1
00:00:09,509 --> 00:00:07,269
good afternoon and welcome to nasa's

2
00:00:12,070 --> 00:00:09,519
johnson space center for today's mission

3
00:00:14,150 --> 00:00:12,080
management team briefing for the sts-132

4
00:00:15,749 --> 00:00:14,160
flight for the briefing we have leroy

5
00:00:17,670 --> 00:00:15,759
kane who is the chairman of the mission

6
00:00:19,109 --> 00:00:17,680
management team and also the deputy

7
00:00:20,950 --> 00:00:19,119
program manager for the space shuttle

8
00:00:24,230 --> 00:00:20,960
program so we'll open up with comments

9
00:00:25,750 --> 00:00:24,240
from leroy and then take questions

10
00:00:27,349 --> 00:00:25,760
okay thank you kylie

11
00:00:29,910 --> 00:00:27,359
well it's really great to be back in

12
00:00:31,589 --> 00:00:29,920
orbit atlantis and the atlantis crew are

13
00:00:35,270 --> 00:00:31,599

doing very well today

14
00:00:37,350 --> 00:00:35,280
we had just a flawless uh launch

15
00:00:39,670 --> 00:00:37,360
and ascent yesterday from the kennedy

16
00:00:41,590 --> 00:00:39,680
space center and the crew got on orbit

17
00:00:43,750 --> 00:00:41,600
and proceeded into their flight day one

18
00:00:45,510 --> 00:00:43,760
activities

19
00:00:47,029 --> 00:00:45,520
orbiter has been performing

20
00:00:49,510 --> 00:00:47,039
exceptionally well

21
00:00:51,990 --> 00:00:49,520
and and the crew today

22
00:00:54,069 --> 00:00:52,000
was into their normal flight day 2

23
00:00:55,430 --> 00:00:54,079
activities to include

24
00:00:58,950 --> 00:00:55,440
the

25
00:01:01,510 --> 00:00:58,960
system and

26
00:01:03,270 --> 00:01:01,520
their normal preparation for rendezvous

27
00:01:05,030 --> 00:01:03,280
and docking with the international space

28
00:01:07,270 --> 00:01:05,040
station tomorrow so

29
00:01:09,830 --> 00:01:07,280
all of that is is ongoing

30
00:01:12,710 --> 00:01:09,840
and we're looking forward to to being

31
00:01:14,149 --> 00:01:12,720
back at space station tomorrow

32
00:01:15,830 --> 00:01:14,159
in the mission management team today we

33
00:01:18,070 --> 00:01:15,840
had we talked about a couple of items

34
00:01:19,910 --> 00:01:18,080
one of the items has to do with the

35
00:01:21,270 --> 00:01:19,920
inspection system

36
00:01:23,590 --> 00:01:21,280
that we use

37
00:01:25,670 --> 00:01:23,600
to to look at

38
00:01:27,670 --> 00:01:25,680

in this case atlantis thermal protection

39
00:01:32,469 --> 00:01:27,680
system

40
00:01:34,310 --> 00:01:32,479
attach to the orbiter robot arm

41
00:01:36,149 --> 00:01:34,320
the orbiter boom system on the end of

42
00:01:38,710 --> 00:01:36,159
that boom extension

43
00:01:40,710 --> 00:01:38,720
there is a sensor package a suite of

44
00:01:42,789 --> 00:01:40,720
sensors actually

45
00:01:44,069 --> 00:01:42,799
there's a there's a camera a digital

46
00:01:46,950 --> 00:01:44,079
camera

47
00:01:48,069 --> 00:01:46,960
as well as a laser imaging system

48
00:01:50,469 --> 00:01:48,079
and

49
00:01:53,190 --> 00:01:50,479
the laser imaging system has a pan tilt

50
00:01:55,590 --> 00:01:53,200
system that's used so that we can move

51
00:01:57,270 --> 00:01:55,600
it around and and scan the various areas

52
00:01:59,590 --> 00:01:57,280
that we're looking at

53
00:02:01,990 --> 00:01:59,600
the issue is with that pan tilt system

54
00:02:04,230 --> 00:02:02,000
specifically the tilt

55
00:02:06,630 --> 00:02:04,240
it appears that there is a cable that is

56
00:02:09,510 --> 00:02:06,640
out of configuration

57
00:02:11,190 --> 00:02:09,520
in a way such that it is causing some

58
00:02:12,390 --> 00:02:11,200
interference when we try to tilt that

59
00:02:14,390 --> 00:02:12,400
unit

60
00:02:16,070 --> 00:02:14,400
and so the team worked through this

61
00:02:18,869 --> 00:02:16,080
problem this morning as the crew got

62
00:02:21,910 --> 00:02:18,879
into the uh the inspection procedures

63
00:02:23,910 --> 00:02:21,920

and they very quickly determined that uh

64
00:02:25,510 --> 00:02:23,920
with without going outside there wasn't

65
00:02:27,910 --> 00:02:25,520
going to be any way to

66
00:02:29,990 --> 00:02:27,920
to rectify this problem and so they

67
00:02:33,589 --> 00:02:30,000
downloaded to uh

68
00:02:34,949 --> 00:02:33,599
to using the digital camera to do the uh

69
00:02:37,589 --> 00:02:34,959
the inspections

70
00:02:39,750 --> 00:02:37,599
and that is a procedure that

71
00:02:41,430 --> 00:02:39,760
the crew is trained to do and

72
00:02:42,710 --> 00:02:41,440
it's a published procedure it's part of

73
00:02:44,790 --> 00:02:42,720
the flight rules

74
00:02:46,229 --> 00:02:44,800
that we've documented before the mission

75
00:02:47,350 --> 00:02:46,239
so that in the event we have a problem

76
00:02:49,430 --> 00:02:47,360
with the

77
00:02:51,110 --> 00:02:49,440
laser imaging system

78
00:02:53,509 --> 00:02:51,120
we just go ahead and do the scans using

79
00:02:55,030 --> 00:02:53,519
the digital camera system

80
00:02:57,030 --> 00:02:55,040
part of the

81
00:02:59,430 --> 00:02:57,040
as a result of that part of

82
00:03:01,110 --> 00:02:59,440
the impact will be that we were not able

83
00:03:03,990 --> 00:03:01,120
to get the

84
00:03:06,229 --> 00:03:04,000
the port wing completely scanned today

85
00:03:07,430 --> 00:03:06,239
and so while we normally like to get all

86
00:03:09,670 --> 00:03:07,440
of the

87
00:03:10,949 --> 00:03:09,680
starboard wing the nose cap and the port

88
00:03:12,710 --> 00:03:10,959

wing

89
00:03:14,390 --> 00:03:12,720
areas where the reinforced carbon carbon

90
00:03:15,750 --> 00:03:14,400
is as part of this flight day two

91
00:03:16,710 --> 00:03:15,760
inspection we normally try to get that

92
00:03:19,110 --> 00:03:16,720
all done

93
00:03:21,589 --> 00:03:19,120
we weren't able to complete that so

94
00:03:23,990 --> 00:03:21,599
we will complete

95
00:03:25,670 --> 00:03:24,000
the scans and do inspect complete the

96
00:03:27,509 --> 00:03:25,680
inspection of the port wing

97
00:03:29,430 --> 00:03:27,519
once we get in dot once we get docked to

98
00:03:31,509 --> 00:03:29,440
the international space station

99
00:03:33,990 --> 00:03:31,519
and that will that will be sometime in

100
00:03:35,670 --> 00:03:34,000
the coming days and so the the team is

101
00:03:37,270 --> 00:03:35,680
off working the forward plan for exactly

102
00:03:38,630 --> 00:03:37,280
which systems we want to use to complete

103
00:03:40,630 --> 00:03:38,640
that inspection

104
00:03:41,750 --> 00:03:40,640
and uh and where it'll fit best into the

105
00:03:45,110 --> 00:03:41,760
timeline

106
00:03:47,589 --> 00:03:45,120
and we don't we don't have any issues

107
00:03:49,670 --> 00:03:47,599
with that it'll just be a timeline

108
00:03:51,030 --> 00:03:49,680
impact at this point

109
00:03:52,710 --> 00:03:51,040
the other topic that we talked a little

110
00:03:54,630 --> 00:03:52,720
bit about is and i think you may have

111
00:03:57,429 --> 00:03:54,640
heard that the space station for the

112
00:03:59,190 --> 00:03:57,439
last couple of days has been working

113
00:04:00,869 --> 00:03:59,200

an issue with

114
00:04:01,830 --> 00:04:00,879
debris

115
00:04:02,949 --> 00:04:01,840
as we

116
00:04:03,990 --> 00:04:02,959
always do

117
00:04:08,630 --> 00:04:04,000
we

118
00:04:11,190 --> 00:04:08,640
to be concerned with and that sometimes

119
00:04:12,949 --> 00:04:11,200
we have to do maneuvers

120
00:04:16,150 --> 00:04:12,959
and in this case the space station

121
00:04:18,069 --> 00:04:16,160
program has been looking at an object

122
00:04:20,629 --> 00:04:18,079
that they were alerted to

123
00:04:23,749 --> 00:04:20,639
and so they've got a plan to do a debris

124
00:04:26,710 --> 00:04:23,759
avoidance movement maneuver tonight

125
00:04:29,189 --> 00:04:26,720
the time of closest approach is actually

126
00:04:31,510 --> 00:04:29,199
would be after atlantis shows up

127
00:04:34,790 --> 00:04:31,520
tomorrow and and after we dock

128
00:04:36,790 --> 00:04:34,800
sometime in the hour or hour and a half

129
00:04:39,030 --> 00:04:36,800
after we dock would be the time of

130
00:04:40,230 --> 00:04:39,040
closest approach if they should not do

131
00:04:42,710 --> 00:04:40,240
any kind of

132
00:04:44,390 --> 00:04:42,720
debris avoidance maneuvers so um they've

133
00:04:46,310 --> 00:04:44,400
elected to go ahead and do a maneuver

134
00:04:47,670 --> 00:04:46,320
and uh proactively get us out of the

135
00:04:51,670 --> 00:04:47,680
situation where

136
00:04:54,230 --> 00:04:51,680
um we might be at some risk of of uh

137
00:04:56,790 --> 00:04:54,240
of having uh an object come closer to us

138
00:04:58,550 --> 00:04:56,800

than what we would like so

139
00:05:00,150 --> 00:04:58,560
they have not made a final decision to

140
00:05:01,350 --> 00:05:00,160
do the maneuver they have all the plans

141
00:05:02,950 --> 00:05:01,360
in place

142
00:05:04,310 --> 00:05:02,960
to execute the maneuver if they decide

143
00:05:05,830 --> 00:05:04,320
they need it they'll they'll take a

144
00:05:07,830 --> 00:05:05,840
little bit more time and get

145
00:05:10,390 --> 00:05:07,840
some more vectors and a little bit more

146
00:05:12,710 --> 00:05:10,400
data on the time of closest approach

147
00:05:14,310 --> 00:05:12,720
and the exact

148
00:05:16,310 --> 00:05:14,320
predictions for

149
00:05:17,670 --> 00:05:16,320
for the missed distance and then they'll

150
00:05:19,510 --> 00:05:17,680
compare that to their flight rules and

151
00:05:21,189 --> 00:05:19,520
they'll make a final decision

152
00:05:23,830 --> 00:05:21,199
and if they should do the maneuver it

153
00:05:25,430 --> 00:05:23,840
will be tonight it'll be

154
00:05:27,749 --> 00:05:25,440
sometime between eight and nine pm

155
00:05:29,670 --> 00:05:27,759
central time if they if they decide to

156
00:05:31,670 --> 00:05:29,680
execute the maneuver so

157
00:05:34,710 --> 00:05:31,680
that's not an impact for us

158
00:05:37,590 --> 00:05:34,720
as far as the shuttle is concerned

159
00:05:39,590 --> 00:05:37,600
whatever the resulting state vectors are

160
00:05:41,350 --> 00:05:39,600
between the shuttle and station

161
00:05:43,350 --> 00:05:41,360
we'll determine that

162
00:05:45,670 --> 00:05:43,360
later tonight and in the morning as we

163
00:05:47,909 --> 00:05:45,680

do as part of our ongoing process part

164
00:05:49,909 --> 00:05:47,919
of the ongoing tracking process for both

165
00:05:52,150 --> 00:05:49,919
vehicles as we prepare

166
00:05:52,870 --> 00:05:52,160
for the rendezvous and docking tomorrow

167
00:05:55,029 --> 00:05:52,880
so

168
00:05:57,590 --> 00:05:55,039
really not an issue but just a topic of

169
00:05:59,590 --> 00:05:57,600
discussion and more for awareness for us

170
00:06:02,390 --> 00:05:59,600
on the shuttle side so

171
00:06:04,150 --> 00:06:02,400
other than those two items the

172
00:06:06,469 --> 00:06:04,160
as i said the orbiter is performing

173
00:06:08,629 --> 00:06:06,479
exceedingly well we know from some of

174
00:06:11,189 --> 00:06:08,639
our very preliminary

175
00:06:13,270 --> 00:06:11,199
um assessment of the

176
00:06:14,710 --> 00:06:13,280
of the of the other flight elements to

177
00:06:15,749 --> 00:06:14,720
include the tank and the solid rocket

178
00:06:17,990 --> 00:06:15,759
boosters

179
00:06:19,590 --> 00:06:18,000
uh and the shuttle main engines um the

180
00:06:21,350 --> 00:06:19,600
space shuttle main engines we know that

181
00:06:23,110 --> 00:06:21,360
the performance of all the propulsion

182
00:06:25,749 --> 00:06:23,120
elements looks very good

183
00:06:27,670 --> 00:06:25,759
um and so we'll obviously look more at

184
00:06:29,830 --> 00:06:27,680
that as we go through the mission and in

185
00:06:31,830 --> 00:06:29,840
post flight but preliminarily it looks

186
00:06:34,550 --> 00:06:31,840
like the performance overall

187
00:06:35,990 --> 00:06:34,560
of the entire sts vehicle was uh was

188
00:06:38,390 --> 00:06:36,000

very very good so

189
00:06:40,230 --> 00:06:38,400
we're again glad to be here on orbit and

190
00:06:41,990 --> 00:06:40,240
and looking forward to to getting docked

191
00:06:44,309 --> 00:06:42,000
with space station tomorrow and getting

192
00:06:46,870 --> 00:06:44,319
on with the work of this mission

193
00:06:47,990 --> 00:06:46,880
and i'd be happy to take any questions

194
00:06:49,189 --> 00:06:48,000
thank you leroy we'll start with

195
00:06:51,749 --> 00:06:49,199
questions here at the johnson space

196
00:06:53,350 --> 00:06:51,759
center go ahead oh thank you mark caro

197
00:06:54,469 --> 00:06:53,360
for aviation week

198
00:06:57,189 --> 00:06:54,479
um

199
00:06:59,189 --> 00:06:57,199
i want to sort of understand i

200
00:07:00,790 --> 00:06:59,199
think i do what you said about forward

201
00:07:03,510 --> 00:07:00,800
inspection of the left wing will you

202
00:07:05,430 --> 00:07:03,520
actually use the boom sensor system

203
00:07:08,150 --> 00:07:05,440
after they've docked to look at the wing

204
00:07:11,189 --> 00:07:08,160
or some other technique

205
00:07:13,589 --> 00:07:11,199
we won't use the boom sensor system

206
00:07:15,270 --> 00:07:13,599
the there are several options

207
00:07:17,350 --> 00:07:15,280
to include that

208
00:07:19,270 --> 00:07:17,360
but what we really

209
00:07:20,629 --> 00:07:19,280
in this case can do since it's the port

210
00:07:22,550 --> 00:07:20,639
wing is we can

211
00:07:23,430 --> 00:07:22,560
we can do the inspection and complete it

212
00:07:25,830 --> 00:07:23,440
with

213
00:07:28,230 --> 00:07:25,840

by simply using the shuttle arm

214
00:07:29,510 --> 00:07:28,240
the srms shuttle robotic maneuvering

215
00:07:31,589 --> 00:07:29,520
system

216
00:07:33,990 --> 00:07:31,599
and the end effector camera that it that

217
00:07:36,950 --> 00:07:34,000
is already on the shuttle arm

218
00:07:39,670 --> 00:07:36,960
we know from from previous experience

219
00:07:40,950 --> 00:07:39,680
and from looking at these

220
00:07:42,790 --> 00:07:40,960
particular

221
00:07:46,390 --> 00:07:42,800
scenarios before

222
00:07:48,629 --> 00:07:46,400
that we can get adequate scans and

223
00:07:51,189 --> 00:07:48,639
imagery

224
00:07:53,270 --> 00:07:51,199
of that entire portion of the of the

225
00:07:55,270 --> 00:07:53,280
port wing since it's on the same side as

226
00:07:56,869 --> 00:07:55,280
the the shuttle robotic arm

227
00:07:59,830 --> 00:07:56,879
just using that arm and the end effector

228
00:08:02,469 --> 00:07:59,840
camera so it's really a good bit simpler

229
00:08:03,830 --> 00:08:02,479
in terms of uh logistically being able

230
00:08:05,830 --> 00:08:03,840
to do the inspection so that's that's

231
00:08:08,070 --> 00:08:05,840
one of the options it's probably the

232
00:08:11,029 --> 00:08:08,080
premier or the leading option that we're

233
00:08:13,110 --> 00:08:11,039
we'll be looking at going forward

234
00:08:14,230 --> 00:08:13,120
and i had a second question regarding

235
00:08:15,270 --> 00:08:14,240
the object

236
00:08:17,029 --> 00:08:15,280
um

237
00:08:19,350 --> 00:08:17,039
it seems like it's

238
00:08:21,589 --> 00:08:19,360

there's been a lot of

239
00:08:23,909 --> 00:08:21,599
you've used a lot of time to sort of

240
00:08:26,550 --> 00:08:23,919
assess this object in its

241
00:08:28,230 --> 00:08:26,560
motion and the proximity and i wonder if

242
00:08:29,110 --> 00:08:28,240
you could sort of explain

243
00:08:31,350 --> 00:08:29,120
um

244
00:08:33,190 --> 00:08:31,360
yeah i'm not trying to say you didn't

245
00:08:35,110 --> 00:08:33,200
didn't side fast enough i'm just trying

246
00:08:37,509 --> 00:08:35,120
to sort of explain why it takes this

247
00:08:38,949 --> 00:08:37,519
long in this case to really make a

248
00:08:40,949 --> 00:08:38,959
decision as to whether you need to

249
00:08:43,829 --> 00:08:40,959
maneuver or not

250
00:08:45,829 --> 00:08:43,839
well in my experience every uh every

251
00:08:48,389 --> 00:08:45,839
degree of warden's case is a little bit

252
00:08:50,550 --> 00:08:48,399
different these uh in some cases these

253
00:08:52,550 --> 00:08:50,560
are objects that

254
00:08:54,230 --> 00:08:52,560
spend a good bit of their time in low

255
00:08:56,230 --> 00:08:54,240
earth orbit that is to say they're

256
00:08:57,590 --> 00:08:56,240
they're also in circular or more or less

257
00:08:59,750 --> 00:08:57,600
circular orbits

258
00:09:02,550 --> 00:08:59,760
in other cases they're highly elliptical

259
00:09:04,949 --> 00:09:02,560
or somewhat or mostly elliptical

260
00:09:06,790 --> 00:09:04,959
um you know you know there's a wide

261
00:09:08,470 --> 00:09:06,800
range of

262
00:09:09,670 --> 00:09:08,480
of scenarios

263
00:09:11,670 --> 00:09:09,680

and so

264
00:09:14,070 --> 00:09:11,680
the tracking and the consistency of the

265
00:09:17,990 --> 00:09:14,080
tracking of the objects

266
00:09:20,070 --> 00:09:18,000
when you begin to to try to compare

267
00:09:21,030 --> 00:09:20,080
the state vectors or the position in

268
00:09:22,949 --> 00:09:21,040
space

269
00:09:25,430 --> 00:09:22,959
between the objects of concern in this

270
00:09:26,550 --> 00:09:25,440
case this piece of debris being one of

271
00:09:29,430 --> 00:09:26,560
the objects

272
00:09:31,509 --> 00:09:29,440
and and the space station

273
00:09:33,910 --> 00:09:31,519
being the other object when you when you

274
00:09:34,829 --> 00:09:33,920
start to compare

275
00:09:43,910 --> 00:09:34,839
the

276
00:09:46,150 --> 00:09:43,920
be and that kind of thing

277
00:09:48,389 --> 00:09:46,160
there are perturbations to that

278
00:09:52,070 --> 00:09:48,399
um those perturbations

279
00:09:52,949 --> 00:09:52,080
also vary widely as a function of

280
00:09:55,190 --> 00:09:52,959
um

281
00:09:56,310 --> 00:09:55,200
the geometry of the object the mass of

282
00:09:58,949 --> 00:09:56,320
the object

283
00:10:00,870 --> 00:09:58,959
and and what kind of orbit it's in

284
00:10:03,110 --> 00:10:00,880
so

285
00:10:05,190 --> 00:10:03,120
there are no two debris avoidance cases

286
00:10:07,910 --> 00:10:05,200
that that really are very much alike

287
00:10:10,069 --> 00:10:07,920
except that we track the objects we

288
00:10:11,509 --> 00:10:10,079

track them for as long as we can and get

289
00:10:14,230 --> 00:10:11,519
as much data

290
00:10:16,069 --> 00:10:14,240
as we can and make a decision

291
00:10:17,750 --> 00:10:16,079
as late as we can

292
00:10:18,949 --> 00:10:17,760
safely

293
00:10:21,110 --> 00:10:18,959
as to whether or not we need to move

294
00:10:23,269 --> 00:10:21,120
maneuver out of the way or not and i say

295
00:10:26,310 --> 00:10:23,279
we track the objects

296
00:10:28,949 --> 00:10:26,320
we nasa don't track the objects we are

297
00:10:31,590 --> 00:10:28,959
made aware of objects

298
00:10:33,990 --> 00:10:31,600
as they are tracked by other

299
00:10:35,670 --> 00:10:34,000
by other entities so

300
00:10:37,350 --> 00:10:35,680
that's kind of how the process works in

301
00:10:39,350 --> 00:10:37,360
this case

302
00:10:41,670 --> 00:10:39,360
there are enough variables with this

303
00:10:43,750 --> 00:10:41,680
object apparently

304
00:10:44,870 --> 00:10:43,760
that make it a little bit more difficult

305
00:10:49,829 --> 00:10:44,880
to

306
00:10:53,269 --> 00:10:49,839
it's also possible that since it's not

307
00:10:54,630 --> 00:10:53,279
easy to maneuver the space station um

308
00:10:56,550 --> 00:10:54,640
it's not easy

309
00:10:57,990 --> 00:10:56,560
in terms of being able to make the

310
00:11:01,350 --> 00:10:58,000
decision because of what it costs you to

311
00:11:03,030 --> 00:11:01,360
do it potentially

312
00:11:03,990 --> 00:11:03,040
you want to take as much time as you can

313
00:11:06,870 --> 00:11:04,000

and you want to make sure that you

314
00:11:09,590 --> 00:11:06,880
really need to maneuver before you do

315
00:11:12,150 --> 00:11:09,600
so there are a lot of factors mark and

316
00:11:13,590 --> 00:11:12,160
i couldn't say for sure in this case

317
00:11:18,230 --> 00:11:13,600
which one of those factors would be

318
00:11:21,269 --> 00:11:19,110
question

319
00:11:24,069 --> 00:11:21,279
phillips loss with nasa spaceflight.com

320
00:11:25,990 --> 00:11:24,079
uh first question is uh what's what's

321
00:11:29,509 --> 00:11:26,000
your decision time for the for the

322
00:11:31,750 --> 00:11:29,519
debris avoidance maneuver tonight

323
00:11:33,430 --> 00:11:31,760
the decision time is really in this case

324
00:11:35,190 --> 00:11:33,440
since the shuttle is coming

325
00:11:37,670 --> 00:11:35,200
to station

326
00:11:40,310 --> 00:11:37,680
we don't want to perturb the rendezvous

327
00:11:43,030 --> 00:11:40,320
profile any more than is necessary

328
00:11:44,470 --> 00:11:43,040
so we have what's called an nh burn

329
00:11:46,630 --> 00:11:44,480
that's a big burn

330
00:11:48,389 --> 00:11:46,640
uh big in terms of the importance of it

331
00:11:49,509 --> 00:11:48,399
relative to the the success of the

332
00:11:51,110 --> 00:11:49,519
rendezvous

333
00:11:52,710 --> 00:11:51,120
and that burn right now is scheduled for

334
00:11:54,069 --> 00:11:52,720
about four o'clock in the morning local

335
00:11:58,310 --> 00:11:54,079
time tomorrow

336
00:12:00,790 --> 00:11:58,320
our flight rules say that we want to

337
00:12:03,030 --> 00:12:00,800
um if necessary

338
00:12:04,870 --> 00:12:03,040

station should should do a maneuver no

339
00:12:05,990 --> 00:12:04,880
later than eight hours prior to that

340
00:12:07,990 --> 00:12:06,000
burn

341
00:12:10,710 --> 00:12:08,000
that eight hours is based on the amount

342
00:12:13,110 --> 00:12:10,720
of time it takes for the flight dynamics

343
00:12:15,110 --> 00:12:13,120
officers to track out

344
00:12:16,550 --> 00:12:15,120
any differences or changes in the state

345
00:12:18,470 --> 00:12:16,560
vector between the shuttle and the space

346
00:12:20,790 --> 00:12:18,480
station so that we can we can

347
00:12:22,550 --> 00:12:20,800
successfully set up the

348
00:12:25,590 --> 00:12:22,560
maneuvers and the burns that are

349
00:12:26,470 --> 00:12:25,600
required for us to catch up to station

350
00:12:30,150 --> 00:12:26,480
and

351
00:12:31,030 --> 00:12:30,160
do

352
00:12:33,190 --> 00:12:31,040
so

353
00:12:35,269 --> 00:12:33,200
if you back up that time frame

354
00:12:36,949 --> 00:12:35,279
that gets you to about 8 pm

355
00:12:39,509 --> 00:12:36,959
local time tonight

356
00:12:41,110 --> 00:12:39,519
however that's just the time to actually

357
00:12:43,110 --> 00:12:41,120
execute the burn

358
00:12:44,710 --> 00:12:43,120
in order for station

359
00:12:46,550 --> 00:12:44,720
to execute a burn there's a number of

360
00:12:47,350 --> 00:12:46,560
configuration changes that they need to

361
00:12:49,030 --> 00:12:47,360
make

362
00:12:50,629 --> 00:12:49,040
things like

363
00:12:52,470 --> 00:12:50,639

feathering the solar arrays and

364
00:12:53,430 --> 00:12:52,480
different systems configurations that

365
00:12:58,389 --> 00:12:53,440
they'll

366
00:13:00,870 --> 00:12:58,399
a burn so if they're going to do a burn

367
00:13:02,710 --> 00:13:00,880
no later than 8 pm tonight they really

368
00:13:04,550 --> 00:13:02,720
need to make a decision about two or

369
00:13:08,150 --> 00:13:04,560
three hours before that or about two

370
00:13:11,030 --> 00:13:08,160
revs if you will before that so decision

371
00:13:13,590 --> 00:13:11,040
time for the burn last decision time is

372
00:13:15,509 --> 00:13:13,600
uh is really about 5 p.m

373
00:13:17,350 --> 00:13:15,519
tonight so in in less than a couple

374
00:13:20,550 --> 00:13:17,360
hours here we'll know whether or not

375
00:13:22,949 --> 00:13:20,560
they're going to do the maneuver

376
00:13:24,629 --> 00:13:22,959
thanks i actually answered one of my

377
00:13:27,509 --> 00:13:24,639
rendezvous questions for tomorrow is

378
00:13:28,550 --> 00:13:27,519
whether you're doing nh and nc4

379
00:13:31,190 --> 00:13:28,560
um

380
00:13:32,829 --> 00:13:31,200
on the uh again on the

381
00:13:35,670 --> 00:13:32,839
possible conjunction

382
00:13:38,150 --> 00:13:35,680
is how has the

383
00:13:40,310 --> 00:13:38,160
categorization of this object

384
00:13:41,670 --> 00:13:40,320
is it i mean i've heard it classified as

385
00:13:43,910 --> 00:13:41,680
yellow or red

386
00:13:45,829 --> 00:13:43,920
in some cases is that is that where you

387
00:13:47,350 --> 00:13:45,839
are right now is there any trend you

388
00:13:50,150 --> 00:13:47,360

know

389
00:13:51,509 --> 00:13:50,160
getting farther away from the from your

390
00:13:55,990 --> 00:13:51,519
box

391
00:13:58,949 --> 00:13:57,189
i would say

392
00:14:01,350 --> 00:13:58,959
based on the latest information that i

393
00:14:05,030 --> 00:14:01,360
have as of a couple hours ago it's

394
00:14:05,990 --> 00:14:05,040
trending in the direction of goodness

395
00:14:10,230 --> 00:14:06,000
when

396
00:14:12,710 --> 00:14:10,240
and we first started talking about it

397
00:14:13,590 --> 00:14:12,720
before we launched on friday on thursday

398
00:14:16,870 --> 00:14:13,600
evening

399
00:14:21,910 --> 00:14:16,880
we were in the in the yellow to red

400
00:14:25,430 --> 00:14:23,990
the the missed distance

401
00:14:27,189 --> 00:14:25,440
and the criteria that we use in the

402
00:14:29,590 --> 00:14:27,199
flight rules to be able to determine if

403
00:14:30,949 --> 00:14:29,600
we have to do a maneuver or not

404
00:14:33,269 --> 00:14:30,959
since that time

405
00:14:35,509 --> 00:14:33,279
it apparently we've moved more in the

406
00:14:38,230 --> 00:14:35,519
yellow to green range

407
00:14:41,030 --> 00:14:38,240
i think if you had to say today

408
00:14:42,710 --> 00:14:41,040
based on where we are

409
00:14:45,110 --> 00:14:42,720
i believe that

410
00:14:46,949 --> 00:14:45,120
that station alone

411
00:14:48,710 --> 00:14:46,959
not to include the plan for the shuttle

412
00:14:51,430 --> 00:14:48,720
to come and dock if we weren't coming to

413
00:14:53,269 --> 00:14:51,440

dock i think they would be closer to be

414
00:14:55,189 --> 00:14:53,279
in green that is to say the missed

415
00:14:57,350 --> 00:14:55,199
distance would be great enough

416
00:14:59,269 --> 00:14:57,360
but we changed the vector and the

417
00:15:02,310 --> 00:14:59,279
position and the orientation

418
00:15:05,189 --> 00:15:02,320
um and the missed distance just by by

419
00:15:07,910 --> 00:15:05,199
virtue of the physical act of docking

420
00:15:09,829 --> 00:15:07,920
with the space station and in so doing

421
00:15:12,629 --> 00:15:09,839
um it moves us into the yellow region i

422
00:15:14,550 --> 00:15:12,639
believe so it's close enough that it's

423
00:15:15,509 --> 00:15:14,560
somewhere in the yellow moving toward

424
00:15:17,189 --> 00:15:15,519
green

425
00:15:19,030 --> 00:15:17,199
and as i said they'll they'll make a

426
00:15:23,030 --> 00:15:19,040
decision based on all of the data that's

427
00:15:26,150 --> 00:15:24,870
any more questions here

428
00:16:08,949 --> 00:15:26,160
i

429
00:16:11,030 --> 00:16:08,959
further up than

430
00:16:12,389 --> 00:16:11,040
until where it hits this cable it's not

431
00:16:14,470 --> 00:16:12,399
the cable is in a position it's not

432
00:16:17,110 --> 00:16:14,480
supposed to be in

433
00:16:20,069 --> 00:16:17,120
and it's not allowing the the the unit

434
00:16:22,710 --> 00:16:20,079
to tilt up in the up in the up direction

435
00:16:24,870 --> 00:16:22,720
we can tilt full down but we can't tilt

436
00:16:27,910 --> 00:16:24,880
past a certain angle and it's because

437
00:16:29,189 --> 00:16:27,920
this cable is is uh is binding

438
00:16:30,150 --> 00:16:29,199

um

439
00:16:31,910 --> 00:16:30,160
so

440
00:16:33,670 --> 00:16:31,920
it's it's basically in a position it's

441
00:16:36,949 --> 00:16:33,680
not supposed to be in

442
00:16:38,629 --> 00:16:36,959
and wasn't intended to be in

443
00:16:41,829 --> 00:16:38,639
in terms of the function of the of the

444
00:16:45,910 --> 00:16:43,990
is that it hit for now okay we'll take

445
00:16:48,829 --> 00:16:45,920
some questions from the folks on the

446
00:16:52,710 --> 00:16:48,839
line first up is robert perlman

447
00:16:54,150 --> 00:16:52,720
please hi can you hear me yes

448
00:16:56,310 --> 00:16:54,160
claire

449
00:16:58,230 --> 00:16:56,320
go ahead um okay uh

450
00:17:00,069 --> 00:16:58,240
just um two quick robert perlman with

451
00:17:02,790 --> 00:17:00,079
collectspace.com with just two status

452
00:17:05,270 --> 00:17:02,800
questions um if you know the the status

453
00:17:06,870 --> 00:17:05,280
of srb recovery and

454
00:17:09,510 --> 00:17:06,880
also the

455
00:17:13,350 --> 00:17:09,520
status of the pad after launch if it

456
00:17:17,669 --> 00:17:15,990
let's see i don't have a launch pad

457
00:17:19,990 --> 00:17:17,679
status

458
00:17:22,069 --> 00:17:20,000
which is actually a good thing because

459
00:17:23,750 --> 00:17:22,079
if we had had any significant damage i

460
00:17:24,630 --> 00:17:23,760
would be able to tell you that because i

461
00:17:31,510 --> 00:17:24,640
would

462
00:17:33,430 --> 00:17:31,520
no news on the pad is good news and and

463
00:17:35,669 --> 00:17:33,440

of course in a couple of days we'll have

464
00:17:38,870 --> 00:17:35,679
some details on the launch pad

465
00:17:41,350 --> 00:17:38,880
as far as the srb and recovery um

466
00:17:43,029 --> 00:17:41,360
the everything is gone nominal so far

467
00:17:45,270 --> 00:17:43,039
whether ships are concerned and in terms

468
00:17:47,510 --> 00:17:45,280
of having the boosters in tow

469
00:17:49,190 --> 00:17:47,520
the plan is to do slip operations on

470
00:17:51,510 --> 00:17:49,200
monday

471
00:17:55,590 --> 00:17:51,520
and open assessment for the solid rocket

472
00:18:01,430 --> 00:17:58,390
next on the line is marcia dunn please

473
00:18:03,750 --> 00:18:01,440
yes hi um if you determine that a

474
00:18:05,750 --> 00:18:03,760
station maneuver is needed would that be

475
00:18:10,390 --> 00:18:05,760
done by russian flight controllers or

476
00:18:17,430 --> 00:18:14,549
um i'm not sure marcia the the station

477
00:18:19,830 --> 00:18:17,440
ops team would would handle that between

478
00:18:21,750 --> 00:18:19,840
uh here in houston and in the houston

479
00:18:24,630 --> 00:18:21,760
support group in moscow

480
00:18:28,390 --> 00:18:24,640
and and the russian uh controllers

481
00:18:30,390 --> 00:18:28,400
the uh as you may know in this case the

482
00:18:32,870 --> 00:18:30,400
station maneuver will be done using the

483
00:18:33,909 --> 00:18:32,880
thrusters that are on the progress

484
00:18:36,710 --> 00:18:33,919
module

485
00:18:38,470 --> 00:18:36,720
so i imagine as in the case with most of

486
00:18:39,830 --> 00:18:38,480
the station operations it'll be a joint

487
00:18:42,150 --> 00:18:39,840
effort

488
00:18:44,390 --> 00:18:42,160

and i'm wondering if have you ever had

489
00:18:47,110 --> 00:18:44,400
to steer the station out of the way

490
00:18:48,870 --> 00:18:47,120
uh once the shuttle's been launched

491
00:18:49,990 --> 00:18:48,880
i know that i think a year and a half

492
00:18:51,669 --> 00:18:50,000
ago

493
00:18:53,029 --> 00:18:51,679
one such maneuver was called off but i

494
00:18:55,190 --> 00:18:53,039
can't recall

495
00:18:58,310 --> 00:18:55,200
ever having to move the station like

496
00:19:00,070 --> 00:18:58,320
this with a shuttle on the way

497
00:19:02,549 --> 00:19:00,080
my memory is about the same as yours i

498
00:19:05,270 --> 00:19:02,559
would say um in that i know we've

499
00:19:07,350 --> 00:19:05,280
discussed the maneuvers before

500
00:19:09,669 --> 00:19:07,360
after launch and before docking

501
00:19:11,430 --> 00:19:09,679
i don't recall that we've ever actually

502
00:19:13,110 --> 00:19:11,440
executed one

503
00:19:14,549 --> 00:19:13,120
but i have to go back and look marcia i

504
00:19:15,909 --> 00:19:14,559
just don't remember

505
00:19:18,549 --> 00:19:15,919
and lastly

506
00:19:20,870 --> 00:19:18,559
any more news on the number of

507
00:19:22,549 --> 00:19:20,880
pieces of debris seen coming off the

508
00:19:25,590 --> 00:19:22,559
tank during liftoff i think we heard

509
00:19:27,750 --> 00:19:25,600
about a couple yesterday

510
00:19:30,710 --> 00:19:27,760
and i don't have any updates from that

511
00:19:33,029 --> 00:19:30,720
um we're a little bit early and

512
00:19:34,070 --> 00:19:33,039
i do know that um

513
00:19:38,470 --> 00:19:34,080

the

514
00:19:40,950 --> 00:19:38,480
ascent video

515
00:19:42,710 --> 00:19:40,960
the external tank performance looked

516
00:19:45,669 --> 00:19:42,720
looked very very good

517
00:19:48,710 --> 00:19:45,679
and as did the other propulsion elements

518
00:19:49,750 --> 00:19:48,720
but we did see a few a few

519
00:19:52,950 --> 00:19:49,760
debris

520
00:19:54,950 --> 00:19:52,960
items and then we saw a little bit

521
00:19:57,190 --> 00:19:54,960
of

522
00:19:59,190 --> 00:19:57,200
places where we lost some foam

523
00:20:01,190 --> 00:19:59,200
in the external tank video imagery but

524
00:20:02,710 --> 00:20:01,200
that's all very preliminary so i don't

525
00:20:04,149 --> 00:20:02,720
have an update from what you heard

526
00:20:07,510 --> 00:20:04,159
yesterday marcia but we'll have it in a

527
00:20:11,909 --> 00:20:07,520
couple of days probably thanks a lot

528
00:20:15,990 --> 00:20:14,390
uh thanks todd halberson of florida

529
00:20:18,070 --> 00:20:16,000
today um

530
00:20:19,909 --> 00:20:18,080
we were i was wondering mike sheriff and

531
00:20:22,390 --> 00:20:19,919
i didn't have any information on the

532
00:20:24,230 --> 00:20:22,400
shape size or origin

533
00:20:26,630 --> 00:20:24,240
of this piece of debris and i just

534
00:20:30,710 --> 00:20:26,640
wanted to check and see whether you had

535
00:20:35,190 --> 00:20:33,590
uh no i don't i don't have details on

536
00:20:36,310 --> 00:20:35,200
the object

537
00:20:38,950 --> 00:20:36,320
okay

538
00:20:41,669 --> 00:20:38,960

and um

539
00:20:44,470 --> 00:20:41,679
i assume but i just want to confirm that

540
00:20:49,510 --> 00:20:44,480
once a decision is made would that be uh

541
00:20:54,710 --> 00:20:53,190
well the uh if the crew is still up yeah

542
00:20:55,830 --> 00:20:54,720
we'll we'll tell them what we're doing

543
00:20:57,510 --> 00:20:55,840
obviously

544
00:20:59,990 --> 00:20:57,520
um the station crew

545
00:21:01,270 --> 00:21:00,000
certainly will know but the shuttle crew

546
00:21:02,470 --> 00:21:01,280
um

547
00:21:03,909 --> 00:21:02,480
it's uh

548
00:21:05,990 --> 00:21:03,919
it's possible that they'll be in their

549
00:21:07,510 --> 00:21:06,000
pre-sleep period so the team may or may

550
00:21:09,510 --> 00:21:07,520
not call it up to them

551
00:21:11,590 --> 00:21:09,520
in any case uh before they start their

552
00:21:13,110 --> 00:21:11,600
rendezvous operations in the morning

553
00:21:14,230 --> 00:21:13,120
they'll know whether or not station did

554
00:21:16,230 --> 00:21:14,240
a maneuver

555
00:21:17,909 --> 00:21:16,240
it really is transparent to the shuttle

556
00:21:19,590 --> 00:21:17,919
crew

557
00:21:22,950 --> 00:21:19,600
they're going to perform the burns and

558
00:21:25,590 --> 00:21:22,960
the maneuvers uh per the procedures and

559
00:21:27,190 --> 00:21:25,600
and per the advisory data that they get

560
00:21:29,110 --> 00:21:27,200
uplinked from the mission control here

561
00:21:31,669 --> 00:21:29,120
in houston

562
00:21:33,029 --> 00:21:31,679
so it it really will be situational

563
00:21:35,990 --> 00:21:33,039

awareness for them

564
00:21:37,110 --> 00:21:36,000
um not something they necessarily

565
00:21:38,630 --> 00:21:37,120
need to be aware of it's not going to

566
00:21:40,710 --> 00:21:38,640
change anything they do it'll change

567
00:21:43,430 --> 00:21:40,720
what happens on the ground in terms of

568
00:21:45,430 --> 00:21:43,440
the tracking and and building the uh

569
00:21:47,430 --> 00:21:45,440
the advisory data for the burns and the

570
00:21:50,390 --> 00:21:47,440
maneuvers but we'll tell them if if uh

571
00:21:52,070 --> 00:21:50,400
if they're not already sleeping

572
00:21:55,669 --> 00:21:52,080
yeah i guess these next two are for

573
00:21:56,830 --> 00:21:55,679
kylie if um the crew is asleep will um

574
00:21:59,909 --> 00:21:56,840
your

575
00:22:01,909 --> 00:21:59,919
commentator uh fill us in on a decision

576
00:22:03,510 --> 00:22:01,919
when it's made yes

577
00:22:06,789 --> 00:22:03,520
that's the plan

578
00:22:07,909 --> 00:22:06,799
okay and then i was just curious if

579
00:22:09,510 --> 00:22:07,919
they

580
00:22:10,549 --> 00:22:09,520
decide to do a maneuver and do a

581
00:22:13,909 --> 00:22:10,559
maneuver

582
00:22:14,950 --> 00:22:13,919
i'm assuming that that would um change

583
00:22:17,110 --> 00:22:14,960
uh

584
00:22:20,470 --> 00:22:17,120
the citing opportunities that you have

585
00:22:22,950 --> 00:22:20,480
left listed on your website um

586
00:22:24,950 --> 00:22:22,960
for various passes over

587
00:22:27,350 --> 00:22:24,960
billions of cities in the

588
00:22:29,909 --> 00:22:27,360

us and elsewhere and i'm i'm wondering

589
00:22:32,789 --> 00:22:29,919
if that is the case how soon

590
00:22:35,110 --> 00:22:32,799
uh those siding opportunities uh would

591
00:22:37,430 --> 00:22:35,120
be updated after

592
00:22:38,870 --> 00:22:37,440
a maneuver

593
00:22:41,830 --> 00:22:38,880
we'll have to take a look at that with

594
00:22:43,350 --> 00:22:41,840
the maneuver about 8 pm central time

595
00:22:45,029 --> 00:22:43,360
that's about around the time a lot of

596
00:22:46,789 --> 00:22:45,039
the sightings were this evening for the

597
00:22:48,470 --> 00:22:46,799
u.s cities if i remember correctly but

598
00:22:50,070 --> 00:22:48,480
we'll look at that and see if that can

599
00:22:51,909 --> 00:22:50,080
be updated

600
00:22:53,510 --> 00:22:51,919
and i was thinking about the

601
00:22:54,549 --> 00:22:53,520
you know rest of the mission too there

602
00:22:56,710 --> 00:22:54,559
are

603
00:22:58,710 --> 00:22:56,720
many passes i think about eight down

604
00:23:01,270 --> 00:22:58,720
here at the cape and i know people are

605
00:23:03,669 --> 00:23:01,280
going to want to go outside and watch if

606
00:23:04,710 --> 00:23:03,679
they can uh so

607
00:23:06,390 --> 00:23:04,720
um

608
00:23:10,149 --> 00:23:06,400
we'll be looking for an update anyway

609
00:23:15,110 --> 00:23:13,270
okay next on the line is bill harwood

610
00:23:17,270 --> 00:23:15,120
yeah hi bill howard with cbs news leroy

611
00:23:20,549 --> 00:23:17,280
on the on the port wing if you did it

612
00:23:22,630 --> 00:23:20,559
with the end effector camera on the srms

613
00:23:23,750 --> 00:23:22,640

i mean don't you lose something from not

614
00:23:25,750 --> 00:23:23,760
using the

615
00:23:27,669 --> 00:23:25,760
the normal sensor suite i mean what is

616
00:23:30,950 --> 00:23:27,679
how is that okay i guess is what i'm i'm

617
00:23:33,990 --> 00:23:32,390
yeah bill this is something that we've

618
00:23:35,990 --> 00:23:34,000
looked at uh going all the way back to

619
00:23:38,710 --> 00:23:36,000
return to flight and

620
00:23:40,789 --> 00:23:38,720
we are able to get

621
00:23:44,230 --> 00:23:40,799
with a great enough fidelity

622
00:23:46,070 --> 00:23:44,240
on the port wing using that system

623
00:23:47,669 --> 00:23:46,080
the what we need to see in the scans

624
00:23:49,750 --> 00:23:47,679
that we do of the of the leading edge

625
00:23:51,909 --> 00:23:49,760
and the upper surfaces

626
00:23:52,630 --> 00:23:51,919
just behind the reinforced carbon carbon

627
00:23:54,310 --> 00:23:52,640
so

628
00:23:55,029 --> 00:23:54,320
there's no issue with that in terms of

629
00:23:57,830 --> 00:23:55,039
our

630
00:23:59,269 --> 00:23:57,840
uh minimum criteria and and the fidelity

631
00:24:00,470 --> 00:23:59,279
of being able to look

632
00:24:03,510 --> 00:24:00,480
um

633
00:24:05,830 --> 00:24:03,520
for our safe entry criteria if you will

634
00:24:08,230 --> 00:24:05,840
in addition to that i should say we are

635
00:24:09,990 --> 00:24:08,240
looking at the possibility of

636
00:24:11,590 --> 00:24:10,000
getting some uh

637
00:24:12,549 --> 00:24:11,600
higher resolution

638
00:24:14,789 --> 00:24:12,559

um

639
00:24:17,190 --> 00:24:14,799
pictures from from some of the cameras

640
00:24:19,110 --> 00:24:17,200
on station when we do our our normal rpm

641
00:24:20,789 --> 00:24:19,120
maneuver

642
00:24:22,950 --> 00:24:20,799
and so that will just be

643
00:24:25,190 --> 00:24:22,960
icing on the cake if if we can get that

644
00:24:26,789 --> 00:24:25,200
will just be some additional data for us

645
00:24:33,110 --> 00:24:26,799
and we are looking at the possibility of

646
00:24:33,120 --> 00:24:38,149
do you have another question bill

647
00:24:38,159 --> 00:24:41,990
okay any follow-ups here

648
00:24:45,669 --> 00:24:43,669
seeing none we'll go ahead and go back

649
00:24:47,510 --> 00:24:45,679
to mission control so we can stay tuned

650
00:24:49,350 --> 00:24:47,520
to the news this evening as the crew

651
00:24:52,070 --> 00:24:49,360
wraps up the work onboard the space

652
00:24:54,789 --> 00:24:52,080
shuttle and you can also keep updated on