1
00:00:06,550 --> 00:00:04,230
good morning and welcome to the sts-134

2
00:00:08,070 --> 00:00:06,560
post-launch news conference it's always

3
00:00:09,750 --> 00:00:08,080
a thrill to be here after we've launched

4
00:00:11,110 --> 00:00:09,760
a shuttle and uh the gentlemen who are

5
00:00:13,190 --> 00:00:11,120
here with us today will tell us all

6
00:00:16,230 --> 00:00:13,200
about it i'm very pleased to introduce

7
00:00:17,910 --> 00:00:16,240
to my left mr bill gerstenmaier nasa's

8
00:00:21,189 --> 00:00:17,920
associate administrator for space

9
00:00:23,590 --> 00:00:21,199
operations good morning

10
00:00:25,429 --> 00:00:23,600
michelle tonini head of the european

11
00:00:28,390 --> 00:00:25,439
astronaut center and a former esa

12
00:00:31,029 --> 00:00:28,400
astronaut good morning

13
00:00:32,630 --> 00:00:31,039

mike moses he's our shuttle launch

14
00:00:34,549 --> 00:00:32,640
integration manager and chairman of the

15
00:00:35,430 --> 00:00:34,559
pre-launch mission management team good

16
00:00:37,110 --> 00:00:35,440
morning

17
00:00:38,630 --> 00:00:37,120
and mike leinbach

18
00:00:39,590 --> 00:00:38,640
shuttle launch director good morning

19
00:00:41,110 --> 00:00:39,600
everybody

20
00:00:43,430 --> 00:00:41,120
we'll be happy to take your questions

21
00:00:45,830 --> 00:00:43,440
after we uh begin with opening comments

22
00:00:48,869 --> 00:00:45,840
and we'll begin with mr gerstenmaier

23
00:00:51,029 --> 00:00:48,879
thanks mike it's great to be here and

24
00:00:52,869 --> 00:00:51,039
i can't thank the team that got this

25
00:00:54,389 --> 00:00:52,879
vehicle ready to fly enough for all the

26
00:00:56,069 --> 00:00:54,399
work they've done

27
00:00:57,750 --> 00:00:56,079
it was tremendous to see the launch

28
00:00:59,670 --> 00:00:57,760
today to see the countdown go as

29
00:01:01,990 --> 00:00:59,680
smoothly as it did

30
00:01:03,750 --> 00:01:02,000
the the apu heater problem the teams

31
00:01:05,350 --> 00:01:03,760
really worked hard to to get through

32
00:01:07,429 --> 00:01:05,360
that and get that behind us and

33
00:01:09,109 --> 00:01:07,439
understand what the problem was and that

34
00:01:11,830 --> 00:01:09,119
was no problem to us at all during the

35
00:01:13,590 --> 00:01:11,840
count and the count was very smooth

36
00:01:14,870 --> 00:01:13,600
throughout the day and and mike and

37
00:01:17,270 --> 00:01:14,880
michael talked a little bit more about

38
00:01:20,469 --> 00:01:17,280

the count but it went extremely well the

39
00:01:23,109 --> 00:01:20,479
vehicle looked very good going uphill um

40
00:01:24,390 --> 00:01:23,119
we had a little thing on the center main

41
00:01:26,630 --> 00:01:24,400
engine a

42
00:01:30,310 --> 00:01:26,640
measurement that's used to calculate

43
00:01:33,030 --> 00:01:30,320
some offline performance it went out of

44
00:01:34,870 --> 00:01:33,040
out of calibration or went out of range

45
00:01:35,749 --> 00:01:34,880
and then went back in and worked fine

46
00:01:37,670 --> 00:01:35,759
the rest of the way it wouldn't have

47
00:01:39,910 --> 00:01:37,680
been a concern to us

48
00:01:42,230 --> 00:01:39,920
we saw a couple little foam events on

49
00:01:44,469 --> 00:01:42,240
the external tank we saw two small

50
00:01:45,749 --> 00:01:44,479
losses just prior to the aerodynamic

51
00:01:47,590 --> 00:01:45,759
sensitive time that's where we're

52
00:01:49,670 --> 00:01:47,600
worried about foam coming off the tank

53
00:01:51,350 --> 00:01:49,680
and and potentially

54
00:01:52,389 --> 00:01:51,360
having enough velocity to damage the

55
00:01:54,149 --> 00:01:52,399
orbiter

56
00:01:55,429 --> 00:01:54,159
those were very small losses they didn't

57
00:01:58,709 --> 00:01:55,439
look like they went anywhere near the

58
00:02:01,270 --> 00:01:58,719
orbiter they were very very small and uh

59
00:02:04,230 --> 00:02:01,280
looked pretty benign we had two two

60
00:02:06,389 --> 00:02:04,240
losses very late on the tank around five

61
00:02:08,469 --> 00:02:06,399
minutes and 12 seconds at five minutes

62
00:02:09,990 --> 00:02:08,479
and 39 seconds and again

63
00:02:11,750 --> 00:02:10,000

those look like they're no problem to us

64
00:02:14,070 --> 00:02:11,760
at all so the tank performance was

65
00:02:15,670 --> 00:02:14,080
probably better than i expected we knew

66
00:02:17,270 --> 00:02:15,680
we didn't make some modifications to

67
00:02:18,949 --> 00:02:17,280
some of the ice frost ramps so we

68
00:02:20,949 --> 00:02:18,959
expected to see probably some more

69
00:02:22,470 --> 00:02:20,959
losses in those regions late in the flow

70
00:02:24,470 --> 00:02:22,480
we didn't see him

71
00:02:25,910 --> 00:02:24,480
we'll get the images from the umbilical

72
00:02:27,350 --> 00:02:25,920
well and that'll show us what the tank

73
00:02:28,949 --> 00:02:27,360
really looks like and then we can talk

74
00:02:30,790 --> 00:02:28,959
more definitively about how well the

75
00:02:33,030 --> 00:02:30,800
tank performed but it looked pretty good

76
00:02:35,509 --> 00:02:33,040
from the initial uh the initial video we

77
00:02:37,910 --> 00:02:35,519
saw so again i i want to thank the team

78
00:02:39,910 --> 00:02:37,920
for all the efforts they put in to to

79
00:02:42,070 --> 00:02:39,920
keep their heads down to stay focused to

80
00:02:43,750 --> 00:02:42,080
make this launch a success

81
00:02:44,630 --> 00:02:43,760
the mission in front of us is no easy

82
00:02:46,790 --> 00:02:44,640
mission

83
00:02:48,390 --> 00:02:46,800
the evas will be very demanding we're

84
00:02:50,470 --> 00:02:48,400
going to have the soyuz undock in the

85
00:02:52,630 --> 00:02:50,480
middle of the mission which will make it

86
00:02:54,229 --> 00:02:52,640
a little bit tougher for the teams to

87
00:02:55,750 --> 00:02:54,239
plan around and work that the sleep

88
00:02:57,350 --> 00:02:55,760

shifting in a two cruise will be a

89
00:02:58,550 --> 00:02:57,360
challenge for the folks on orbit but i

90
00:03:00,949 --> 00:02:58,560
think they're prepared they've got a

91
00:03:02,949 --> 00:03:00,959
good plan in place it'll be exciting to

92
00:03:04,390 --> 00:03:02,959
see the ams get installed on station and

93
00:03:06,949 --> 00:03:04,400
get ready to start taking some real

94
00:03:08,309 --> 00:03:06,959
research data for the iss so again

95
00:03:11,030 --> 00:03:08,319
thanks to the teams and thanks to all

96
00:03:12,949 --> 00:03:11,040
the folks that made this launch happen

97
00:03:14,910 --> 00:03:12,959
michelle okay thank you

98
00:03:16,550 --> 00:03:14,920
a lot has been said about this mission

99
00:03:18,630 --> 00:03:16,560
sts-134

100
00:03:22,630 --> 00:03:18,640
it has been delayed but very successful

101
00:03:25,350 --> 00:03:22,640
today this flight bring to space uh a

102
00:03:27,589 --> 00:03:25,360
very important payload ams which is an

103
00:03:29,750 --> 00:03:27,599
alpha magnetic spectrometer and a very

104
00:03:31,110 --> 00:03:29,760
special crew because there is one either

105
00:03:33,350 --> 00:03:31,120
astronaut from

106
00:03:36,309 --> 00:03:33,360
italian nationality roberto vittori on

107
00:03:37,830 --> 00:03:36,319
board this space shuttle

108
00:03:40,149 --> 00:03:37,840
i think it's one of the first time that

109
00:03:42,229 --> 00:03:40,159
we send an experiment made by a nobel

110
00:03:45,030 --> 00:03:42,239
prize and this is

111
00:03:47,190 --> 00:03:45,040
a way to meet our objective which is to

112
00:03:48,789 --> 00:03:47,200
make the space station available for

113
00:03:51,350 --> 00:03:48,799

great science and this is what we will

114
00:03:53,350 --> 00:03:51,360
perform because i just talked to to

115
00:03:55,110 --> 00:03:53,360
manual simultaneous

116
00:03:58,070 --> 00:03:55,120
one year ago we will have the result of

117
00:04:00,470 --> 00:03:58,080
ams right after the launch in a few days

118
00:04:02,550 --> 00:04:00,480
and it is very important

119
00:04:05,270 --> 00:04:02,560
this mission also marks a very long

120
00:04:07,990 --> 00:04:05,280
cooperation between isa and nasa because

121
00:04:09,750 --> 00:04:08,000
when i look at all the flight 134

122
00:04:11,190 --> 00:04:09,760
missions made between

123
00:04:13,830 --> 00:04:11,200
with nasa

124
00:04:16,229 --> 00:04:13,840
i think 85 or 86 missions we are made in

125
00:04:18,870 --> 00:04:16,239
cooperation between nasa and issa either

126
00:04:21,110 --> 00:04:18,880
by either astronaut or by isa pilot so

127
00:04:22,790 --> 00:04:21,120
it's really important and this allowed

128
00:04:25,510 --> 00:04:22,800
us to have a

129
00:04:27,909 --> 00:04:25,520
nice experiment since the beginning with

130
00:04:30,390 --> 00:04:27,919
space lab and then with columbus and

131
00:04:33,430 --> 00:04:30,400
allow us to have a big part of the space

132
00:04:35,990 --> 00:04:33,440
station made by a european contribution

133
00:04:37,590 --> 00:04:36,000
so this cooperation successful is

134
00:04:40,310 --> 00:04:37,600
essential for the future of human

135
00:04:42,790 --> 00:04:40,320
exploration we believe in it and i would

136
00:04:45,030 --> 00:04:42,800
like to thank nasa to lois to have a

137
00:04:46,150 --> 00:04:45,040
lawyers to participate to serve many

138
00:04:47,590 --> 00:04:46,160

missions

139
00:04:50,070 --> 00:04:47,600
and also i have

140
00:04:51,909 --> 00:04:50,080
this morning i talked to roberto vittori

141
00:04:54,150 --> 00:04:51,919
i have i have to express the thanks of

142
00:04:55,189 --> 00:04:54,160
roberto to have him flying on the space

143
00:04:56,950 --> 00:04:55,199
shuttle

144
00:04:59,510 --> 00:04:56,960
all together with roberto victory it

145
00:05:01,110 --> 00:04:59,520
will be 24 he's after not flying on the

146
00:05:01,909 --> 00:05:01,120
space shuttle

147
00:05:04,310 --> 00:05:01,919
and

148
00:05:05,990 --> 00:05:04,320
there will be also a very important time

149
00:05:08,150 --> 00:05:06,000
this week because

150
00:05:09,189 --> 00:05:08,160
at the same moment we will have robert

151
00:05:11,510 --> 00:05:09,199
victory

152
00:05:13,189 --> 00:05:11,520
his astronaut and paulina's poli also

153
00:05:15,670 --> 00:05:13,199
his astronaut together on the space

154
00:05:18,070 --> 00:05:15,680
station during a few days before the

155
00:05:19,749 --> 00:05:18,080
landing of the mission with paolo on the

156
00:05:20,950 --> 00:05:19,759
23rd of

157
00:05:22,390 --> 00:05:20,960
may

158
00:05:25,110 --> 00:05:22,400
so again

159
00:05:27,430 --> 00:05:25,120
we showed together our determination to

160
00:05:29,430 --> 00:05:27,440
succeed in a very complex endeavor with

161
00:05:31,110 --> 00:05:29,440
this mission of endeavor and this is

162
00:05:33,990 --> 00:05:31,120
fundamental for the future of human

163
00:05:35,749 --> 00:05:34,000

exploration thank you

164
00:05:37,430 --> 00:05:35,759
well folks uh it was a it was a

165
00:05:39,909 --> 00:05:37,440
fantastic launch a really great day for

166
00:05:41,670 --> 00:05:39,919
us a good example of us watching the

167
00:05:42,950 --> 00:05:41,680
weather and and getting right down to

168
00:05:45,029 --> 00:05:42,960
our flight role and our launch commit

169
00:05:46,310 --> 00:05:45,039
criteria limits and you can see that we

170
00:05:48,230 --> 00:05:46,320
don't have any flight rules or launch

171
00:05:49,670 --> 00:05:48,240
commit criteria that dictate how long

172
00:05:51,430 --> 00:05:49,680
you can see the launch before it goes

173
00:05:53,189 --> 00:05:51,440
out of sight

174
00:05:55,350 --> 00:05:53,199
i apologize that the view wasn't the

175
00:05:56,790 --> 00:05:55,360
best but uh but the data we were looking

176
00:05:58,870 --> 00:05:56,800
at in the control center was absolutely

177
00:06:00,550 --> 00:05:58,880
perfect um and uh and we weren't gonna

178
00:06:01,990 --> 00:06:00,560
wait around any longer for uh for an

179
00:06:03,749 --> 00:06:02,000
opening to come up we had the clouds

180
00:06:05,990 --> 00:06:03,759
where we needed them and so we went

181
00:06:08,150 --> 00:06:06,000
um so it was really good uh good work by

182
00:06:10,070 --> 00:06:08,160
the team today uh mike's launch team did

183
00:06:12,230 --> 00:06:10,080
fantastic uh pretty straightforward

184
00:06:13,909 --> 00:06:12,240
countdown we uh we had a repeat of a

185
00:06:16,309 --> 00:06:13,919
problem in the ohm system and problem is

186
00:06:17,590 --> 00:06:16,319
a stretch a condition that we knew about

187
00:06:19,430 --> 00:06:17,600
uh where we had to kind of balance some

188
00:06:22,309 --> 00:06:19,440

pressures up and we talked to that and

189
00:06:24,070 --> 00:06:22,319
and got that worked out um mike's team

190
00:06:25,510 --> 00:06:24,080
had a challenging yesterday with the

191
00:06:27,110 --> 00:06:25,520
high winds with the

192
00:06:30,070 --> 00:06:27,120
thruster covers coming off a few of the

193
00:06:31,590 --> 00:06:30,080
thrusters and and and discussing whether

194
00:06:33,110 --> 00:06:31,600
we were going to have rain overnight or

195
00:06:34,870 --> 00:06:33,120
not and do we need to worry about it or

196
00:06:37,350 --> 00:06:34,880
not and and they made a really good call

197
00:06:38,550 --> 00:06:37,360
to kind of to kind of uh kind of stare

198
00:06:39,749 --> 00:06:38,560
on the face of the clouds and we didn't

199
00:06:41,590 --> 00:06:39,759
get any rain really good weather

200
00:06:42,870 --> 00:06:41,600
forecasting from the uh from the cape

201
00:06:43,749 --> 00:06:42,880
weather side of the house with kathy

202
00:06:46,309 --> 00:06:43,759
winters

203
00:06:47,590 --> 00:06:46,319
and so we were in good shape today

204
00:06:48,550 --> 00:06:47,600
and then literally it was just kind of

205
00:06:50,309 --> 00:06:48,560
seeing how the weather was going to

206
00:06:52,150 --> 00:06:50,319
shape up for a while there it was

207
00:06:53,670 --> 00:06:52,160
looking great when the sun came up uh

208
00:06:56,150 --> 00:06:53,680
the deck started building pretty fast

209
00:06:57,990 --> 00:06:56,160
and coming right at us uh but then it uh

210
00:06:59,990 --> 00:06:58,000
it kind of dissipated real fast as the

211
00:07:02,150 --> 00:07:00,000
sun heated up the upper layers and what

212
00:07:03,990 --> 00:07:02,160
you saw was a ceiling right around a

213
00:07:06,550 --> 00:07:04,000

little higher than 5000 feet but not

214
00:07:08,309 --> 00:07:06,560
very thick which satisfies our rules

215
00:07:10,790 --> 00:07:08,319
both on the shuttle side and on the

216
00:07:13,909 --> 00:07:10,800
range side for safety reasons and we

217
00:07:17,670 --> 00:07:15,909
and as bill said you saw uh just a

218
00:07:19,350 --> 00:07:17,680
couple of issues uh

219
00:07:21,029 --> 00:07:19,360
on ascent the center main engine thing

220
00:07:23,270 --> 00:07:21,039
that was not anything the crew noticed

221
00:07:25,029 --> 00:07:23,280
it was an internal measurement um and so

222
00:07:26,950 --> 00:07:25,039
now they're up getting the ship ready to

223
00:07:28,469 --> 00:07:26,960
to start orbit operations and it is

224
00:07:30,230 --> 00:07:28,479
going to be a very challenging mission

225
00:07:32,070 --> 00:07:30,240
we added two extra days so this is now a

226
00:07:34,550 --> 00:07:32,080
16 day long mission

227
00:07:36,230 --> 00:07:34,560
um and the the sleep shift with 25 se is

228
00:07:38,469 --> 00:07:36,240
one of those challenges to give you some

229
00:07:40,790 --> 00:07:38,479
of the details uh on flight day three

230
00:07:42,550 --> 00:07:40,800
we'll be docking and uh and when we do

231
00:07:44,550 --> 00:07:42,560
that the station crew will be going to

232
00:07:46,469 --> 00:07:44,560
sleep about two hours later than the

233
00:07:47,990 --> 00:07:46,479
shuttle crew so they'll be going to bed

234
00:07:49,749 --> 00:07:48,000
a little bit later therefore waking up a

235
00:07:53,270 --> 00:07:49,759
little later by the time we get to

236
00:07:55,430 --> 00:07:53,280
flight day seven which is uh eva two uh

237
00:07:57,909 --> 00:07:55,440
the uh the station crew will be sleeping

238
00:07:59,589 --> 00:07:57,919

in to the point where about an hour or

239
00:08:01,589 --> 00:07:59,599
two into the eva the station crew will

240
00:08:03,270 --> 00:08:01,599
be waking up um and we've taken a look

241
00:08:05,350 --> 00:08:03,280
at that they're going to be uh in their

242
00:08:07,270 --> 00:08:05,360
sleep stations uh with uh hearing

243
00:08:09,189 --> 00:08:07,280
protection on all kind of buttoned up

244
00:08:10,790 --> 00:08:09,199
they won't they won't notice the uh the

245
00:08:11,990 --> 00:08:10,800
eva activity going on and everything's

246
00:08:13,909 --> 00:08:12,000
fine

247
00:08:15,990 --> 00:08:13,919
and then flight day eight is an off-duty

248
00:08:18,150 --> 00:08:16,000
day which we inserted specifically to

249
00:08:20,309 --> 00:08:18,160
allow the station crew they uh when a

250
00:08:22,710 --> 00:08:20,319
soyuz undocks that they sleep shift

251
00:08:25,270 --> 00:08:22,720
about 12 hours back one way uh and

252
00:08:26,629 --> 00:08:25,280
undock because uh with the soyuz

253
00:08:28,629 --> 00:08:26,639
about three or four hours after

254
00:08:30,469 --> 00:08:28,639
undocking they land so they have a very

255
00:08:32,310 --> 00:08:30,479
long day to get up get ready get

256
00:08:34,230 --> 00:08:32,320
buttoned up in the soyuz undock and then

257
00:08:36,310 --> 00:08:34,240
immediately land so they have to kind of

258
00:08:38,310 --> 00:08:36,320
sleep shift them sleep shift themselves

259
00:08:39,990 --> 00:08:38,320
back about a whole day or a half a day i

260
00:08:41,269 --> 00:08:40,000
should say and so we'll put an off duty

261
00:08:43,110 --> 00:08:41,279
day for everybody in there to allow them

262
00:08:44,710 --> 00:08:43,120
to shift and then on flight day nine

263
00:08:47,829 --> 00:08:44,720

that'll be the actual soyuz undocking on

264
00:08:49,190 --> 00:08:47,839
the 23rd of may and uh and in that case

265
00:08:50,550 --> 00:08:49,200
this the soyuz crew will be getting up

266
00:08:52,389 --> 00:08:50,560
and leaving about an hour before the

267
00:08:53,670 --> 00:08:52,399
shuttle crew gets up so there's a lot of

268
00:08:55,750 --> 00:08:53,680
numbers there but basically they're all

269
00:08:58,230 --> 00:08:55,760
within the two two hour overlap of each

270
00:09:00,550 --> 00:08:58,240
other sleeping in getting up and in in

271
00:09:01,829 --> 00:09:00,560
both crews day we give them about two to

272
00:09:03,590 --> 00:09:01,839
two and a half hours of what we call

273
00:09:04,790 --> 00:09:03,600
pre-sleep and post sleep where they're

274
00:09:06,790 --> 00:09:04,800
not scheduled for a lot of heavy

275
00:09:09,190 --> 00:09:06,800
activities it's literally the getting

276
00:09:10,389 --> 00:09:09,200
ready for bed or or waking up activities

277
00:09:12,070 --> 00:09:10,399
getting your breakfast and getting

278
00:09:14,070 --> 00:09:12,080
cleaned up and and ready to start the

279
00:09:15,509 --> 00:09:14,080
day gathering up your materials uh and

280
00:09:17,509 --> 00:09:15,519
so even though there's some overlap in

281
00:09:18,550 --> 00:09:17,519
the sleep periods there's uh

282
00:09:19,910 --> 00:09:18,560
they're not going to be doing a lot of

283
00:09:22,150 --> 00:09:19,920
heavy activity while they're in that

284
00:09:24,630 --> 00:09:22,160
overlap period so again the teams were

285
00:09:26,150 --> 00:09:24,640
very comfortable with that timeline

286
00:09:28,949 --> 00:09:26,160
before we dock we'll be doing our flight

287
00:09:30,150 --> 00:09:28,959
day 2 inspections we'll get the obss out

288
00:09:31,350 --> 00:09:30,160

on this mission we'll probably have some

289
00:09:32,870 --> 00:09:31,360
extra stuff to look for if you've been

290
00:09:34,230 --> 00:09:32,880
driving around the area you know we've

291
00:09:36,070 --> 00:09:34,240
had a little bit of an explosion in the

292
00:09:37,509 --> 00:09:36,080
love bug population so i want to make

293
00:09:39,509 --> 00:09:37,519
sure the nose cap doesn't have any extra

294
00:09:40,870 --> 00:09:39,519
love bugs on it

295
00:09:42,630 --> 00:09:40,880
and then on flight day three after

296
00:09:44,389 --> 00:09:42,640
docking the crew will get the robotics

297
00:09:46,550 --> 00:09:44,399
activities underway right away by

298
00:09:48,470 --> 00:09:46,560
installing the elc3 payload over on

299
00:09:49,990 --> 00:09:48,480
station flight day four will get ams

300
00:09:51,430 --> 00:09:50,000
over to the station right away and get

301
00:09:53,670 --> 00:09:51,440
it started up

302
00:09:55,910 --> 00:09:53,680
for evas like bill mentioned

303
00:09:58,470 --> 00:09:55,920
this mission again one of the one of the

304
00:10:00,630 --> 00:09:58,480
objectives is to leave that obss orbital

305
00:10:02,389 --> 00:10:00,640
boom sensor system behind and so we'll

306
00:10:04,470 --> 00:10:02,399
do our inspection that we normally do

307
00:10:05,750 --> 00:10:04,480
after undocking on this mission we'll do

308
00:10:07,269 --> 00:10:05,760
it while we're docked

309
00:10:09,509 --> 00:10:07,279
and then there'll be an eva right after

310
00:10:11,509 --> 00:10:09,519
that uh to then leave that boom on the

311
00:10:12,870 --> 00:10:11,519
station and after we undock we won't

312
00:10:14,230 --> 00:10:12,880
have the boom to do any inspections but

313
00:10:16,230 --> 00:10:14,240

we'll have already cleared the the

314
00:10:17,590 --> 00:10:16,240
orbiter for for entry

315
00:10:18,949 --> 00:10:17,600
so again an action-packed mission the

316
00:10:21,430 --> 00:10:18,959
crews are going to be very very busy

317
00:10:23,509 --> 00:10:21,440
very challenging uh but uh but as has

318
00:10:26,230 --> 00:10:23,519
been said i can't thank the teams enough

319
00:10:28,310 --> 00:10:26,240
uh the uh the the team here in in in

320
00:10:29,829 --> 00:10:28,320
florida and and the support teams around

321
00:10:31,590 --> 00:10:29,839
the country that that got us through the

322
00:10:33,509 --> 00:10:31,600
apu heater problem got us back on track

323
00:10:36,470 --> 00:10:33,519
and brought us to launch today did an

324
00:10:38,790 --> 00:10:36,480
amazing job uh we talked about et 122's

325
00:10:40,470 --> 00:10:38,800
performance and how fantastic it was and

326
00:10:42,310 --> 00:10:40,480
and really wanted to take a second to to

327
00:10:43,350 --> 00:10:42,320
recognize the the two other propulsion

328
00:10:45,110 --> 00:10:43,360
elements that we haven't been talking

329
00:10:46,230 --> 00:10:45,120
about a lot and i'm really happy that we

330
00:10:47,910 --> 00:10:46,240
haven't been talking about them a lot

331
00:10:49,509 --> 00:10:47,920
but the main engines and the solid

332
00:10:51,509 --> 00:10:49,519
rocket booster teams

333
00:10:53,670 --> 00:10:51,519
those those systems continue to perform

334
00:10:55,030 --> 00:10:53,680
just flawlessly a really good testament

335
00:10:57,269 --> 00:10:55,040
to all the ground tests we do ahead of

336
00:10:58,870 --> 00:10:57,279
time both in in both those programs to

337
00:11:00,949 --> 00:10:58,880
really characterize and understand how

338
00:11:03,030 --> 00:11:00,959

we fly so that when we do fly we know

339
00:11:05,190 --> 00:11:03,040
what exactly what environment we're in

340
00:11:06,550 --> 00:11:05,200
so a really excellent job uh by the by

341
00:11:07,829 --> 00:11:06,560
the entire program

342
00:11:09,509 --> 00:11:07,839
so that's all i had it was a good day

343
00:11:11,829 --> 00:11:09,519
happy to be in orbit

344
00:11:13,269 --> 00:11:11,839
okay thanks everybody well see i would

345
00:11:15,430 --> 00:11:13,279
characterize the countdown today as a

346
00:11:16,710 --> 00:11:15,440
very normal countdown for us it was not

347
00:11:18,389 --> 00:11:16,720
problem free

348
00:11:20,870 --> 00:11:18,399
but what that allows is is the team to

349
00:11:22,630 --> 00:11:20,880
work a few problems and and and get in

350
00:11:23,990 --> 00:11:22,640
sync and and solve a couple problems

351
00:11:26,069 --> 00:11:24,000
along the way one of the things you

352
00:11:27,590 --> 00:11:26,079
don't really like to have in a launch

353
00:11:29,430 --> 00:11:27,600
countdown for the shuttle program is a

354
00:11:31,269 --> 00:11:29,440
completely clean countdown and i know

355
00:11:33,590 --> 00:11:31,279
that may sound a little odd

356
00:11:35,110 --> 00:11:33,600
but uh if if there are no problems in

357
00:11:37,269 --> 00:11:35,120
the countdown you're sitting there

358
00:11:38,949 --> 00:11:37,279
waiting for the big problem to happen

359
00:11:40,470 --> 00:11:38,959
and uh and so that obviously didn't

360
00:11:41,990 --> 00:11:40,480
happen today we had a couple little

361
00:11:43,110 --> 00:11:42,000
things to talk about mike mentioned a

362
00:11:45,509 --> 00:11:43,120
couple of them

363
00:11:47,350 --> 00:11:45,519

we had another another little tile issue

364
00:11:48,389 --> 00:11:47,360
on the side hatch that got a lot of

365
00:11:49,509 --> 00:11:48,399
attention

366
00:11:52,150 --> 00:11:49,519
but after the

367
00:11:54,230 --> 00:11:52,160
issue we had maybe two flights or so ago

368
00:11:55,430 --> 00:11:54,240
we have a new process in place where we

369
00:11:57,110 --> 00:11:55,440
carry out a camera in there it's the

370
00:11:58,470 --> 00:11:57,120
same camera used for crew strap in that

371
00:11:59,829 --> 00:11:58,480
you guys watch

372
00:12:01,590 --> 00:11:59,839
we were able to get a good zoomed in

373
00:12:03,590 --> 00:12:01,600
picture of that little tile damage and

374
00:12:04,949 --> 00:12:03,600
put some top coat slurry on it and it

375
00:12:06,790 --> 00:12:04,959
was good to go so

376
00:12:09,110 --> 00:12:06,800
it got a lot of attention but that was a

377
00:12:10,710 --> 00:12:09,120
very minor repair and it should perform

378
00:12:12,710 --> 00:12:10,720
perfectly fine

379
00:12:14,790 --> 00:12:12,720
the countdown was great one thing i get

380
00:12:17,190 --> 00:12:14,800
to do as a launch director is giving out

381
00:12:19,110 --> 00:12:17,200
give an award at the end of the day and

382
00:12:22,069 --> 00:12:19,120
today we gave it to the to the combined

383
00:12:24,230 --> 00:12:22,079
apu retest team and it was the the head

384
00:12:26,790 --> 00:12:24,240
of our quality inspectors the head of

385
00:12:28,389 --> 00:12:26,800
the vehicle shops an oel engineering

386
00:12:30,310 --> 00:12:28,399
orbit electrical engineering

387
00:12:32,310 --> 00:12:30,320
representative and of course one from

388
00:12:33,670 --> 00:12:32,320

the auxiliary power unit group and those

389
00:12:36,310 --> 00:12:33,680
four folks

390
00:12:38,389 --> 00:12:36,320
represented literally hundreds of people

391
00:12:39,910 --> 00:12:38,399
thousands of people probably across the

392
00:12:41,750 --> 00:12:39,920
country that helped solve that problem

393
00:12:43,910 --> 00:12:41,760
and and so

394
00:12:45,990 --> 00:12:43,920
you get you get to see the the team work

395
00:12:47,590 --> 00:12:46,000
uh to their best today it was an

396
00:12:49,430 --> 00:12:47,600
outstanding countdown

397
00:12:51,350 --> 00:12:49,440
a lot of pats on the back down in the in

398
00:12:53,910 --> 00:12:51,360
the lobby the lcc afterwards as we were

399
00:12:56,150 --> 00:12:53,920
eating our beans and cornbread and so

400
00:12:58,389 --> 00:12:56,160
it's just a good day endeavor's on orbit

401
00:12:59,750 --> 00:12:58,399
safely and it's going to perform a great

402
00:13:01,750 --> 00:12:59,760
mission and we'll see her back here on

403
00:13:03,190 --> 00:13:01,760
june 1st so great day here at the

404
00:13:05,190 --> 00:13:03,200
kennedy space center and for the shuttle

405
00:13:07,269 --> 00:13:05,200
program

406
00:13:08,230 --> 00:13:07,279
all right we will take questions we ask

407
00:13:09,990 --> 00:13:08,240
for you to please wait for the

408
00:13:11,829 --> 00:13:10,000
microphone state your name and

409
00:13:13,590 --> 00:13:11,839
affiliation and to whom you're

410
00:13:15,110 --> 00:13:13,600
addressing your question and we'll start

411
00:13:21,269 --> 00:13:15,120
over here in the front row with seth

412
00:13:26,310 --> 00:13:23,829
seth bernstein ap from mike moses two

413
00:13:27,350 --> 00:13:26,320

quick ones uh first on the sleep

414
00:13:28,710 --> 00:13:27,360
shifting

415
00:13:31,350 --> 00:13:28,720
in terms of

416
00:13:34,230 --> 00:13:31,360
waking and disturbing the crews

417
00:13:36,230 --> 00:13:34,240
which is the greater concern the the

418
00:13:39,350 --> 00:13:36,240
station crew being disturbed by the

419
00:13:41,670 --> 00:13:39,360
shuttle crew or the shuttle crew um

420
00:13:43,430 --> 00:13:41,680
being disturbed by the station crew and

421
00:13:45,670 --> 00:13:43,440
is there a time period that you're most

422
00:13:47,990 --> 00:13:45,680
worried i mean a certain day

423
00:13:50,389 --> 00:13:48,000
or task you know that you're leading up

424
00:13:52,470 --> 00:13:50,399
to or noisy tasks that you think will be

425
00:13:54,069 --> 00:13:52,480
the issue and the second one is for

426
00:13:56,389 --> 00:13:54,079
either of the two mics is do you

427
00:13:59,269 --> 00:13:56,399
remember any time that there was such a

428
00:14:02,389 --> 00:13:59,279
short view with such low clouds of i

429
00:14:04,550 --> 00:14:02,399
counted 22 seconds is all you could see

430
00:14:06,870 --> 00:14:04,560
let's see on the sleep shifts uh no no

431
00:14:08,710 --> 00:14:06,880
specific concerns the the toughest day

432
00:14:10,069 --> 00:14:08,720
in terms of making sure we're we're kind

433
00:14:12,550 --> 00:14:10,079
of staying out of each other's way is

434
00:14:13,670 --> 00:14:12,560
gonna be flight day seven which is i'm

435
00:14:15,670 --> 00:14:13,680
sorry flight day eight which will be the

436
00:14:17,189 --> 00:14:15,680
day before we undock

437
00:14:19,269 --> 00:14:17,199
both crews will have off duty so they

438
00:14:21,590 --> 00:14:19,279

won't have a lot of reasons to go

439
00:14:22,870 --> 00:14:21,600
banging around making noise but but in

440
00:14:24,230 --> 00:14:22,880
general

441
00:14:25,430 --> 00:14:24,240
the shuttle crew doesn't just stay in

442
00:14:27,509 --> 00:14:25,440
the shuttle and

443
00:14:29,509 --> 00:14:27,519
close the door and not come out but some

444
00:14:31,030 --> 00:14:29,519
of them sleep over on the station side

445
00:14:33,670 --> 00:14:31,040
station's pretty big now it's a pretty

446
00:14:36,230 --> 00:14:33,680
big internal volume uh in node two which

447
00:14:39,110 --> 00:14:36,240
is the the first node right there um the

448
00:14:41,110 --> 00:14:39,120
uh the the us segment crew on station

449
00:14:43,030 --> 00:14:41,120
right now apollo and uh and katie

450
00:14:44,230 --> 00:14:43,040
coleman uh paulo nespoli and katie

451
00:14:45,430 --> 00:14:44,240
coleman have their sleep stations so

452
00:14:46,870 --> 00:14:45,440
they'll be in their sleep stations right

453
00:14:48,949 --> 00:14:46,880
there and you have to pass through node

454
00:14:50,310 --> 00:14:48,959
two to go get to the airlock uh to get

455
00:14:52,069 --> 00:14:50,320
to the robotics workstations up in the

456
00:14:53,350 --> 00:14:52,079
cupola so the shuttle crew have to kind

457
00:14:54,870 --> 00:14:53,360
of pass through the area but they're not

458
00:14:56,389 --> 00:14:54,880
gonna be doing a lot of work in node two

459
00:14:59,509 --> 00:14:56,399
they'll basically literally be

460
00:15:01,269 --> 00:14:59,519
transitioning past and then it's it's

461
00:15:02,949 --> 00:15:01,279
noisy enough in the background it's kind

462
00:15:04,550 --> 00:15:02,959
of like if you're uh if you're used to

463
00:15:05,750 --> 00:15:04,560

the background noise already when you're

464
00:15:06,949 --> 00:15:05,760
sleeping it's you know you're not going

465
00:15:09,829 --> 00:15:06,959
to notice too much different the crew

466
00:15:10,790 --> 00:15:09,839
uses ear plugs um and uh and and they're

467
00:15:12,389 --> 00:15:10,800
kind of buttoned up in their sleep

468
00:15:13,910 --> 00:15:12,399
station to block out the light so

469
00:15:15,030 --> 00:15:13,920
they've both taken a look and they don't

470
00:15:18,150 --> 00:15:15,040
think they're going to have any problems

471
00:15:19,910 --> 00:15:18,160
so no specific concerns if with a two

472
00:15:21,269 --> 00:15:19,920
hour overlap that's manageable if it was

473
00:15:23,030 --> 00:15:21,279
going to be more like four hours then

474
00:15:24,230 --> 00:15:23,040
that would be rather tricky because now

475
00:15:25,269 --> 00:15:24,240
you're impacting a fair bit of the

476
00:15:26,470 --> 00:15:25,279
workday

477
00:15:27,590 --> 00:15:26,480
but this one's not going to be too bad

478
00:15:29,350 --> 00:15:27,600
at all

479
00:15:30,550 --> 00:15:29,360
and and i think they'll be okay but if i

480
00:15:31,430 --> 00:15:30,560
was going to pick one day that's going

481
00:15:33,030 --> 00:15:31,440
to be

482
00:15:34,470 --> 00:15:33,040
tough it's the day we added a whole day

483
00:15:35,829 --> 00:15:34,480
just to do nothing which is the day

484
00:15:37,829 --> 00:15:35,839
before they undock so we intentionally

485
00:15:39,350 --> 00:15:37,839
made that a down day to help alleviate

486
00:15:41,110 --> 00:15:39,360
that problem

487
00:15:42,550 --> 00:15:41,120
well let's see relative to the low

488
00:15:44,230 --> 00:15:42,560

clouds

489
00:15:45,910 --> 00:15:44,240
this was one of the one of the quickest

490
00:15:48,230 --> 00:15:45,920
disappearances of a shuttle that that

491
00:15:50,470 --> 00:15:48,240
i've experienced and uh but we have the

492
00:15:53,350 --> 00:15:50,480
rules in place for valid engineering

493
00:15:55,030 --> 00:15:53,360
reasons and and range safety reasons and

494
00:15:56,389 --> 00:15:55,040
since the clouds were so low this time i

495
00:16:02,790 --> 00:15:56,399
can almost guarantee that you'll see

496
00:16:07,749 --> 00:16:04,949
right here on the front row randy siegel

497
00:16:10,230 --> 00:16:07,759
wsgu radio for bill gerstenmaier bill

498
00:16:12,230 --> 00:16:10,240
this is really going to be the last part

499
00:16:13,670 --> 00:16:12,240
of the space station that the u.s is

500
00:16:15,350 --> 00:16:13,680
building

501
00:16:16,629 --> 00:16:15,360
what are your thoughts concerning the

502
00:16:18,230 --> 00:16:16,639
fact that we're going to have a

503
00:16:21,269 --> 00:16:18,240
completed station

504
00:16:22,870 --> 00:16:21,279
and also what about the fly about how do

505
00:16:23,910 --> 00:16:22,880
we stand with that

506
00:16:26,550 --> 00:16:23,920
okay

507
00:16:28,470 --> 00:16:26,560
in terms of uh station completion i

508
00:16:30,550 --> 00:16:28,480
think it's really nice to see the ams

509
00:16:33,269 --> 00:16:30,560
get taken up on this flight

510
00:16:35,269 --> 00:16:33,279
this is a really as as michelle said a

511
00:16:37,430 --> 00:16:35,279
world-class instrument that's been built

512
00:16:39,430 --> 00:16:37,440
to go take a look at

513
00:16:41,829 --> 00:16:39,440

dark matter anti-matter those kind of

514
00:16:43,430 --> 00:16:41,839
things and and it fits very well with

515
00:16:45,590 --> 00:16:43,440
space station space station gives it

516
00:16:47,430 --> 00:16:45,600
long observation times can store a lot

517
00:16:50,069 --> 00:16:47,440
of data return the data to the ground so

518
00:16:52,710 --> 00:16:50,079
i think this is a pretty special way to

519
00:16:55,030 --> 00:16:52,720
to kind of cap this the sequence of

520
00:16:56,470 --> 00:16:55,040
flights to bring the ams up on this uh

521
00:16:58,629 --> 00:16:56,480
in this flight of endeavor so i think

522
00:17:01,590 --> 00:16:58,639
that's that's pretty exciting and and

523
00:17:03,350 --> 00:17:01,600
and a good way to kind of go forward

524
00:17:04,710 --> 00:17:03,360
and then the other question is the the

525
00:17:06,549 --> 00:17:04,720
fly about

526
00:17:08,789 --> 00:17:06,559
what we're doing now is we'll have the

527
00:17:10,470 --> 00:17:08,799
teams take a look at the undock sequence

528
00:17:12,470 --> 00:17:10,480
and the russians will provide us what

529
00:17:14,150 --> 00:17:12,480
the profile will be for the fly about

530
00:17:15,829 --> 00:17:14,160
and then the station team will take a

531
00:17:17,669 --> 00:17:15,839
look at that fly about and make sure

532
00:17:20,069 --> 00:17:17,679
that that all looks fine

533
00:17:21,750 --> 00:17:20,079
we think it will we'll let the mission

534
00:17:23,429 --> 00:17:21,760
management team that's actually managing

535
00:17:25,350 --> 00:17:23,439
the mission make the decision about

536
00:17:27,110 --> 00:17:25,360
whether that fly about occurs and when

537
00:17:28,630 --> 00:17:27,120
it occurs or how it's done they'll do

538
00:17:30,070 --> 00:17:28,640

that through their normal processes so

539
00:17:31,909 --> 00:17:30,080
the first thing was for us to get

540
00:17:33,669 --> 00:17:31,919
launched you know we'll get docked to

541
00:17:35,029 --> 00:17:33,679
station then they'll start working

542
00:17:36,789 --> 00:17:35,039
through the routine see how the missions

543
00:17:38,549 --> 00:17:36,799
are going see how the eva activities are

544
00:17:40,630 --> 00:17:38,559
going we'll get the actual proposal of

545
00:17:42,310 --> 00:17:40,640
what the technical details of the fly

546
00:17:44,150 --> 00:17:42,320
around are the station teams will

547
00:17:45,430 --> 00:17:44,160
evaluate that provide a recommendation

548
00:17:46,710 --> 00:17:45,440
back to the mission management team and

549
00:17:48,630 --> 00:17:46,720
then they'll decide officially to go

550
00:17:50,950 --> 00:17:48,640
ahead and add that fly about to the to

551
00:17:51,909 --> 00:17:50,960
the mission

552
00:17:56,150 --> 00:17:51,919
chris

553
00:17:57,510 --> 00:17:56,160
spaceflight.com um

554
00:17:59,510 --> 00:17:57,520
words almost can't describe how

555
00:18:01,029 --> 00:17:59,520
beautiful that was this morning um but i

556
00:18:03,190 --> 00:18:01,039
think talking about it in terms of what

557
00:18:05,190 --> 00:18:03,200
the teams have done in the past couple

558
00:18:06,230 --> 00:18:05,200
weeks is the best way to do that so

559
00:18:06,950 --> 00:18:06,240
thank you

560
00:18:09,669 --> 00:18:06,960
for

561
00:18:11,430 --> 00:18:09,679
um a couple quick questions um

562
00:18:13,510 --> 00:18:11,440
the first relating to the

563
00:18:16,549 --> 00:18:13,520

wright ohms pressure indication was was

564
00:18:18,470 --> 00:18:16,559
it identical to what you saw on uh on

565
00:18:21,350 --> 00:18:18,480
the first attempt back on april 29th and

566
00:18:23,669 --> 00:18:21,360
if so uh why did this one also require a

567
00:18:25,029 --> 00:18:23,679
waiver if it was a known condition and

568
00:18:27,270 --> 00:18:25,039
uh can you also talk a little bit more

569
00:18:28,390 --> 00:18:27,280
if possible about the um the main engine

570
00:18:30,310 --> 00:18:28,400
sensor

571
00:18:33,029 --> 00:18:30,320
and and what exactly that was monitoring

572
00:18:35,909 --> 00:18:33,039
and and what it did during flight

573
00:18:38,390 --> 00:18:35,919
sure so the the ohms condition um is

574
00:18:39,350 --> 00:18:38,400
basically uh we have two two separate

575
00:18:41,430 --> 00:18:39,360
limits on that tank that we're

576
00:18:42,549 --> 00:18:41,440
monitoring one is the the total pressure

577
00:18:44,630 --> 00:18:42,559
in the tank you want to make sure it

578
00:18:46,789 --> 00:18:44,640
doesn't get so high that it uh would

579
00:18:48,630 --> 00:18:46,799
activate the relief valve which is

580
00:18:49,909 --> 00:18:48,640
actually protected by a burst disc so

581
00:18:51,110 --> 00:18:49,919
the burst disc would be the first thing

582
00:18:52,070 --> 00:18:51,120
to go and then the relief valve would

583
00:18:53,510 --> 00:18:52,080
open up

584
00:18:54,870 --> 00:18:53,520
so that you don't over pressurize that

585
00:18:56,470 --> 00:18:54,880
tank

586
00:18:57,990 --> 00:18:56,480
the other limit you're trying to protect

587
00:18:59,990 --> 00:18:58,000
is that the the tank pressure in the

588
00:19:01,510 --> 00:19:00,000

oxidizer tank and the tank pressure in

589
00:19:03,350 --> 00:19:01,520
the fuel tank aren't too far apart from

590
00:19:05,750 --> 00:19:03,360
each other uh these are pressure fed

591
00:19:07,669 --> 00:19:05,760
engines in the ohms system and so when

592
00:19:09,430 --> 00:19:07,679
they initially start up you don't want

593
00:19:11,350 --> 00:19:09,440
more of one propellant than the other

594
00:19:12,870 --> 00:19:11,360
showing up or at a higher pressure kind

595
00:19:14,230 --> 00:19:12,880
of pushing the combustion off to one

596
00:19:16,070 --> 00:19:14,240
side or the other

597
00:19:18,789 --> 00:19:16,080
and so there's a delta limit between the

598
00:19:20,150 --> 00:19:18,799
two tanks a delta pressure limit

599
00:19:21,430 --> 00:19:20,160
on top of all that we protect for

600
00:19:22,630 --> 00:19:21,440
instrumentation error and in fact in

601
00:19:24,630 --> 00:19:22,640
this case it's a pretty big

602
00:19:26,310 --> 00:19:24,640
instrumentation or a 15 psi bias for

603
00:19:28,549 --> 00:19:26,320
instrumentation

604
00:19:29,830 --> 00:19:28,559
and so it's it's multiple

605
00:19:31,430 --> 00:19:29,840
fold

606
00:19:33,029 --> 00:19:31,440
the problem we had last launch attempt

607
00:19:34,950 --> 00:19:33,039
was

608
00:19:36,950 --> 00:19:34,960
due to some regulator creep the

609
00:19:38,470 --> 00:19:36,960
regulators and the valves naturally leak

610
00:19:40,070 --> 00:19:38,480
helium just a little bit

611
00:19:43,029 --> 00:19:40,080
in this case it's a little bit more but

612
00:19:44,950 --> 00:19:43,039
it's still within spec uh the ox tanks

613
00:19:47,110 --> 00:19:44,960

have a set of valves that close those

614
00:19:48,549 --> 00:19:47,120
off where the fuel tanks don't so that

615
00:19:50,710 --> 00:19:48,559
leaking pressure builds up in the fuel

616
00:19:53,510 --> 00:19:50,720
tank but not the oxidizer tank that

617
00:19:55,990 --> 00:19:53,520
further gets exasperated um when we have

618
00:19:58,310 --> 00:19:56,000
a full load of ohms and this is a little

619
00:20:00,150 --> 00:19:58,320
fuller than normal um there's not a lot

620
00:20:02,070 --> 00:20:00,160
of olig pressure in the tank to absorb

621
00:20:04,070 --> 00:20:02,080
that pressure delta so you see the the

622
00:20:05,909 --> 00:20:04,080
pressure go up pretty high and then one

623
00:20:08,310 --> 00:20:05,919
more thing is that the oxidizer likes to

624
00:20:09,430 --> 00:20:08,320
absorb helium and therefore it drops the

625
00:20:11,270 --> 00:20:09,440
pressure in that tank so you have the

626
00:20:13,590 --> 00:20:11,280
fuel pressure going up and the oxidizer

627
00:20:14,950 --> 00:20:13,600
pressure going down naturally and after

628
00:20:17,029 --> 00:20:14,960
we sat for a while they kind of got

629
00:20:17,990 --> 00:20:17,039
themselves close to that 15 psi delta

630
00:20:20,390 --> 00:20:18,000
limit

631
00:20:23,830 --> 00:20:20,400
the reality is the actual transducer

632
00:20:26,149 --> 00:20:23,840
biases on this tank uh were 1.5 psi not

633
00:20:27,510 --> 00:20:26,159
15. so if you added that in you could

634
00:20:29,110 --> 00:20:27,520
say that we weren't anywhere near our

635
00:20:31,190 --> 00:20:29,120
actual true limits

636
00:20:32,789 --> 00:20:31,200
but by the letter of the law the lcc

637
00:20:35,430 --> 00:20:32,799
requires you to not count on that just

638
00:20:37,029 --> 00:20:35,440

in case you that deucer drifted on you

639
00:20:38,149 --> 00:20:37,039
and so we went ahead and talked about it

640
00:20:39,909 --> 00:20:38,159
on the first launch attempt the easy

641
00:20:41,510 --> 00:20:39,919
thing to do was to tie the right tank to

642
00:20:42,710 --> 00:20:41,520
the left tank it had a little different

643
00:20:44,149 --> 00:20:42,720
pressure in it that kind of balanced the

644
00:20:45,990 --> 00:20:44,159
two out brought the numbers within

645
00:20:47,590 --> 00:20:46,000
limits because we did that last time

646
00:20:49,590 --> 00:20:47,600
this time there wasn't as much room to

647
00:20:51,669 --> 00:20:49,600
do that because we had already balanced

648
00:20:53,350 --> 00:20:51,679
those tanks up and so we had the waiver

649
00:20:54,390 --> 00:20:53,360
ready to go because we knew we probably

650
00:20:55,909 --> 00:20:54,400
wouldn't be able to get them back in

651
00:20:57,590 --> 00:20:55,919
limits and that's exactly what happened

652
00:21:00,230 --> 00:20:57,600
when we went to time together they did

653
00:21:02,870 --> 00:21:00,240
balance up but went to a 16 psi delta

654
00:21:04,950 --> 00:21:02,880
instead of a i think we had 14 last time

655
00:21:06,470 --> 00:21:04,960
again knowing that the true actual delta

656
00:21:08,470 --> 00:21:06,480
was perfectly well within limits the

657
00:21:09,590 --> 00:21:08,480
waiver basically said if you account for

658
00:21:10,630 --> 00:21:09,600
instrumentation error you don't have to

659
00:21:11,830 --> 00:21:10,640
worry about it

660
00:21:13,270 --> 00:21:11,840
and then we added on top of it a whole

661
00:21:14,710 --> 00:21:13,280
bunch of off-nominal testing that shows

662
00:21:17,750 --> 00:21:14,720
the true delta pressure limit is

663
00:21:19,909 --> 00:21:17,760

somewhere in the 30 psi range not 15 and

664
00:21:21,669 --> 00:21:19,919
so we were well well acceptable there so

665
00:21:23,430 --> 00:21:21,679
long-winded story to say we basically

666
00:21:25,350 --> 00:21:23,440
did lots of homework to protect us from

667
00:21:26,710 --> 00:21:25,360
the the letter of the law that said you

668
00:21:28,470 --> 00:21:26,720
got to be careful not to launch there

669
00:21:29,669 --> 00:21:28,480
made sure we really understood it before

670
00:21:31,350 --> 00:21:29,679
we went

671
00:21:33,190 --> 00:21:31,360
on the center main engine

672
00:21:34,870 --> 00:21:33,200
it was a low pressure uh on the low

673
00:21:36,630 --> 00:21:34,880
pressure fuel turbo pump one of the

674
00:21:38,870 --> 00:21:36,640
discharge outlet pressures uh there's

675
00:21:40,789 --> 00:21:38,880
two of them an a and a b channel the b

676
00:21:43,270 --> 00:21:40,799
channel dropped off and so

677
00:21:44,870 --> 00:21:43,280
it basically dropped out for a couple uh

678
00:21:46,149 --> 00:21:44,880
milliseconds and then it came back but

679
00:21:47,669 --> 00:21:46,159
that was enough for the onboard fault

680
00:21:48,630 --> 00:21:47,679
detection system to say i don't trust

681
00:21:51,350 --> 00:21:48,640
you anymore i'm throwing you out of the

682
00:21:53,190 --> 00:21:51,360
equation uh and so we got a ground fault

683
00:21:56,070 --> 00:21:53,200
on the ground nothing to the crew or

684
00:21:57,750 --> 00:21:56,080
anything like that um that pressure goes

685
00:21:59,909 --> 00:21:57,760
into an internal calculation that's

686
00:22:01,830 --> 00:21:59,919
basically measuring uh the density and

687
00:22:03,990 --> 00:22:01,840
the flow rates to try to calculate an

688
00:22:05,190 --> 00:22:04,000

internal flow through that turbo pump if

689
00:22:06,950 --> 00:22:05,200
we would have lost the other one it

690
00:22:08,070 --> 00:22:06,960
would have faulted down to a default

691
00:22:09,669 --> 00:22:08,080
measurement rather than the actual

692
00:22:11,350 --> 00:22:09,679
real-time measurement and it's really

693
00:22:12,630 --> 00:22:11,360
just a

694
00:22:14,390 --> 00:22:12,640
i don't want to say an after the fact

695
00:22:16,230 --> 00:22:14,400
data calculation but it's not used in

696
00:22:17,590 --> 00:22:16,240
any real-time performance in the engine

697
00:22:19,110 --> 00:22:17,600
it's just a uh

698
00:22:21,270 --> 00:22:19,120
it's not even a health monitoring system

699
00:22:24,630 --> 00:22:21,280
either it's it's just a data point that

700
00:22:25,669 --> 00:22:24,640
we gather on engine operation

701
00:22:29,750 --> 00:22:25,679
robert

702
00:22:31,669 --> 00:22:29,760
with a question from mike limbach uh

703
00:22:33,909 --> 00:22:31,679
since you mentioned uh presenting an

704
00:22:35,590 --> 00:22:33,919
award were you presented anything by the

705
00:22:38,149 --> 00:22:35,600
closeout crew or others as you were on

706
00:22:40,630 --> 00:22:38,159
the last flight of discovery and what

707
00:22:42,149 --> 00:22:40,640
have you done or if anything to uh mark

708
00:22:43,909 --> 00:22:42,159
this last flight of endeavor with your

709
00:22:46,549 --> 00:22:43,919
launch team thanks

710
00:22:48,470 --> 00:22:46,559
well let's see i i was uh honored with

711
00:22:50,470 --> 00:22:48,480
the endeavor side hatch

712
00:22:52,070 --> 00:22:50,480
emblem the name the name emblem on the

713
00:22:54,549 --> 00:22:52,080

side hatch signed by both the flight

714
00:22:56,390 --> 00:22:54,559
crew and the closeout crew and so that's

715
00:22:58,870 --> 00:22:56,400
a two out of the three i guess you could

716
00:23:00,630 --> 00:22:58,880
say so it was very nice surprise and the

717
00:23:01,990 --> 00:23:00,640
closeout crew

718
00:23:03,990 --> 00:23:02,000
named me an honorary member of the

719
00:23:06,390 --> 00:23:04,000
closeout team today they gave me a

720
00:23:07,830 --> 00:23:06,400
little plaque with with a patch and

721
00:23:09,430 --> 00:23:07,840
you know i know those guys pretty well

722
00:23:10,870 --> 00:23:09,440
and and travis thompson came in the

723
00:23:13,590 --> 00:23:10,880
firing room and gave me both items and

724
00:23:16,070 --> 00:23:13,600
that that was really special to be to be

725
00:23:19,350 --> 00:23:16,080
recognized like that as as a as a member

726
00:23:20,870 --> 00:23:19,360
of their team uh that meant a lot i'll

727
00:23:21,750 --> 00:23:20,880
cherish that forever

728
00:23:23,430 --> 00:23:21,760
um

729
00:23:25,110 --> 00:23:23,440
you know the final flights the final

730
00:23:26,470 --> 00:23:25,120
flight of endeavor we're going to wait

731
00:23:29,430 --> 00:23:26,480
for her to come home and then we'll

732
00:23:31,669 --> 00:23:29,440
celebrate some special way but today was

733
00:23:34,149 --> 00:23:31,679
all about getting the countdown

734
00:23:36,630 --> 00:23:34,159
right getting mark and his crew on orbit

735
00:23:39,669 --> 00:23:36,640
safely and we did that and we're proud

736
00:23:43,750 --> 00:23:41,430
jim siegel celebration independent

737
00:23:45,830 --> 00:23:43,760
newspaper two questions perhaps for mike

738
00:23:47,190 --> 00:23:45,840

and mike first of all could you talk a

739
00:23:49,430 --> 00:23:47,200
little bit more about the weather

740
00:23:51,909 --> 00:23:49,440
condition at time of launch and how

741
00:23:54,310 --> 00:23:51,919
close a call was it in terms of if it

742
00:23:56,789 --> 00:23:54,320
had been 30 seconds earlier or later had

743
00:23:59,350 --> 00:23:56,799
was the was the cloud

744
00:24:00,789 --> 00:23:59,360
situation or other factors

745
00:24:03,190 --> 00:24:00,799
could could that have eliminated the

746
00:24:05,110 --> 00:24:03,200
possibility of a launch today and then

747
00:24:07,190 --> 00:24:05,120
my other question has to do with adding

748
00:24:09,669 --> 00:24:07,200
two additional days to this

749
00:24:12,390 --> 00:24:09,679
um to this flight does that mean

750
00:24:14,950 --> 00:24:12,400
that uh there's less margin at the end

751
00:24:16,950 --> 00:24:14,960
of the flight uh in case landing

752
00:24:19,590 --> 00:24:16,960
conditions aren't right and would you

753
00:24:22,070 --> 00:24:19,600
have to make some other decisions or

754
00:24:23,590 --> 00:24:22,080
decision criteria for deciding uh

755
00:24:24,950 --> 00:24:23,600
whether to land or not at the end of the

756
00:24:26,470 --> 00:24:24,960
flight thank you

757
00:24:27,669 --> 00:24:26,480
see on the clouds uh the weather was

758
00:24:29,350 --> 00:24:27,679
actually never

759
00:24:31,750 --> 00:24:29,360
no go it was never forecast no go i

760
00:24:34,070 --> 00:24:31,760
don't think it was ever observed no go

761
00:24:36,149 --> 00:24:34,080
the so the the rtls landing forecast was

762
00:24:37,750 --> 00:24:36,159
always a go forecast they did amend it

763
00:24:40,470 --> 00:24:37,760

uh the initial forecast just called for

764
00:24:42,310 --> 00:24:40,480
a few clouds at uh or a scattered deck

765
00:24:44,870 --> 00:24:42,320
rather sorry at 35

766
00:24:46,630 --> 00:24:44,880
uh 100 feet and so they amended that to

767
00:24:48,870 --> 00:24:46,640
to put the deck scattered up at 5000 as

768
00:24:49,669 --> 00:24:48,880
well but that's a go forecast

769
00:24:53,510 --> 00:24:49,679
and

770
00:24:56,390 --> 00:24:53,520
it's the same they're looking for in

771
00:24:58,950 --> 00:24:56,400
this case it's a 6000 foot deck or

772
00:25:00,390 --> 00:24:58,960
a 4000 foot deck with clouds less than

773
00:25:02,390 --> 00:25:00,400
500 feet thick

774
00:25:04,630 --> 00:25:02,400
and we never dropped below our 5 000

775
00:25:07,590 --> 00:25:04,640
limits for the for rtls or or any of the

776
00:25:10,950 --> 00:25:07,600
range limits um we had our weather recon

777
00:25:12,870 --> 00:25:10,960
aircraft up the sta flown by cj sturcow

778
00:25:14,390 --> 00:25:12,880
about oh it was a good 30 minutes out he

779
00:25:16,710 --> 00:25:14,400
was able to basically characterize the

780
00:25:18,630 --> 00:25:16,720
patterns he'd been seeing all day long

781
00:25:20,870 --> 00:25:18,640
and and able to give us the go well

782
00:25:22,230 --> 00:25:20,880
early that nothing nothing out of the

783
00:25:23,430 --> 00:25:22,240
ordinary so he moved off to his orbit

784
00:25:24,789 --> 00:25:23,440
position

785
00:25:26,470 --> 00:25:24,799
same thing with the smg guys their

786
00:25:28,390 --> 00:25:26,480
forecast held true to the observations

787
00:25:30,630 --> 00:25:28,400
all day long as did kathy winters

788
00:25:32,070 --> 00:25:30,640

forecast at the at the launch pad so

789
00:25:33,909 --> 00:25:32,080
there really wasn't this was not a close

790
00:25:35,350 --> 00:25:33,919
one on the weather it was it was well

791
00:25:37,830 --> 00:25:35,360
within limits

792
00:25:39,029 --> 00:25:37,840
and it wasn't really moving on us at all

793
00:25:40,470 --> 00:25:39,039
really what it was going to come down to

794
00:25:42,149 --> 00:25:40,480
is we knew that thick band was going to

795
00:25:44,070 --> 00:25:42,159
come over the lcc right around launch

796
00:25:45,110 --> 00:25:44,080
time it was going to be a go thick band

797
00:25:46,870 --> 00:25:45,120
but it would

798
00:25:48,710 --> 00:25:46,880
limit our ability to see the shuttle off

799
00:25:49,830 --> 00:25:48,720
the pad as it ended up doing

800
00:25:51,590 --> 00:25:49,840
on the mission

801
00:25:53,750 --> 00:25:51,600
no we still have our standard two days

802
00:25:55,669 --> 00:25:53,760
of extension for systems problems or for

803
00:25:56,549 --> 00:25:55,679
weather extension we always carry a plus

804
00:25:58,710 --> 00:25:56,559
two

805
00:25:59,590 --> 00:25:58,720
to be able to handle any weather for for

806
00:26:01,190 --> 00:25:59,600
landing

807
00:26:03,669 --> 00:26:01,200
in this case the extra plus two that we

808
00:26:05,350 --> 00:26:03,679
added were two extra days by uh by

809
00:26:07,510 --> 00:26:05,360
having extra o2 on board we had

810
00:26:09,590 --> 00:26:07,520
originally planned to offload some

811
00:26:12,230 --> 00:26:09,600
oxygen some on the o2 which we use in

812
00:26:14,230 --> 00:26:12,240
our fuel cells to generate uh power for

813
00:26:15,510 --> 00:26:14,240

the shuttle um as we got closer to

814
00:26:16,950 --> 00:26:15,520
actual launch day we were able to look

815
00:26:19,029 --> 00:26:16,960
at the actual weights of payloads the

816
00:26:20,549 --> 00:26:19,039
actual weights on the mid deck um the

817
00:26:21,830 --> 00:26:20,559
actual weather conditions of the day the

818
00:26:23,830 --> 00:26:21,840
temperatures that the boosters would be

819
00:26:26,149 --> 00:26:23,840
at and discovered we had a little more

820
00:26:27,909 --> 00:26:26,159
ascent performance margin than we we had

821
00:26:30,390 --> 00:26:27,919
predicted and so we'd elected to turn

822
00:26:32,710 --> 00:26:30,400
that into extra cryo so instead of

823
00:26:33,830 --> 00:26:32,720
taking the o2 off to be less weight we

824
00:26:35,510 --> 00:26:33,840
decided we could launch with a little

825
00:26:37,590 --> 00:26:35,520
more weight this time so we we left that

826
00:26:39,830 --> 00:26:37,600
extra o2 in the ship which allowed us to

827
00:26:41,990 --> 00:26:39,840
get extra days on orbit uh in this case

828
00:26:43,909 --> 00:26:42,000
we knew we had we were at a 14-day

829
00:26:45,669 --> 00:26:43,919
mission two extra energy days and then

830
00:26:47,190 --> 00:26:45,679
two extra weather days so we turned

831
00:26:50,390 --> 00:26:47,200
those two energy days into planned days

832
00:26:53,190 --> 00:26:50,400
so we went to a 16 plus zero plus two

833
00:26:55,830 --> 00:26:53,200
mission so and i just might add a little

834
00:26:57,430 --> 00:26:55,840
bit to the weather discussion too it uh

835
00:26:58,870 --> 00:26:57,440
you know for the launch weather side of

836
00:27:01,269 --> 00:26:58,880
it they're really

837
00:27:03,750 --> 00:27:01,279
two categories of launch weather commit

838
00:27:06,149 --> 00:27:03,760

criteria one is for the shuttle program

839
00:27:07,669 --> 00:27:06,159
itself and one is for range safety and

840
00:27:10,950 --> 00:27:07,679
the range safety piece of it allows a

841
00:27:12,789 --> 00:27:10,960
forward observer in an aircraft and this

842
00:27:14,710 --> 00:27:12,799
and today we had that observer north of

843
00:27:15,909 --> 00:27:14,720
the pad which makes sense which way the

844
00:27:17,350 --> 00:27:15,919
clouds were going

845
00:27:18,789 --> 00:27:17,360
and as long as they can verify they have

846
00:27:20,149 --> 00:27:18,799
good visibility then if something goes

847
00:27:21,750 --> 00:27:20,159
wrong they can radio back to the range

848
00:27:23,269 --> 00:27:21,760
safety officer and to take the right

849
00:27:25,909 --> 00:27:23,279
action so that that's permitted by the

850
00:27:27,830 --> 00:27:25,919
rules we do it often and it worked just

851
00:27:30,470 --> 00:27:27,840
beautifully today and just by way of

852
00:27:32,149 --> 00:27:30,480
example i forget the mission number but

853
00:27:34,149 --> 00:27:32,159
three four years or so ago i believe it

854
00:27:36,070 --> 00:27:34,159
was we scrubbed for a cloud deck that

855
00:27:38,470 --> 00:27:36,080
was 600 feet thick

856
00:27:40,070 --> 00:27:38,480
our criteria is 500 feet today we were

857
00:27:40,789 --> 00:27:40,080
500 feet and so

858
00:27:53,750 --> 00:27:40,799
we

859
00:27:55,750 --> 00:27:53,760
practice it and today it worked out very

860
00:27:57,110 --> 00:27:55,760
very well for us

861
00:28:02,470 --> 00:27:57,120
clara

862
00:28:03,990 --> 00:28:02,480
question is now that this mission has

863
00:28:05,909 --> 00:28:04,000

launched can you tell us the latest

864
00:28:07,510 --> 00:28:05,919
thinking and what kind of considerations

865
00:28:10,630 --> 00:28:07,520
you're going to have to weigh to arrive

866
00:28:12,389 --> 00:28:10,640
at a launch date for 135

867
00:28:14,549 --> 00:28:12,399
yeah we can yeah i'm sorry i can take

868
00:28:16,230 --> 00:28:14,559
that one yeah okay so like like we've

869
00:28:18,549 --> 00:28:16,240
been telling you we kind of need to wait

870
00:28:20,710 --> 00:28:18,559
and see uh we want to be pretty specific

871
00:28:21,830 --> 00:28:20,720
with this launch date since our last one

872
00:28:23,750 --> 00:28:21,840
so we're going to go out and evaluate

873
00:28:25,830 --> 00:28:23,760
the damage at the pad and see what it

874
00:28:27,590 --> 00:28:25,840
takes to turn that around and if it fits

875
00:28:28,950 --> 00:28:27,600
within our 14-day template that we have

876
00:28:31,029 --> 00:28:28,960
arranged

877
00:28:32,950 --> 00:28:31,039
and then we basically expect this week

878
00:28:34,710 --> 00:28:32,960
to be able to to get that assessment

879
00:28:35,830 --> 00:28:34,720
finalize what we've been uh what we've

880
00:28:37,510 --> 00:28:35,840
been looking at and then narrow that

881
00:28:39,909 --> 00:28:37,520
down to an exact launch date we're

882
00:28:42,070 --> 00:28:39,919
falling in the middle of that uh in the

883
00:28:43,669 --> 00:28:42,080
second week in july there's a delta

884
00:28:45,750 --> 00:28:43,679
launch on the range on the 14th we got

885
00:28:47,029 --> 00:28:45,760
to talk to them see if they're having

886
00:28:48,630 --> 00:28:47,039
any troubles that they might be moving

887
00:28:50,710 --> 00:28:48,640
we we want to be able to plan ahead if

888
00:28:52,070 --> 00:28:50,720

we can at this point although a month

889
00:28:54,950 --> 00:28:52,080
and a half out on the range is never

890
00:28:56,310 --> 00:28:54,960
really planning ahead so uh but we'll

891
00:28:57,909 --> 00:28:56,320
give it a try this week and see what we

892
00:28:59,430 --> 00:28:57,919
get but i suspect we'll pick a date by

893
00:29:00,710 --> 00:28:59,440
the end of the week or early next week

894
00:29:02,549 --> 00:29:00,720
yeah and we'll probably watch a little

895
00:29:03,830 --> 00:29:02,559
bit orbiter performance on orbit and see

896
00:29:06,070 --> 00:29:03,840
if we see anything in orbit of

897
00:29:07,190 --> 00:29:06,080
performance that makes us question or

898
00:29:09,029 --> 00:29:07,200
think about what we're going to do

899
00:29:10,870 --> 00:29:09,039
before the next launch so so we'll wait

900
00:29:12,950 --> 00:29:10,880
a little bit maybe the end of this week

901
00:29:14,389 --> 00:29:12,960
maybe next week we'll actually set the

902
00:29:16,870 --> 00:29:14,399
date after we work all the parameters

903
00:29:18,310 --> 00:29:16,880
that mike just talked about

904
00:29:20,630 --> 00:29:18,320
okay over here

905
00:29:22,630 --> 00:29:20,640
john disney sirius xm satellite radio

906
00:29:24,149 --> 00:29:22,640
for mike leinbach uh give us a

907
00:29:26,230 --> 00:29:24,159
post-launch report if you will on that

908
00:29:28,389 --> 00:29:26,240
apu heater circuit i'm sure you were

909
00:29:30,149 --> 00:29:28,399
hawking it pretty closely uh anything

910
00:29:32,070 --> 00:29:30,159
anomalous there and if not does that

911
00:29:33,909 --> 00:29:32,080
give you increased confidence that the

912
00:29:35,110 --> 00:29:33,919
damage insulation might have been the

913
00:29:36,630 --> 00:29:35,120

culprit

914
00:29:38,230 --> 00:29:36,640
well let's see we went through our

915
00:29:39,669 --> 00:29:38,240
troubleshooting plan as we as we

916
00:29:40,950 --> 00:29:39,679
proposed to the program you know

917
00:29:42,789 --> 00:29:40,960
pre-launch

918
00:29:44,230 --> 00:29:42,799
where we where we swap we came up on the

919
00:29:45,909 --> 00:29:44,240
b-side heaters which are the ones that

920
00:29:47,350 --> 00:29:45,919
had the problem before

921
00:29:49,110 --> 00:29:47,360
this was after we got into stable

922
00:29:51,029 --> 00:29:49,120
replenish on the external tanks so the

923
00:29:52,389 --> 00:29:51,039
aft was was about as cold as it was

924
00:29:54,630 --> 00:29:52,399
going to get

925
00:29:56,789 --> 00:29:54,640
that worked fine uh we switched over the

926
00:29:58,310 --> 00:29:56,799
a side which worked fine last countdown

927
00:29:59,909 --> 00:29:58,320
worked it fine again today and we

928
00:30:02,070 --> 00:29:59,919
swapped back to b and we launched in b

929
00:30:03,750 --> 00:30:02,080
so we went through our our process and

930
00:30:06,630 --> 00:30:03,760
and everything checked out just to the

931
00:30:08,710 --> 00:30:06,640
letter of the law and uh so does it does

932
00:30:10,149 --> 00:30:08,720
it prove that that was that little open

933
00:30:12,470 --> 00:30:10,159
on the back of the

934
00:30:14,470 --> 00:30:12,480
connector not quite sure probably never

935
00:30:19,990 --> 00:30:14,480
exactly know but we know we've fixed it

936
00:30:25,909 --> 00:30:22,950
hi evan brown fox news radio for uh mr

937
00:30:28,230 --> 00:30:25,919
gerstenmaier mr moses and mr leinbach uh

938
00:30:31,110 --> 00:30:28,240

this is the uh second final mission for

939
00:30:34,230 --> 00:30:31,120
one of one of the orbiters uh we had um

940
00:30:36,310 --> 00:30:34,240
uh uh discovery already is it any easier

941
00:30:37,430 --> 00:30:36,320
this time around for you guys

942
00:30:39,110 --> 00:30:37,440
emotionally

943
00:30:41,669 --> 00:30:39,120
last time we actually

944
00:30:43,029 --> 00:30:41,679
saw little tears here and there but

945
00:30:44,230 --> 00:30:43,039
is it

946
00:30:46,389 --> 00:30:44,240
since you've been through one of these

947
00:30:49,269 --> 00:30:46,399
final missions already is it any easier

948
00:30:53,590 --> 00:30:50,710
he said your name first

949
00:30:57,190 --> 00:30:55,750
i would say uh no

950
00:30:58,710 --> 00:30:57,200
in simple words

951
00:31:00,149 --> 00:30:58,720
i think the thing that's

952
00:31:01,590 --> 00:31:00,159
the real tribute is i've really

953
00:31:03,430 --> 00:31:01,600
challenged the team and challenged all

954
00:31:05,669 --> 00:31:03,440
of us to to treat each one of these

955
00:31:07,909 --> 00:31:05,679
missions as much as we can just like a

956
00:31:09,990 --> 00:31:07,919
regular mission so our you know our job

957
00:31:11,509 --> 00:31:10,000
is to to look at the flight rules look

958
00:31:13,669 --> 00:31:11,519
at our procedures look at our launch

959
00:31:15,590 --> 00:31:13,679
countdown everything we do i want it to

960
00:31:17,509 --> 00:31:15,600
feel just like there's this isn't the

961
00:31:19,509 --> 00:31:17,519
last mission but this is one of many

962
00:31:21,750 --> 00:31:19,519
missions to go forward so i've been

963
00:31:23,830 --> 00:31:21,760

challenging the teams to do that and

964
00:31:26,149 --> 00:31:23,840
they've done a tremendous job of being

965
00:31:28,070 --> 00:31:26,159
able to stay focused to watch what's

966
00:31:29,909 --> 00:31:28,080
going on and to be the true experts that

967
00:31:32,389 --> 00:31:29,919
really make this look a lot easier than

968
00:31:35,190 --> 00:31:32,399
it really is so again i think

969
00:31:37,110 --> 00:31:35,200
the thing that i feel is i feel a real

970
00:31:38,950 --> 00:31:37,120
real privilege to be considered part of

971
00:31:40,470 --> 00:31:38,960
this team that has pulled this off

972
00:31:42,070 --> 00:31:40,480
because because what you've seen today

973
00:31:43,509 --> 00:31:42,080
was not easy

974
00:31:45,909 --> 00:31:43,519
you know it's not easy for us to get

975
00:31:48,070 --> 00:31:45,919
this vehicle ready to go fly it wasn't

976
00:31:50,549 --> 00:31:48,080
easy to find the problem with the apu

977
00:31:52,149 --> 00:31:50,559
and to be meticulous and to slowly work

978
00:31:54,470 --> 00:31:52,159
through that problem and to take the

979
00:31:55,830 --> 00:31:54,480
time that it needed to get it worked you

980
00:31:57,750 --> 00:31:55,840
know we worked the issues during the

981
00:32:00,070 --> 00:31:57,760
account in a very methodical manner as

982
00:32:01,269 --> 00:32:00,080
mike described we adhered to our flight

983
00:32:03,110 --> 00:32:01,279
rules for weather just like we're

984
00:32:04,870 --> 00:32:03,120
supposed to and we launched a great

985
00:32:06,389 --> 00:32:04,880
vehicle to orbit we've got a huge

986
00:32:08,470 --> 00:32:06,399
challenge in front of us in terms of the

987
00:32:10,310 --> 00:32:08,480
mission we'll see how that goes when we

988
00:32:11,669 --> 00:32:10,320

get endeavour back then we can rest a

989
00:32:13,590 --> 00:32:11,679
little bit with endeavor but then we've

990
00:32:15,509 --> 00:32:13,600
got another one after that and we our

991
00:32:17,590 --> 00:32:15,519
job is to again stay focused make it

992
00:32:19,509 --> 00:32:17,600
look just like every other flight keep

993
00:32:21,110 --> 00:32:19,519
moving forward with all the distractions

994
00:32:22,389 --> 00:32:21,120
that are going on on the outside in

995
00:32:23,990 --> 00:32:22,399
terms of

996
00:32:25,990 --> 00:32:24,000
of things that are real impacts to the

997
00:32:27,750 --> 00:32:26,000
employees and other folks so again i

998
00:32:29,750 --> 00:32:27,760
think the thing that i carry away from

999
00:32:31,430 --> 00:32:29,760
this mission more than any other is just

1000
00:32:33,110 --> 00:32:31,440
the the wonderful job that the teams

1001
00:32:34,870 --> 00:32:33,120
have done to really give us a quality

1002
00:32:37,110 --> 00:32:34,880
vehicle and to give us a great asset

1003
00:32:38,389 --> 00:32:37,120
today so mike

1004
00:32:40,230 --> 00:32:38,399
i'm not sure i can add much more bill i

1005
00:32:42,149 --> 00:32:40,240
think you wrapped that up pretty good

1006
00:32:43,669 --> 00:32:42,159
so i'll add one thing to it since you

1007
00:32:45,590 --> 00:32:43,679
asked and uh

1008
00:32:47,430 --> 00:32:45,600
you know there are several of us that

1009
00:32:49,509 --> 00:32:47,440
get to work each vehicle and that that's

1010
00:32:51,990 --> 00:32:49,519
a lot of fun and we enjoy what we do but

1011
00:32:53,990 --> 00:32:52,000
there's only one endeavor processing

1012
00:32:56,789 --> 00:32:54,000
team people who work

1013
00:32:59,190 --> 00:32:56,799

solely endeavor so this was their only

1014
00:33:01,750 --> 00:32:59,200
final launch

1015
00:33:03,269 --> 00:33:01,760
those folks those folks are are looking

1016
00:33:04,310 --> 00:33:03,279
back on the history of endeavor with

1017
00:33:05,269 --> 00:33:04,320
fondness

1018
00:33:07,350 --> 00:33:05,279
and

1019
00:33:08,950 --> 00:33:07,360
probably a few tears today but that's

1020
00:33:10,470 --> 00:33:08,960
okay because they know they did the best

1021
00:33:12,230 --> 00:33:10,480
job they could and

1022
00:33:14,470 --> 00:33:12,240
and endeavors safely on orbit so they

1023
00:33:16,470 --> 00:33:14,480
did a great job and uh

1024
00:33:19,909 --> 00:33:16,480
one by one each team is going to have

1025
00:33:23,669 --> 00:33:21,830
over here doug deco knox magazine and

1026
00:33:26,310 --> 00:33:23,679
lofty ambition science blog question for

1027
00:33:28,310 --> 00:33:26,320
michelle about the ams uh after the

1028
00:33:31,110 --> 00:33:28,320
installation can you characterize the

1029
00:33:33,430 --> 00:33:31,120
validation period for the detector and

1030
00:33:35,190 --> 00:33:33,440
how soon can scientists actually on the

1031
00:33:36,389 --> 00:33:35,200
earth side start beginning to receive

1032
00:33:38,870 --> 00:33:36,399
data

1033
00:33:41,269 --> 00:33:38,880
so you know i am not a designer of ams

1034
00:33:43,110 --> 00:33:41,279
so i can give you just uh what

1035
00:33:44,149 --> 00:33:43,120
i have learned like everybody else has

1036
00:33:46,549 --> 00:33:44,159
learned

1037
00:33:48,710 --> 00:33:46,559
they will check right after

1038
00:33:51,350 --> 00:33:48,720

on devices orbit that the system is

1039
00:33:54,310 --> 00:33:51,360
working properly and the first result of

1040
00:33:56,389 --> 00:33:54,320
ms will be given after ams is installed

1041
00:33:58,149 --> 00:33:56,399
on the trust of iss

1042
00:34:03,269 --> 00:33:58,159
and a few hours after it is installed so

1043
00:34:08,310 --> 00:34:04,630
todd

1044
00:34:09,510 --> 00:34:08,320
or mike

1045
00:34:11,510 --> 00:34:09,520
um

1046
00:34:13,109 --> 00:34:11,520
you you mentioned that there was a heavy

1047
00:34:15,669 --> 00:34:13,119
cryoload on board

1048
00:34:17,669 --> 00:34:15,679
it seemed to me that the orbiter uh was

1049
00:34:21,270 --> 00:34:17,679
kind of slow getting off the pad i don't

1050
00:34:23,430 --> 00:34:21,280
know if you felt that way also but

1051
00:34:24,790 --> 00:34:23,440
was that because it was a heavier

1052
00:34:26,790 --> 00:34:24,800
vehicle and

1053
00:34:28,950 --> 00:34:26,800
also could you talk about the timing of

1054
00:34:32,230 --> 00:34:28,960
the sts-135

1055
00:34:36,869 --> 00:34:32,240
roll-out and the sts-134

1056
00:34:39,510 --> 00:34:36,879
landing if they happen as currently uh

1057
00:34:40,790 --> 00:34:39,520
scheduled how is that all gonna come

1058
00:34:43,349 --> 00:34:40,800
together

1059
00:34:45,430 --> 00:34:43,359
see i can take the first part um the uh

1060
00:34:48,310 --> 00:34:45,440
so no we weren't any heavier than normal

1061
00:34:49,990 --> 00:34:48,320
of a typical launch um when i say

1062
00:34:51,270 --> 00:34:50,000
heavier so the reason why we were able

1063
00:34:53,430 --> 00:34:51,280

to take more cryo is because other

1064
00:34:55,430 --> 00:34:53,440
things weighed less so from a total lift

1065
00:34:58,390 --> 00:34:55,440
off weight we were in family to what we

1066
00:35:00,390 --> 00:34:58,400
normally lift off with um as far as it

1067
00:35:02,390 --> 00:35:00,400
seemed like you get off the pad slower

1068
00:35:04,150 --> 00:35:02,400
to me personally it did but that's

1069
00:35:05,589 --> 00:35:04,160
because i configured the tv wrong i

1070
00:35:07,030 --> 00:35:05,599
always like to watch all three main

1071
00:35:08,550 --> 00:35:07,040
engines see the shock waves go through

1072
00:35:10,710 --> 00:35:08,560
before i turn around look out the window

1073
00:35:12,710 --> 00:35:10,720
and i had the wrong channel up um tv

1074
00:35:14,230 --> 00:35:12,720
channel so so to me it was gone before i

1075
00:35:16,230 --> 00:35:14,240
even turned around but

1076
00:35:18,069 --> 00:35:16,240
so it was still going pretty fast for me

1077
00:35:22,390 --> 00:35:18,079
we need some more medium i do need some

1078
00:35:26,390 --> 00:35:24,230
and let's see the uh

1079
00:35:27,750 --> 00:35:26,400
the the landing versus uh rollout

1080
00:35:29,109 --> 00:35:27,760
question uh

1081
00:35:30,710 --> 00:35:29,119
as we said the other day they're two

1082
00:35:33,190 --> 00:35:30,720
separate crews to do that so we can

1083
00:35:35,030 --> 00:35:33,200
perform both essentially in the same day

1084
00:35:37,270 --> 00:35:35,040
and and the way it is scheduled if it

1085
00:35:39,190 --> 00:35:37,280
does indeed play out this way is is uh

1086
00:35:40,150 --> 00:35:39,200
atlantis would be rolling out at eight

1087
00:35:42,069 --> 00:35:40,160
pm

1088
00:35:44,150 --> 00:35:42,079

on the 31st of may

1089
00:35:46,470 --> 00:35:44,160
and um an endeavor would be landing at

1090
00:35:48,470 --> 00:35:46,480
about 2 30 in the morning on june the

1091
00:35:50,470 --> 00:35:48,480
first and and we can do both perfectly

1092
00:35:52,150 --> 00:35:50,480
fine and and that'll be that'll be a

1093
00:35:55,670 --> 00:35:52,160
special day for the program and for the

1094
00:35:59,589 --> 00:35:57,910
randy avira with interspace news this

1095
00:36:02,550 --> 00:35:59,599
question for michelle

1096
00:36:04,390 --> 00:36:02,560
the alpha magnetic spectrometer

1097
00:36:05,589 --> 00:36:04,400
stands poised to be one of the most

1098
00:36:07,990 --> 00:36:05,599
historic

1099
00:36:10,069 --> 00:36:08,000
instruments ever placed in orbit and

1100
00:36:12,630 --> 00:36:10,079
therefore a very historic

1101
00:36:15,270 --> 00:36:12,640
flight and mission for the endeavor

1102
00:36:18,390 --> 00:36:15,280
could you elaborate on dark matter dark

1103
00:36:21,190 --> 00:36:18,400
energy and antimatter if this instrument

1104
00:36:24,069 --> 00:36:21,200
does in fact make detections that lead

1105
00:36:26,069 --> 00:36:24,079
to a discovery and a direct observation

1106
00:36:27,430 --> 00:36:26,079
and validation of dark matter energy and

1107
00:36:29,589 --> 00:36:27,440
antimatter

1108
00:36:31,750 --> 00:36:29,599
what what do you see is the effect of

1109
00:36:34,550 --> 00:36:31,760
that on our society and certainly on the

1110
00:36:36,150 --> 00:36:34,560
physics community and the astro the

1111
00:36:38,790 --> 00:36:36,160
astronomy community

1112
00:36:41,589 --> 00:36:38,800
and scientists around the world

1113
00:36:42,470 --> 00:36:41,599

well um in fact

1114
00:36:48,310 --> 00:36:42,480
if

1115
00:36:50,790 --> 00:36:48,320
first we will validate the fact that iss

1116
00:36:53,430 --> 00:36:50,800
was made to make great science that was

1117
00:36:54,390 --> 00:36:53,440
a goal since years and years that we fly

1118
00:36:56,790 --> 00:36:54,400
in space

1119
00:36:59,670 --> 00:36:56,800
not only with iss but previously with

1120
00:37:02,390 --> 00:36:59,680
the mission on salute and mir we always

1121
00:37:05,270 --> 00:37:02,400
try to say that we we go to space to

1122
00:37:06,150 --> 00:37:05,280
make good science so now we we do

1123
00:37:08,150 --> 00:37:06,160
make

1124
00:37:10,310 --> 00:37:08,160
this good science with ms because this

1125
00:37:11,349 --> 00:37:10,320
is very very different from what we did

1126
00:37:12,230 --> 00:37:11,359
before

1127
00:37:14,470 --> 00:37:12,240
um

1128
00:37:15,910 --> 00:37:14,480
after we got the result we it takes a

1129
00:37:18,390 --> 00:37:15,920
lot of time when you get through easily

1130
00:37:19,270 --> 00:37:18,400
that you get a lot of time to elaborate

1131
00:37:22,390 --> 00:37:19,280
and to

1132
00:37:25,109 --> 00:37:22,400
correspondence but

1133
00:37:26,470 --> 00:37:25,119
it is sure that we will find in any case

1134
00:37:27,910 --> 00:37:26,480
we will find things that we have never

1135
00:37:30,310 --> 00:37:27,920
seen before

1136
00:37:31,270 --> 00:37:30,320
so the interpretation of these results

1137
00:37:34,069 --> 00:37:31,280
after

1138
00:37:35,750 --> 00:37:34,079

it's up to the scientists to to take to

1139
00:37:37,589 --> 00:37:35,760
talk about that but

1140
00:37:39,270 --> 00:37:37,599
i think it's a very important science

1141
00:37:42,870 --> 00:37:39,280
and it's very very different from what

1142
00:37:47,190 --> 00:37:44,710
in the back of the room

1143
00:37:49,510 --> 00:37:47,200
christopher sein with the abc affiliate

1144
00:37:51,349 --> 00:37:49,520
in phoenix arizona i know that this has

1145
00:37:53,589 --> 00:37:51,359
been a very special day

1146
00:37:55,750 --> 00:37:53,599
on many levels and i know that you've

1147
00:37:57,829 --> 00:37:55,760
always had a special guest and uh this

1148
00:37:59,829 --> 00:37:57,839
for bill mike or mike i know you've had

1149
00:38:01,750 --> 00:37:59,839
many special guests over the years can

1150
00:38:04,390 --> 00:38:01,760
you talk about what it was like

1151
00:38:05,990 --> 00:38:04,400
having congresswoman giffords here uh

1152
00:38:09,829 --> 00:38:06,000
i'm sure you all know what happened and

1153
00:38:14,069 --> 00:38:11,670
let's see um

1154
00:38:15,190 --> 00:38:14,079
from the unfortunately clinical side of

1155
00:38:16,870 --> 00:38:15,200
the house

1156
00:38:18,710 --> 00:38:16,880
we're locked up in the firing room doing

1157
00:38:20,310 --> 00:38:18,720
our job so the the crew families are in

1158
00:38:21,589 --> 00:38:20,320
a different location they're actually in

1159
00:38:23,990 --> 00:38:21,599
the launch control center and they go up

1160
00:38:26,230 --> 00:38:24,000
on the roof to watch uh so we don't ever

1161
00:38:27,750 --> 00:38:26,240
get to see them greet them uh or know

1162
00:38:29,270 --> 00:38:27,760
they're there and in this case i think

1163
00:38:31,589 --> 00:38:29,280

they had actually even left before we

1164
00:38:32,950 --> 00:38:31,599
were released from consoles so from

1165
00:38:34,710 --> 00:38:32,960
actually getting to experience that

1166
00:38:36,550 --> 00:38:34,720
today i personally and i don't think any

1167
00:38:39,190 --> 00:38:36,560
of us up here had the chance to even

1168
00:38:41,109 --> 00:38:39,200
even see her uh but conceptually uh

1169
00:38:43,270 --> 00:38:41,119
having her here is is just as important

1170
00:38:46,230 --> 00:38:43,280
as every other family member um to have

1171
00:38:48,470 --> 00:38:46,240
them here and especially the kids um you

1172
00:38:49,910 --> 00:38:48,480
know one of the traditions is they uh

1173
00:38:51,430 --> 00:38:49,920
while they're waiting for launch they

1174
00:38:52,870 --> 00:38:51,440
they set up a whiteboard and markers for

1175
00:38:54,470 --> 00:38:52,880
them and and the kids get the draw of

1176
00:38:56,710 --> 00:38:54,480
their version of the mission patch and

1177
00:38:57,910 --> 00:38:56,720
and messages to mom or dad and then we

1178
00:38:59,510 --> 00:38:57,920
take them and we put a cover over them

1179
00:39:00,870 --> 00:38:59,520
we hang them in the halls

1180
00:39:02,790 --> 00:39:00,880
in the control center in mike's building

1181
00:39:04,950 --> 00:39:02,800
and and it serves a lot of things it

1182
00:39:06,710 --> 00:39:04,960
shows you how much this is a family

1183
00:39:08,710 --> 00:39:06,720
thing and a personal thing and then it's

1184
00:39:10,150 --> 00:39:08,720
a good reminder to us as we walk by that

1185
00:39:11,990 --> 00:39:10,160
that there's people's lives here and

1186
00:39:14,230 --> 00:39:12,000
what we're doing and it reminds us to do

1187
00:39:15,670 --> 00:39:14,240
good good work but uh so from that

1188
00:39:18,150 --> 00:39:15,680

standpoint very happy to have her here

1189
00:39:19,270 --> 00:39:18,160
as a as a crew family um but but if you

1190
00:39:21,030 --> 00:39:19,280
just think of her story it's a pretty

1191
00:39:22,950 --> 00:39:21,040
remarkable testament to

1192
00:39:24,470 --> 00:39:22,960
human will and recovery to be able to to

1193
00:39:26,230 --> 00:39:24,480
come back from something like that and

1194
00:39:27,589 --> 00:39:26,240
travel here twice

1195
00:39:30,790 --> 00:39:27,599
and finally get to see your husband fly

1196
00:39:35,910 --> 00:39:33,910
as it's a warren ellie with wtvt the fox

1197
00:39:39,030 --> 00:39:35,920
station in tampa maybe you can help us

1198
00:39:40,790 --> 00:39:39,040
gentlemen with something we saw

1199
00:39:44,230 --> 00:39:40,800
i can't explain it

1200
00:39:45,510 --> 00:39:44,240
leading edge uh left wing

1201
00:39:49,430 --> 00:39:45,520
white

1202
00:39:51,990 --> 00:39:49,440
carbon carbon it's about eight minutes

1203
00:39:53,990 --> 00:39:52,000
43 seconds in we see it at the sep of

1204
00:39:55,589 --> 00:39:54,000
the main tank we also see it on the

1205
00:39:56,550 --> 00:39:55,599
ground as the orbiter sits on the ground

1206
00:39:58,150 --> 00:39:56,560
so it's possible there was some

1207
00:40:00,310 --> 00:39:58,160
discoloration

1208
00:40:01,829 --> 00:40:00,320
it didn't look like love bugs but

1209
00:40:03,670 --> 00:40:01,839
just wondering if anybody saw that i

1210
00:40:05,829 --> 00:40:03,680
think it was your what was it your

1211
00:40:07,430 --> 00:40:05,839
residue

1212
00:40:09,670 --> 00:40:07,440
no do we want to talk we'll go look and

1213
00:40:12,069 --> 00:40:09,680

see i'm not sure i saw it in the video

1214
00:40:14,630 --> 00:40:12,079
also i think it's we have a i think we

1215
00:40:16,630 --> 00:40:14,640
had a new rcc panel or a different rcc

1216
00:40:19,430 --> 00:40:16,640
panel that's a reinforced carbon carbon

1217
00:40:21,670 --> 00:40:19,440
panel on that wing leading edge possibly

1218
00:40:23,589 --> 00:40:21,680
i saw it it was lighting it's nothing to

1219
00:40:25,990 --> 00:40:23,599
be concerned of it it's just the fact

1220
00:40:27,910 --> 00:40:26,000
that it the entire panel was a different

1221
00:40:29,589 --> 00:40:27,920
shade is what i saw when i saw it when

1222
00:40:30,470 --> 00:40:29,599
the sun rolled and the orbiter rolled

1223
00:40:32,230 --> 00:40:30,480
over

1224
00:40:33,829 --> 00:40:32,240
i don't think it's anything it's just a

1225
00:40:35,190 --> 00:40:33,839
different way the light was shining that

1226
00:40:36,790 --> 00:40:35,200
panel and maybe a little bit different

1227
00:40:39,829 --> 00:40:36,800
age in the other panels and you see some

1228
00:40:42,069 --> 00:40:39,839
variation between the rcc panels there's

1229
00:40:45,430 --> 00:40:42,079
like 12 of them or so on each side maybe

1230
00:40:47,030 --> 00:40:45,440
more on each side and and each one is

1231
00:40:48,630 --> 00:40:47,040
unique and they have different history

1232
00:40:51,270 --> 00:40:48,640
so i don't think there's anything there

1233
00:40:52,550 --> 00:40:51,280
but but we saw it in the video and then

1234
00:40:53,910 --> 00:40:52,560
the teams will look at it some more but

1235
00:40:55,829 --> 00:40:53,920
i don't think it's anything more than

1236
00:40:56,950 --> 00:40:55,839
than just uh yeah the difference in

1237
00:40:57,910 --> 00:40:56,960
lighting i said bill's hitting on the

1238
00:40:59,510 --> 00:40:57,920

thing

1239
00:41:01,190 --> 00:40:59,520
the the camera angles really do trick

1240
00:41:03,109 --> 00:41:01,200
you the bright light from the sun as you

1241
00:41:04,630 --> 00:41:03,119
roll um you see something that looks

1242
00:41:06,150 --> 00:41:04,640
really bad even in orbit when we take

1243
00:41:07,750 --> 00:41:06,160
the pictures you'll you'll look at it

1244
00:41:09,349 --> 00:41:07,760
from the the regular standard camera on

1245
00:41:11,270 --> 00:41:09,359
the end of the boom and and it'll look

1246
00:41:12,630 --> 00:41:11,280
like a bright white which means the

1247
00:41:14,069 --> 00:41:12,640
black coating of the tile has been

1248
00:41:15,589 --> 00:41:14,079
chipped away but then when you look at

1249
00:41:17,430 --> 00:41:15,599
the high-res picture from the from the

1250
00:41:19,190 --> 00:41:17,440
digital camera you see that it's it's

1251
00:41:20,550 --> 00:41:19,200
this little tiny thread that just

1252
00:41:22,230 --> 00:41:20,560
happened to catch the light and reflect

1253
00:41:23,910 --> 00:41:22,240
right back at the camera so a lot of

1254
00:41:25,910 --> 00:41:23,920
optical illusions so that's why we do

1255
00:41:27,190 --> 00:41:25,920
the very detailed inspections we we wait

1256
00:41:29,670 --> 00:41:27,200
until we get the data and we really

1257
00:41:30,950 --> 00:41:29,680
analyze the actual data rather than just

1258
00:41:32,790 --> 00:41:30,960
what we saw in the original camera we

1259
00:41:34,309 --> 00:41:32,800
could see it on the ground as well

1260
00:41:35,990 --> 00:41:34,319
before the orbiter launched you could

1261
00:41:37,589 --> 00:41:36,000
see it yeah and so we have baseline

1262
00:41:38,870 --> 00:41:37,599
photos of what we looked like before we

1263
00:41:40,390 --> 00:41:38,880

left off and the teams will compare that

1264
00:41:41,270 --> 00:41:40,400
to what we got on orbit to know be able

1265
00:41:43,349 --> 00:41:41,280
to tell

1266
00:41:45,349 --> 00:41:43,359
if it's existing problems or new

1267
00:41:47,430 --> 00:41:45,359
problems thank you joe

1268
00:41:50,309 --> 00:41:47,440
chris

1269
00:41:52,309 --> 00:41:50,319
spaceflight.com again and actually a

1270
00:41:55,670 --> 00:41:52,319
perfect segue um

1271
00:41:58,390 --> 00:41:55,680
with leaving the obss on station um last

1272
00:41:59,990 --> 00:41:58,400
time we had to do this on sts-123 great

1273
00:42:01,349 --> 00:42:00,000
care was taken to protect those sensor

1274
00:42:03,910 --> 00:42:01,359
packages on the end of the boom because

1275
00:42:05,510 --> 00:42:03,920
they would be needed on the next flight

1276
00:42:07,510 --> 00:42:05,520
since that's not the reason the boom's

1277
00:42:08,870 --> 00:42:07,520
being left what becomes of the sensor

1278
00:42:11,030 --> 00:42:08,880
packages on the end of it are they going

1279
00:42:13,510 --> 00:42:11,040
to be left on the boom are they going to

1280
00:42:15,589 --> 00:42:13,520
be removed and brought back on endeavor

1281
00:42:17,430 --> 00:42:15,599
the plan is to leave them in place they

1282
00:42:19,349 --> 00:42:17,440
will not be powered on orbit so

1283
00:42:21,670 --> 00:42:19,359
thermally they will uh the components

1284
00:42:23,990 --> 00:42:21,680
will not survive very long um probably

1285
00:42:25,750 --> 00:42:24,000
on the order of a couple of hours maybe

1286
00:42:27,670 --> 00:42:25,760
a day in some cases but there's no plan

1287
00:42:29,109 --> 00:42:27,680
to ever use those sensors again but one

1288
00:42:32,309 --> 00:42:29,119

thing we are doing and we've actually

1289
00:42:34,390 --> 00:42:32,319
done it already is we outfitted the the

1290
00:42:35,910 --> 00:42:34,400
boom with some extra

1291
00:42:37,990 --> 00:42:35,920
velcro wraps so that

1292
00:42:40,150 --> 00:42:38,000
if if the need is to run a cable so that

1293
00:42:41,589 --> 00:42:40,160
a future time station wants to put a

1294
00:42:42,630 --> 00:42:41,599
camera system or sensor system on the

1295
00:42:44,150 --> 00:42:42,640
end of the boom

1296
00:42:46,230 --> 00:42:44,160
they'd be able to take those sensors off

1297
00:42:47,990 --> 00:42:46,240
put new ones on and then run new cables

1298
00:42:49,990 --> 00:42:48,000
and the velcro tie wraps are in place

1299
00:42:51,430 --> 00:42:50,000
already um we're going to change out the

1300
00:42:53,829 --> 00:42:51,440
grapple fixture

1301
00:42:55,270 --> 00:42:53,839
at the end of the boom right now the uh

1302
00:42:56,790 --> 00:42:55,280
the grapple fixture at the very end is

1303
00:42:58,470 --> 00:42:56,800
only for the shuttle arm the station arm

1304
00:42:59,750 --> 00:42:58,480
has to grab it in the middle it doesn't

1305
00:43:01,430 --> 00:42:59,760
make it as long of a reach so we're

1306
00:43:03,190 --> 00:43:01,440
going to switch those and and replace

1307
00:43:04,870 --> 00:43:03,200
the the shuttle grappler fixture with a

1308
00:43:06,470 --> 00:43:04,880
station grapple fixture when we're done

1309
00:43:07,270 --> 00:43:06,480
with it so that'll allow full use of the

1310
00:43:08,710 --> 00:43:07,280
boom

1311
00:43:10,550 --> 00:43:08,720
and then if they come up with a need for

1312
00:43:11,430 --> 00:43:10,560
it uh they'll be able to put a sensor

1313
00:43:12,790 --> 00:43:11,440

pack on

1314
00:43:14,069 --> 00:43:12,800
from a camera view standpoint the

1315
00:43:15,589 --> 00:43:14,079
station's pretty well outfitted with

1316
00:43:17,109 --> 00:43:15,599
cameras they have pretty good coverage

1317
00:43:18,870 --> 00:43:17,119
of what they need to see

1318
00:43:20,870 --> 00:43:18,880
it's really to get that extra reach of a

1319
00:43:22,710 --> 00:43:20,880
crewman in case you have to do any big

1320
00:43:24,309 --> 00:43:22,720
replacement tasks

1321
00:43:26,870 --> 00:43:24,319
one of the advantages this lets you get

1322
00:43:28,309 --> 00:43:26,880
to the outer segment solar arrays and it

1323
00:43:30,710 --> 00:43:28,319
also lets you get pretty far back on the

1324
00:43:33,270 --> 00:43:30,720
russian segment from the u.s base

1325
00:43:34,550 --> 00:43:33,280
of the of the ss rms the station arm so

1326
00:43:35,750 --> 00:43:34,560
it gives them some extra reach in case

1327
00:43:37,030 --> 00:43:35,760
they have a problem there's no planned

1328
00:43:39,430 --> 00:43:37,040
use for it but it's a good insurance

1329
00:43:41,829 --> 00:43:39,440
policy

1330
00:43:43,829 --> 00:43:41,839
over here mark boucher space ref for

1331
00:43:46,390 --> 00:43:43,839
either of the mics uh do you know what

1332
00:43:48,150 --> 00:43:46,400
caused the uh tile damage on the side

1333
00:43:50,230 --> 00:43:48,160
hatch

1334
00:43:52,150 --> 00:43:50,240
yeah we do it it's uh

1335
00:43:54,150 --> 00:43:52,160
there's a material called armalon which

1336
00:43:56,069 --> 00:43:54,160
is a sort of a protective film that we

1337
00:43:58,069 --> 00:43:56,079
put around the hatch

1338
00:44:00,950 --> 00:43:58,079

to protect the seals of the hatch while

1339
00:44:03,190 --> 00:44:00,960
it's open and once it goes closed it

1340
00:44:05,670 --> 00:44:03,200
just protects the seals and makes for

1341
00:44:06,950 --> 00:44:05,680
essentially a better fit those those

1342
00:44:08,630 --> 00:44:06,960
those particular

1343
00:44:10,790 --> 00:44:08,640
sheets of material have to be removed

1344
00:44:13,109 --> 00:44:10,800
before flight of course and so as they

1345
00:44:15,829 --> 00:44:13,119
were coming out one of them pulled off a

1346
00:44:17,349 --> 00:44:15,839
previous repair this this this piece of

1347
00:44:19,910 --> 00:44:17,359
tile that was damaged was it was a

1348
00:44:21,910 --> 00:44:19,920
previous repair all of it came out and

1349
00:44:22,950 --> 00:44:21,920
so we just put a little surface coating

1350
00:44:24,870 --> 00:44:22,960
on it

1351
00:44:27,589 --> 00:44:24,880
and we were good to go so we know what

1352
00:44:29,589 --> 00:44:27,599
caused it and we fixed it and and good

1353
00:44:30,710 --> 00:44:29,599
to go

1354
00:44:33,270 --> 00:44:30,720
right here

1355
00:44:35,670 --> 00:44:33,280
randy avera interspace news for mr

1356
00:44:37,430 --> 00:44:35,680
gertzemeyer as the shuttle program comes

1357
00:44:39,510 --> 00:44:37,440
to an end this summer

1358
00:44:41,190 --> 00:44:39,520
will nasa continue to do space shuttle

1359
00:44:43,990 --> 00:44:41,200
main engine research and development

1360
00:44:45,910 --> 00:44:44,000
down its dennis

1361
00:44:48,230 --> 00:44:45,920
we don't have any plans

1362
00:44:50,069 --> 00:44:48,240
to continue with main engine testing but

1363
00:44:51,990 --> 00:44:50,079

we are starting to test some of the new

1364
00:44:54,630 --> 00:44:52,000
engines that that are coming for the new

1365
00:44:57,109 --> 00:44:54,640
program the j2x engines there's some

1366
00:44:58,870 --> 00:44:57,119
turbo pumps and some other uh runs that

1367
00:45:00,870 --> 00:44:58,880
are going to be done here i i think in

1368
00:45:03,670 --> 00:45:00,880
the next several months down at stennis

1369
00:45:05,510 --> 00:45:03,680
in that area so there's no planned ssme

1370
00:45:07,829 --> 00:45:05,520
work or shuttle main engine work but

1371
00:45:09,750 --> 00:45:07,839
there are some plans for some of the new

1372
00:45:11,670 --> 00:45:09,760
lox hydrogen systems that we're planning

1373
00:45:14,309 --> 00:45:11,680
for the future future vehicles that are

1374
00:45:17,270 --> 00:45:14,319
coming coming down the road

1375
00:45:20,230 --> 00:45:17,280
seth seth bornstein ap again

1376
00:45:22,390 --> 00:45:20,240
um you mentioned 512 and 529 for the two

1377
00:45:24,870 --> 00:45:22,400
last losses of foam you said the first

1378
00:45:27,349 --> 00:45:24,880
two were small losses prior to

1379
00:45:28,550 --> 00:45:27,359
aerodynamic sensitive times what time

1380
00:45:30,550 --> 00:45:28,560
were those

1381
00:45:33,750 --> 00:45:30,560
how and were they any big and for mike

1382
00:45:38,790 --> 00:45:33,760
moses did i quite get you right did you

1383
00:45:43,510 --> 00:45:41,349
the first first lost was at two minutes

1384
00:45:46,710 --> 00:45:43,520
and six seconds and it looked like it

1385
00:45:48,870 --> 00:45:46,720
was on the ice frost ramp area

1386
00:45:51,910 --> 00:45:48,880
and the other one was two minutes and 14

1387
00:45:53,510 --> 00:45:51,920
seconds it was on the left-hand bipod

1388
00:45:55,510 --> 00:45:53,520

area of the tank

1389
00:45:58,470 --> 00:45:55,520
and the aerodynamic sensitive time is

1390
00:46:00,390 --> 00:45:58,480
two minutes and 15 seconds so so one was

1391
00:46:01,990 --> 00:46:00,400
just one second in front and the other

1392
00:46:03,829 --> 00:46:02,000
one was

1393
00:46:05,430 --> 00:46:03,839
nine seconds in front

1394
00:46:06,630 --> 00:46:05,440
and so for me no i didn't miss the

1395
00:46:08,230 --> 00:46:06,640
launch you know the main engines light

1396
00:46:10,710 --> 00:46:08,240
up six seconds before the boosters go

1397
00:46:12,150 --> 00:46:10,720
and so in that six seconds uh i'm

1398
00:46:14,069 --> 00:46:12,160
watching the tv not looking out the

1399
00:46:15,510 --> 00:46:14,079
window where most of the well actually

1400
00:46:16,870 --> 00:46:15,520
it's probably half and half

1401
00:46:17,910 --> 00:46:16,880
the guys on the consoles are looking at

1402
00:46:19,829 --> 00:46:17,920
their data they're not looking out the

1403
00:46:21,349 --> 00:46:19,839
window but uh the management types tend

1404
00:46:23,190 --> 00:46:21,359
to look out the window so for that first

1405
00:46:25,349 --> 00:46:23,200
six seconds i was watching the

1406
00:46:26,390 --> 00:46:25,359
i was watching the tv and for the first

1407
00:46:28,390 --> 00:46:26,400
three or four of those seconds i was

1408
00:46:29,109 --> 00:46:28,400
watching the wrong tv channel

1409
00:46:30,550 --> 00:46:29,119
so

1410
00:46:32,309 --> 00:46:30,560
i did get turned around in time to see

1411
00:46:33,670 --> 00:46:32,319
the boosters light and

1412
00:46:35,430 --> 00:46:33,680
the ship lift off

1413
00:46:36,309 --> 00:46:35,440

we'll wrap it up with a question from

1414
00:46:39,990 --> 00:46:36,319
jim

1415
00:46:41,510 --> 00:46:40,000
again

1416
00:46:44,150 --> 00:46:41,520
bill gerstenmaier

1417
00:46:46,550 --> 00:46:44,160
there was a report in the media a few

1418
00:46:48,550 --> 00:46:46,560
days ago about a

1419
00:46:51,910 --> 00:46:48,560
i guess i would say a proposal being

1420
00:46:52,630 --> 00:46:51,920
knocked around in nasa uh that hadn't

1421
00:46:54,630 --> 00:46:52,640
been

1422
00:46:57,349 --> 00:46:54,640
floated yet to congress but in essence

1423
00:46:59,190 --> 00:46:57,359
it was taking the orion capsule putting

1424
00:47:01,270 --> 00:46:59,200
it on top of an external tank or

1425
00:47:02,950 --> 00:47:01,280
something like that putting rocket

1426
00:47:04,309 --> 00:47:02,960
motors at the bottom of it having a

1427
00:47:06,150 --> 00:47:04,319
couple of

1428
00:47:08,390 --> 00:47:06,160
rocket boosters attached to this as a

1429
00:47:10,230 --> 00:47:08,400
whole assembly

1430
00:47:12,790 --> 00:47:10,240
is is that a a viable thing that's

1431
00:47:14,710 --> 00:47:12,800
really been being considered and would

1432
00:47:16,950 --> 00:47:14,720
it represent a kind of continuation of

1433
00:47:18,870 --> 00:47:16,960
this of the shuttle program from your

1434
00:47:20,630 --> 00:47:18,880
point of view

1435
00:47:22,870 --> 00:47:20,640
you know kind of what we're doing or

1436
00:47:23,670 --> 00:47:22,880
what the the new programs are looking at

1437
00:47:25,190 --> 00:47:23,680
is

1438
00:47:27,190 --> 00:47:25,200

you know we've been asked to write a

1439
00:47:29,589 --> 00:47:27,200
report for congress in which we gave an

1440
00:47:30,870 --> 00:47:29,599
initial aversion to congress in january

1441
00:47:33,109 --> 00:47:30,880
and then we were due to give them

1442
00:47:35,270 --> 00:47:33,119
another update sometime in the june july

1443
00:47:37,030 --> 00:47:35,280
time frame so the teams have been off

1444
00:47:39,510 --> 00:47:37,040
looking at a whole variety of different

1445
00:47:41,430 --> 00:47:39,520
configurations of

1446
00:47:43,349 --> 00:47:41,440
hardware that we could put together to

1447
00:47:45,030 --> 00:47:43,359
go essentially go fly

1448
00:47:47,910 --> 00:47:45,040
and it's not only hardware but we're

1449
00:47:49,670 --> 00:47:47,920
also looking at what workforce is needed

1450
00:47:51,430 --> 00:47:49,680
what skill base is around in the country

1451
00:47:53,670 --> 00:47:51,440
to support these things which sub

1452
00:47:55,750 --> 00:47:53,680
vendors are available that's smaller

1453
00:47:57,190 --> 00:47:55,760
providers of hardware components we're

1454
00:47:59,109 --> 00:47:57,200
looking at all those and then we're

1455
00:48:00,790 --> 00:47:59,119
trying to also see the missions we want

1456
00:48:02,790 --> 00:48:00,800
to go do you know we're trying to have

1457
00:48:05,430 --> 00:48:02,800
the ability to potentially go to the

1458
00:48:07,270 --> 00:48:05,440
moon go to a near-earth asteroid go to

1459
00:48:09,190 --> 00:48:07,280
geosynchronous orbit potentially do some

1460
00:48:10,790 --> 00:48:09,200
repair repair of a satellite in

1461
00:48:12,870 --> 00:48:10,800
geosynchronous orbit

1462
00:48:14,790 --> 00:48:12,880
may go to mars ultimately we have a

1463
00:48:17,109 --> 00:48:14,800

whole bunch of destinations so the idea

1464
00:48:19,190 --> 00:48:17,119
is how can we build a

1465
00:48:22,710 --> 00:48:19,200
sense of generic system that can support

1466
00:48:24,790 --> 00:48:22,720
all those those objectives in the future

1467
00:48:26,710 --> 00:48:24,800
but the the balancing act is we have to

1468
00:48:28,390 --> 00:48:26,720
not build the perfect system that

1469
00:48:30,309 --> 00:48:28,400
supports the future but it takes us

1470
00:48:32,630 --> 00:48:30,319
forever to get there so we're trying to

1471
00:48:34,950 --> 00:48:32,640
look and see what systems we can use

1472
00:48:37,109 --> 00:48:34,960
today how we can advance those systems

1473
00:48:38,150 --> 00:48:37,119
move them forward put them together

1474
00:48:40,630 --> 00:48:38,160
and then

1475
00:48:41,829 --> 00:48:40,640
do something fairly soon not necessarily

1476
00:48:43,589 --> 00:48:41,839
a test flight but actually a

1477
00:48:45,270 --> 00:48:43,599
demonstration or a mission kind of

1478
00:48:47,270 --> 00:48:45,280
activity so we're looking to try to

1479
00:48:48,790 --> 00:48:47,280
actually focus some early mission things

1480
00:48:50,790 --> 00:48:48,800
potentially something to a

1481
00:48:52,309 --> 00:48:50,800
geosynchronous orbit potentially around

1482
00:48:54,150 --> 00:48:52,319
the moon kind of thing those kind of

1483
00:48:56,150 --> 00:48:54,160
things that would not only check out the

1484
00:48:58,150 --> 00:48:56,160
hardware that we're building but also

1485
00:48:59,910 --> 00:48:58,160
give us real data that pushes us in the

1486
00:49:01,990 --> 00:48:59,920
right direction so what the teams are

1487
00:49:04,150 --> 00:49:02,000
doing is they're evaluating a ton of

1488
00:49:06,230 --> 00:49:04,160

concepts so there's a whole bunch of

1489
00:49:07,990 --> 00:49:06,240
different analysis going on a bunch of

1490
00:49:10,150 --> 00:49:08,000
different evaluations going on and we're

1491
00:49:11,190 --> 00:49:10,160
trading all these things back and forth

1492
00:49:12,710 --> 00:49:11,200
you know we've been doing it for the

1493
00:49:15,109 --> 00:49:12,720
past several months so every once in a

1494
00:49:17,109 --> 00:49:15,119
while one of those gets

1495
00:49:19,109 --> 00:49:17,119
pushed out to the media the media takes

1496
00:49:21,270 --> 00:49:19,119
it and then provides us their feedback

1497
00:49:23,190 --> 00:49:21,280
on what it is and we evaluate that

1498
00:49:24,950 --> 00:49:23,200
feedback along with the stuff we get

1499
00:49:26,630 --> 00:49:24,960
from our engineers and sometimes we have

1500
00:49:28,230 --> 00:49:26,640
the exact same feeling that the media

1501
00:49:30,470 --> 00:49:28,240
does and then you know where that

1502
00:49:31,829 --> 00:49:30,480
configuration stands so we continue to

1503
00:49:33,270 --> 00:49:31,839
work through all these options and

1504
00:49:34,950 --> 00:49:33,280
trades we'll do that probably for the

1505
00:49:36,950 --> 00:49:34,960
next month or so and then we'll try to

1506
00:49:38,470 --> 00:49:36,960
get a plan to congress of where we want

1507
00:49:40,710 --> 00:49:38,480
to go and how we want to move forward

1508
00:49:42,950 --> 00:49:40,720
but we see a real need to do this in an

1509
00:49:44,309 --> 00:49:42,960
expedient manner to capture the great

1510
00:49:46,470 --> 00:49:44,319
work we've got in place the great

1511
00:49:48,230 --> 00:49:46,480
hardware we've got but but also give us

1512
00:49:50,069 --> 00:49:48,240
a plan that is really supportable in the

1513
00:49:51,990 --> 00:49:50,079

future that allows us to keep doing this

1514
00:49:53,670 --> 00:49:52,000
next stage which is to do exploration

1515
00:49:55,910 --> 00:49:53,680
beyond low earth orbit and that's where

1516
00:49:57,910 --> 00:49:55,920
we're headed so so near term the focus

1517
00:49:59,430 --> 00:49:57,920
is really on station to utilize the heck

1518
00:50:01,349 --> 00:49:59,440
out of station and really get good

1519
00:50:03,109 --> 00:50:01,359
research on station we'll continue to do

1520
00:50:04,950 --> 00:50:03,119
that with our russian partners but then

1521
00:50:06,069 --> 00:50:04,960
at the same time build a concrete plan

1522
00:50:07,430 --> 00:50:06,079
on how we're going to get beyond low

1523
00:50:10,870 --> 00:50:07,440
earth orbit and that's what we're

1524
00:50:12,309 --> 00:50:10,880
working on over the next couple months

1525
00:50:14,230 --> 00:50:12,319
all right thank you all for coming now

1526
00:50:15,910 --> 00:50:14,240
that uh space shuttle endeavour has

1527
00:50:17,670 --> 00:50:15,920
launched nasa television will be

1528
00:50:18,710 --> 00:50:17,680
providing nearly continuous coverage of

1529
00:50:21,109 --> 00:50:18,720
the mission

1530
00:50:22,549 --> 00:50:21,119
through landing here on nasa tv and also

1531
00:50:24,829 --> 00:50:22,559
you can keep up with the mission on our

1532
00:50:26,470 --> 00:50:24,839
website at

1533
00:50:29,030 --> 00:50:26,480
www.nasa.gov

1534
00:50:30,790 --> 00:50:29,040
shuttle and a reminder that here on nasa

1535
00:50:32,710 --> 00:50:30,800
television immediately following this

1536
00:50:34,309 --> 00:50:32,720
briefing in this same very room at

1537
00:50:36,309 --> 00:50:34,319
kennedy space center will be a briefing

1538
00:50:37,190 --> 00:50:36,319

with congresswoman gabrielle gifford's