1549
00:47:39,430 --> 00:47:38,319
the go no go for launch so we'll go have

1550
00:47:40,230 --> 00:47:39,440
those discussions and we'll see where we

1551
00:47:41,990 --> 00:47:40,240
end up

1552
00:47:43,829 --> 00:47:42,000
and i just might add bill that our

1553
00:47:45,349 --> 00:47:43,839
launch commit criteria have not changed

1554
00:47:47,670 --> 00:47:45,359
and are not planning to change before

1555
00:47:48,790 --> 00:47:47,680
next monday so we would have if one of

1556
00:47:50,710 --> 00:47:48,800
them failed we would have a launch

1557
00:47:51,510 --> 00:47:50,720
commit criteria violation

1558
00:47:53,349 --> 00:47:51,520
but

1559
00:47:55,510 --> 00:47:53,359
per our standard processes we're able to

1560
00:47:57,109 --> 00:47:55,520
get together as a team and talk through

1561
00:47:58,710 --> 00:47:57,119
the rationale for why it would be safe

1562
00:48:00,150 --> 00:47:58,720
to fly anyway

1563
00:48:01,910 --> 00:48:00,160

you don't like doing that on launch day

1564
00:48:03,510 --> 00:48:01,920
but we certainly have that capability

1565
00:48:04,790 --> 00:48:03,520
that's why the the launch commit

1566
00:48:06,549 --> 00:48:04,800
criteria are written the way they are

1567
00:48:07,589 --> 00:48:06,559
and it gives the mission management team

1568
00:48:09,829 --> 00:48:07,599
and the launch team and the flight

1569
00:48:11,910 --> 00:48:09,839
control team some latitude to talk about

1570
00:48:13,510 --> 00:48:11,920
a particular failure and and come to a

1571
00:48:15,349 --> 00:48:13,520
good engineering judgment if it's still

1572
00:48:17,270 --> 00:48:15,359
safe to go that day or not and so that

1573
00:48:18,870 --> 00:48:17,280
would kick in next monday if we had

1574
00:48:20,390 --> 00:48:18,880
another failure not saying how it's

1575
00:48:21,910 --> 00:48:20,400
going to turn out but we would go

1576
00:48:23,430 --> 00:48:21,920
through our standard process of talking

1577
00:48:25,670 --> 00:48:23,440
about that failure and see if it's if

1578
00:48:27,349 --> 00:48:25,680
it's good to go that day or not

1579
00:48:29,109 --> 00:48:27,359
okay

1580
00:48:31,109 --> 00:48:29,119
irene klotz with reuters um on the

1581
00:48:32,150 --> 00:48:31,119
scheduling is there anything after the

1582
00:48:34,390 --> 00:48:32,160
um

1583
00:48:37,670 --> 00:48:34,400
the blackout period for the soyuz

1584
00:48:39,829 --> 00:48:37,680
arrival that uh would impede a launch or

1585
00:48:41,670 --> 00:48:39,839
what do the windows look like

1586
00:48:44,150 --> 00:48:41,680
kind of beyond the uh

1587
00:48:46,230 --> 00:48:44,160
may 26th

1588
00:48:47,670 --> 00:48:46,240

uh so we'd push out into june

1589
00:48:49,430 --> 00:48:47,680
it's effectively the same window that we

1590
00:48:50,790 --> 00:48:49,440
were looking at for the 135 mission that

1591
00:48:52,790 --> 00:48:50,800
would be the next window that we could

1592
00:48:55,510 --> 00:48:52,800
launch i don't think it was the 28th i

1593
00:48:57,030 --> 00:48:55,520
think it was the 22nd or so again those

1594
00:48:59,190 --> 00:48:57,040
dates have moved a little bit since i

1595
00:49:00,630 --> 00:48:59,200
last looked at that but

1596
00:49:01,750 --> 00:49:00,640
there's basically a beta cutout that

1597
00:49:03,349 --> 00:49:01,760
comes right after that and so i think

1598
00:49:05,109 --> 00:49:03,359
we'd be if we didn't make it in the end

1599
00:49:08,150 --> 00:49:05,119
of may we'd be moving into the middle to

1600
00:49:11,430 --> 00:49:09,990
okay any other questions

1601
00:49:16,710 --> 00:49:11,440
one more for james in the middle in the

1602
00:49:19,990 --> 00:49:18,390
thanks again james in florida today can

1603
00:49:21,910 --> 00:49:20,000
can you give us an idea what your

1604
00:49:24,870 --> 00:49:21,920
windows look like for

1605
00:49:28,549 --> 00:49:24,880
the 135 time frame that you're

1606
00:49:30,390 --> 00:49:28,559
you're looking at now mid-july or later

1607
00:49:32,390 --> 00:49:30,400
whether available available launch

1608
00:49:34,470 --> 00:49:32,400
windows whether it's for you know beta

1609
00:49:36,870 --> 00:49:34,480
cutouts or visiting vehicles etcetera

1610
00:49:38,230 --> 00:49:36,880
are are there any is it tricky or wide

1611
00:49:39,829 --> 00:49:38,240
open or

1612
00:49:41,670 --> 00:49:39,839
for the first bit uh most of the

1613
00:49:43,589 --> 00:49:41,680

beginning and and i think actually most

1614
00:49:44,950 --> 00:49:43,599
of july is wide open and so

1615
00:49:46,069 --> 00:49:44,960
i haven't looked at the range schedule i

1616
00:49:47,030 --> 00:49:46,079
think there's a delta iv in there

1617
00:49:48,069 --> 00:49:47,040
somewhere

1618
00:49:49,190 --> 00:49:48,079
that we'd work around but other than

1619
00:49:53,109 --> 00:49:49,200
that i think we're pretty wide open in

1620
00:49:56,790 --> 00:49:55,190
okay not see any other questions the

1621
00:49:58,230 --> 00:49:56,800
video that we showed during mr moses

1622
00:49:59,510 --> 00:49:58,240
opening comments we'll play it again at

1623
00:50:01,030 --> 00:49:59,520
the very end of this briefing just so we

1624
00:50:03,190 --> 00:50:01,040
can have it out there and also the

1625
00:50:04,710 --> 00:50:03,200
graphic we'll be posting on our website

1626
00:50:07,109 --> 00:50:04,720
the main shuttle website our next

1627
00:50:09,430 --> 00:50:07,119
sts-134 related event will be crew

1628
00:50:11,190 --> 00:50:09,440
arrival on thursday may 12th that's uh

1629
00:50:13,270 --> 00:50:11,200
when endeavour's six astronauts arrive

1630
00:50:15,510 --> 00:50:13,280
at about 11 a.m eastern time and we'll

1631
00:50:16,309 --> 00:50:15,520
not we'll have live nasa tv coverage of

1632
00:50:19,349 --> 00:50:16,319
that

1633
00:50:21,190 --> 00:50:19,359
arrival um for the sts-134 mission at

1634
00:50:23,589 --> 00:50:21,200
any time any updates will be online at

1635
00:50:24,630 --> 00:50:23,599
www.nasa.gov

1636
00:50:25,910 --> 00:50:24,640
shuttle

1637
00:51:06,829 --> 00:50:25,920
thanks for joining us and we'll see you

1638
00:51:06,839 --> 00:52:19,109

yeah yours