
27

1
00:00:04,519 --> 00:00:02,899
well good day and welcome back to the

2
00:00:07,369 --> 00:00:04,529
Johnson Space Center for the next in our

3
00:00:09,589 --> 00:00:07,379
series of briefings today on the sts-134

4
00:00:12,860 --> 00:00:09,599
Ulf 6 mission to the international space

5
00:00:14,990 --> 00:00:12,870
station this briefing is dedicated to

6
00:00:16,790 --> 00:00:15,000
the discussion of the Soyuz activities

7
00:00:19,310 --> 00:00:16,800
that are on tap for Monday the upcoming

8
00:00:22,640 --> 00:00:19,320
departure of the expedition 27 crew on

9
00:00:25,009 --> 00:00:22,650
the soyuz tma-22 us today to discuss all

10
00:00:26,839 --> 00:00:25,019
of those details are Kenny Todd the

11
00:00:29,029 --> 00:00:26,849
international space station manager for

12
00:00:31,759 --> 00:00:29,039
mission integration and operations and

13
00:00:33,740 --> 00:00:31,769

Courtney McMillan the ISS team for

14
00:00:35,510 --> 00:00:33,750
flight director who has been involved in

15
00:00:37,880 --> 00:00:35,520
the coordination and preparations for

16
00:00:40,280 --> 00:00:37,890
Monday's Soyuz activities and we'll

17
00:00:42,290 --> 00:00:40,290
start off with Kenny thanks very much

18
00:00:44,869 --> 00:00:42,300
Rob well it's a great to be here with

19
00:00:48,290 --> 00:00:44,879
you today we're off to a fantastic start

20
00:00:50,119 --> 00:00:48,300
for the Ulf six mission yesterday we

21
00:00:52,819 --> 00:00:50,129
were able to accomplish our primary

22
00:00:56,240 --> 00:00:52,829
payload objective which is given the AMS

23
00:00:58,400 --> 00:00:56,250
installed and by all accounts the AMS is

24
00:01:00,319 --> 00:00:58,410
up and running and the principal

25
00:01:02,680 --> 00:01:00,329
investigators are very excited about

26
00:01:05,929 --> 00:01:02,690
what they're seeing so far in terms of

27
00:01:07,580 --> 00:01:05,939
data coming back from the payload in

28
00:01:09,830 --> 00:01:07,590
addition to that this morning we were

29
00:01:11,570 --> 00:01:09,840
able to get Eevee a one behind us and

30
00:01:13,429 --> 00:01:11,580
when you come into a flight like this

31
00:01:15,710 --> 00:01:13,439
one where you have four EVS it's always

32
00:01:17,899 --> 00:01:15,720
good to to get that first one behind you

33
00:01:20,390 --> 00:01:17,909
wiih we had the problem with the co2

34
00:01:21,800 --> 00:01:20,400
sensor but that's something we'll work

35
00:01:23,570 --> 00:01:21,810
through we're going to need that suit

36
00:01:25,550 --> 00:01:23,580
again until EBA four so we got a little

37
00:01:29,149 --> 00:01:25,560
bit of time to go to go look into that

38
00:01:31,580 --> 00:01:29,159

as Derek mentioned to you earlier back

39
00:01:33,830 --> 00:01:31,590
several months ago during the Ulf five

40
00:01:35,990 --> 00:01:33,840
mission I came and talked to you about

41
00:01:39,020 --> 00:01:36,000
what at that time was a very unique

42
00:01:41,090 --> 00:01:39,030
configuration for the space station we

43
00:01:43,370 --> 00:01:41,100
had all the partner visiting vehicles

44
00:01:45,460 --> 00:01:43,380
president president and and we

45
00:01:49,520 --> 00:01:45,470
entertained the idea at that time of

46
00:01:52,999 --> 00:01:49,530
adding a photo documentation task to

47
00:01:56,600 --> 00:01:53,009
that flight and undocking 24 Soyuz off

48
00:01:58,219 --> 00:01:56,610
the mrm to port backing away taking some

49
00:01:59,719 --> 00:01:58,229
pictures doing some documentation work

50
00:02:02,600 --> 00:01:59,729
and then bringing bringing that so use

51
00:02:04,850 --> 00:02:02,610
back into to that port for that

52
00:02:07,550 --> 00:02:04,860
particular time frame and that

53
00:02:10,070 --> 00:02:07,560
particular vehicle we we decided at that

54
00:02:12,650 --> 00:02:10,080
time not to not to step up to that task

55
00:02:13,370 --> 00:02:12,660
our Russian colleagues had highlighted

56
00:02:16,100 --> 00:02:13,380
some

57
00:02:17,720 --> 00:02:16,110
CERN's they had with deviating from from

58
00:02:19,370 --> 00:02:17,730
their their flight test plan for that

59
00:02:22,970 --> 00:02:19,380
particular vehicle given that it was a

60
00:02:25,340 --> 00:02:22,980
new vehicle and so so we accepted their

61
00:02:26,840 --> 00:02:25,350
recommendation and did not press that

62
00:02:29,720 --> 00:02:26,850
any further for that particular flight

63
00:02:32,450 --> 00:02:29,730

so we fast forward a few months and here

64
00:02:35,720 --> 00:02:32,460
we are with the Ulf 6 and space shuttle

65
00:02:37,460 --> 00:02:35,730
Endeavour attached and and now instead

66
00:02:40,190 --> 00:02:37,470
of a unique configuration we have what I

67
00:02:42,890 --> 00:02:40,200
turn more of a unique opportunity which

68
00:02:45,950 --> 00:02:42,900
was created by the fact that several

69
00:02:47,620 --> 00:02:45,960
weeks ago we the space station program

70
00:02:50,630 --> 00:02:47,630
along with the space shuttle program

71
00:02:54,050 --> 00:02:50,640
agreed to enter into what we called a

72
00:02:55,670 --> 00:02:54,060
dual doc tops scenario where while the

73
00:02:59,150 --> 00:02:55,680
shuttle was attached that we would go

74
00:03:02,750 --> 00:02:59,160
and then doc 25 Soyuz off of the FGB

75
00:03:04,550 --> 00:03:02,760
nadir port that was a capability that

76
00:03:07,190 --> 00:03:04,560
we've been looking at over the last

77
00:03:09,560 --> 00:03:07,200
several years and getting comfortable

78
00:03:12,230 --> 00:03:09,570
with that point where we we felt like we

79
00:03:14,150 --> 00:03:12,240
could undock a Soyuz and and so that

80
00:03:15,740 --> 00:03:14,160
allowed us to be able to make that

81
00:03:17,840 --> 00:03:15,750
decision several weeks ago with an

82
00:03:18,890 --> 00:03:17,850
understanding that as with all things as

83
00:03:20,180 --> 00:03:18,900
you get a little closer to it and

84
00:03:22,250 --> 00:03:20,190
understand a little bit more about the

85
00:03:23,930 --> 00:03:22,260
mission specifics you need to finish up

86
00:03:25,610 --> 00:03:23,940
do all the right analysis but on the

87
00:03:29,330 --> 00:03:25,620
whole we felt good about our capability

88
00:03:33,860 --> 00:03:29,340

to go support doing that undock and this

89
00:03:36,110 --> 00:03:33,870
last week we asked the team again to go

90
00:03:37,700 --> 00:03:36,120
as part of looking at this unique

91
00:03:40,430 --> 00:03:37,710
opportunity to go do some additional

92
00:03:42,260 --> 00:03:40,440
photo documentation of the station with

93
00:03:44,510 --> 00:03:42,270
the shuttle attached we asked them to go

94
00:03:47,330 --> 00:03:44,520
review that task to see what it would

95
00:03:49,250 --> 00:03:47,340
take to add that in to this duel doc top

96
00:03:51,500 --> 00:03:49,260
scenario where we're undocking the Soyuz

97
00:03:52,820 --> 00:03:51,510
and we've been working with our

98
00:03:55,070 --> 00:03:52,830
international partner and the space

99
00:03:56,990 --> 00:03:55,080
shuttle program to to identify all the

100
00:03:59,510 --> 00:03:57,000
mission specific analyses it would take

101
00:04:01,120 --> 00:03:59,520
to support backing away going to a

102
00:04:04,370 --> 00:04:01,130
couple of hundred meters with the Soyuz

103
00:04:07,970 --> 00:04:04,380
taking some pictures and then continuing

104
00:04:09,560 --> 00:04:07,980
with the normal undock scenario the

105
00:04:11,330 --> 00:04:09,570
partners have all been working through

106
00:04:14,060 --> 00:04:11,340
their own internal processes to perform

107
00:04:15,560 --> 00:04:14,070
their analysis and vet the results and

108
00:04:17,660 --> 00:04:15,570
come up with their own independent

109
00:04:20,090 --> 00:04:17,670
opinions about whether or not we should

110
00:04:23,930 --> 00:04:20,100
would try to try to put that task in the

111
00:04:25,670 --> 00:04:23,940
25 Soyuz undocked plan and yesterday in

112
00:04:26,230 --> 00:04:25,680
fact at the space shuttle mission

113
00:04:28,170 --> 00:04:26,240

management

114
00:04:31,749 --> 00:04:28,180
you mean we had a very good discussion

115
00:04:33,909 --> 00:04:31,759
about the Space Shuttle role in that

116
00:04:36,760 --> 00:04:33,919
overall process for supporting this duel

117
00:04:40,089 --> 00:04:36,770
doc top scenario and at the conclusion

118
00:04:41,890 --> 00:04:40,099
of that after listening to quite a bit

119
00:04:43,480 --> 00:04:41,900
of discussion again a lot of very

120
00:04:44,830 --> 00:04:43,490
positive discussion about the work

121
00:04:47,379 --> 00:04:44,840
that's been done up to this point to

122
00:04:49,320 --> 00:04:47,389
allow us to say that the team was was

123
00:04:52,900 --> 00:04:49,330
comfortable with with this approach

124
00:04:54,790 --> 00:04:52,910
Leroy Cain did say let's go let's go do

125
00:04:57,909 --> 00:04:54,800
this let's go support this objective and

126
00:05:01,540 --> 00:04:57,919
so this morning at our ISS mission

127
00:05:03,879 --> 00:05:01,550
management team meeting during our 25s

128
00:05:05,980 --> 00:05:03,889
go no-go readiness review which we do

129
00:05:07,450 --> 00:05:05,990
for every every vehicle that undocks we

130
00:05:09,460 --> 00:05:07,460
do a readiness review to ensure that

131
00:05:10,930 --> 00:05:09,470
we've got all the systems work done and

132
00:05:14,830 --> 00:05:10,940
we've done all the right analyses to

133
00:05:16,870 --> 00:05:14,840
support the undock we we considered this

134
00:05:20,499 --> 00:05:16,880
photo documentation task as part of that

135
00:05:22,360 --> 00:05:20,509
overall undock readiness review we

136
00:05:24,790 --> 00:05:22,370
looked at the work remaining we looked

137
00:05:27,339 --> 00:05:24,800
at the risk associated with with

138
00:05:29,230 --> 00:05:27,349

completing that work and I'll tell you

139
00:05:30,969 --> 00:05:29,240
that it was acceptable from my point of

140
00:05:33,790 --> 00:05:30,979
view and looking at what I thought was a

141
00:05:36,370 --> 00:05:33,800
couple of minor tasks to complete not

142
00:05:38,170 --> 00:05:36,380
inconsistent with the type of work that

143
00:05:39,670 --> 00:05:38,180
we have to complete right before a Soyuz

144
00:05:43,320 --> 00:05:39,680
undocked whether we're in a dual doc

145
00:05:45,550 --> 00:05:43,330
Dobson area or not so we as a community

146
00:05:47,830 --> 00:05:45,560
with a hundred percent consistence

147
00:05:49,570 --> 00:05:47,840
consensus approved this changed to the

148
00:05:51,969 --> 00:05:49,580
baseline to go ad this photo

149
00:05:56,439 --> 00:05:51,979
documentation task as part of the 25's

150
00:05:57,820 --> 00:05:56,449
Soyuz undocked and I want to say any

151
00:05:59,260 --> 00:05:57,830
more about this particulars all that

152
00:06:01,800 --> 00:05:59,270
Courtney talk to you about exactly what

153
00:06:05,200 --> 00:06:01,810
we're going to do during the mission

154
00:06:07,600 --> 00:06:05,210
alright well let's see so as Kenny said

155
00:06:10,149 --> 00:06:07,610
we knew when endeavour launched that we

156
00:06:12,520 --> 00:06:10,159
would be undocking 25s during the

157
00:06:14,399 --> 00:06:12,530
mission so we knew that was coming so

158
00:06:16,450 --> 00:06:14,409
prior to the mission we worked on

159
00:06:19,330 --> 00:06:16,460
essentially a standard undocking

160
00:06:22,149 --> 00:06:19,340
timeline for the Soyuz so that we could

161
00:06:24,879 --> 00:06:22,159
get it safely undocked and landed during

162
00:06:27,610 --> 00:06:24,889
endeavours plate we had that timeline

163
00:06:29,830 --> 00:06:27,620

pretty much ready to go there were the

164
00:06:32,379 --> 00:06:29,840
typical open work items that were being

165
00:06:34,450 --> 00:06:32,389
chased down by the flight team when the

166
00:06:36,010 --> 00:06:34,460
opportunity came up this week to redo

167
00:06:37,310 --> 00:06:36,020
that that timeline to add the

168
00:06:40,250 --> 00:06:37,320
photography in

169
00:06:42,920 --> 00:06:40,260
we started a lot of that work over again

170
00:06:44,750 --> 00:06:42,930
with the new proposal and we've managed

171
00:06:46,580 --> 00:06:44,760
to get things very far along this week

172
00:06:48,050 --> 00:06:46,590
and we're in really good shape going

173
00:06:49,730 --> 00:06:48,060
into the we were in really good shape

174
00:06:54,890 --> 00:06:49,740
this morning going into the go/no-go

175
00:06:56,540 --> 00:06:54,900
review as Kenny mentioned so we decided

176
00:06:59,450 --> 00:06:56,550
today to go for this plan we've got a

177
00:07:01,370 --> 00:06:59,460
quick animation that I think will give

178
00:07:04,520 --> 00:07:01,380
you an idea of what is happening with

179
00:07:07,750 --> 00:07:04,530
the station if we can bring that up so

180
00:07:10,310 --> 00:07:07,760
on the bottom view you can see will the

181
00:07:13,100 --> 00:07:10,320
initial attitude for the undocking the

182
00:07:15,440 --> 00:07:13,110
Soyuz is the yellow object that's now

183
00:07:17,630 --> 00:07:15,450
flying away the upper left view is what

184
00:07:23,150 --> 00:07:17,640
the crew will see from the Soyuz of the

185
00:07:24,800 --> 00:07:23,160
ISS so they will back out to about 200

186
00:07:27,620 --> 00:07:24,810
meters you'll see they're a little bit

187
00:07:29,660 --> 00:07:27,630
above the velocity vector behind the

188
00:07:35,870 --> 00:07:29,670

station and that's to keep the Sun out

189
00:07:37,670 --> 00:07:35,880
of the pilots eyes after they've get to

190
00:07:41,090 --> 00:07:37,680
the station keeping point a few minutes

191
00:07:42,560 --> 00:07:41,100
later ISS will begin a maneuver and we

192
00:07:49,080 --> 00:07:42,570
should see that kick off here in a

193
00:07:55,150 --> 00:07:52,540
and this is a 130 degree maneuver

194
00:07:57,809 --> 00:07:55,160
they'll be moving at point 2 degrees per

195
00:08:01,689 --> 00:07:57,819
second so it will take about 15 minutes

196
00:08:04,300 --> 00:08:01,699
and it will basically bring the whole

197
00:08:21,719 --> 00:08:04,310
stack around so that we get a side view

198
00:08:26,879 --> 00:08:24,689
so you can imagine this is a fairly

199
00:08:28,860 --> 00:08:26,889
unusual attitude for us to be flying

200
00:08:31,439 --> 00:08:28,870
during a maid admission there's been a

201
00:08:33,360 --> 00:08:31,449
lot of work by a whole lot of teams to

202
00:08:36,089 --> 00:08:33,370
make sure that this is really a good

203
00:08:38,129 --> 00:08:36,099
thing to be doing but folks are very

204
00:08:41,370 --> 00:08:38,139
comfortable with with the plan as we've

205
00:08:43,800 --> 00:08:41,380
gotten it so far so let's see I'll give

206
00:08:46,019 --> 00:08:43,810
you a quick rundown on the timeline the

207
00:08:48,720 --> 00:08:46,029
station crew will wake up at about five

208
00:08:50,750 --> 00:08:48,730
o'clock a.m. central time so Houston

209
00:08:53,069 --> 00:08:50,760
time that's about ten o'clock gmt

210
00:08:55,410 --> 00:08:53,079
they'll do their normal undock

211
00:08:57,810 --> 00:08:55,420
preparations and and packing up the

212
00:09:01,889 --> 00:08:57,820
Soyuz to depart hatch closed is at

213
00:09:05,069 --> 00:09:01,899

one-thirty p.m. central time physical

214
00:09:06,810 --> 00:09:05,079
separation is at 435 p.m. central time

215
00:09:08,939 --> 00:09:06,820
there's a few other things happening

216
00:09:12,569 --> 00:09:08,949
prior to that including maneuvering to

217
00:09:16,199 --> 00:09:12,579
the undock attitude that you saw so but

218
00:09:18,569 --> 00:09:16,209
separation happens at about 1635 local

219
00:09:21,449 --> 00:09:18,579
houston and then we should reach the

220
00:09:23,400 --> 00:09:21,459
station keeping point about seven

221
00:09:26,850 --> 00:09:23,410
minutes after that six or seven minutes

222
00:09:30,240 --> 00:09:26,860
after that and then Paolo's got about

223
00:09:32,040 --> 00:09:30,250
eight minutes to set up and start the

224
00:09:34,710 --> 00:09:32,050
imagery so we're expecting the imagery

225
00:09:38,460 --> 00:09:34,720
to start at about 10 till 5pm Houston

226
00:09:39,689 --> 00:09:38,470
time 1650 Houston time of course it may

227
00:09:44,639 --> 00:09:39,699
take them a little bit less or more

228
00:09:46,290 --> 00:09:44,649
depending on how efficient he is ISS

229
00:09:48,420 --> 00:09:46,300
will start its maneuver five minutes

230
00:09:50,879 --> 00:09:48,430
later as I said that takes about 15

231
00:09:54,210 --> 00:09:50,889
minutes and then they're in attitude for

232
00:09:56,939 --> 00:09:54,220
about five minutes before the Soyuz set

233
00:09:59,639 --> 00:09:56,949
burn is scheduled to take Soyuz away

234
00:10:02,790 --> 00:09:59,649
from away from ISS and ready to get back

235
00:10:06,569 --> 00:10:02,800
into preparing for descent so that set

236
00:10:10,139 --> 00:10:06,579
burn occurs at 17 15 5 15 p.m. houston

237
00:10:12,120 --> 00:10:10,149
time the crew will come back out of the

238
00:10:14,309 --> 00:10:12,130

well paulo will come back out of the

239
00:10:16,889 --> 00:10:14,319
habitation module where he will be for

240
00:10:18,750 --> 00:10:16,899
the photography operations and they have

241
00:10:21,360 --> 00:10:18,760
to repeat some leak checks on the suits

242
00:10:22,800 --> 00:10:21,370
and on the hatch at that time and then

243
00:10:25,500 --> 00:10:22,810
they will have their deorbit burn

244
00:10:29,100 --> 00:10:25,510
finally at eight thirty six p.m. houston

245
00:10:32,580 --> 00:10:29,110
time for a landing at nine 26 p.m.

246
00:10:36,360 --> 00:10:32,590
houston time southwest of karaganda in

247
00:10:37,980 --> 00:10:36,370
16 so that's kind of the rundown you may

248
00:10:39,870 --> 00:10:37,990
ask what the Endeavour crew is doing

249
00:10:43,200 --> 00:10:39,880
during all this time they are scheduled

250
00:10:45,030 --> 00:10:43,210
to be asleep we are not asking them to

251
00:10:47,940 --> 00:10:45,040
do anything differently than what

252
00:10:50,070 --> 00:10:47,950
they're scheduled for but there are a

253
00:10:51,930 --> 00:10:50,080
couple of fairly lightly loaded days

254
00:10:53,750 --> 00:10:51,940
around that so there is a possibility

255
00:10:56,100 --> 00:10:53,760
they'll get up that's entirely

256
00:10:57,810 --> 00:10:56,110
discretionary they don't they don't need

257
00:11:00,510 --> 00:10:57,820
to there's no requirement for that and

258
00:11:03,870 --> 00:11:00,520
we're not going to ask them to onboard

259
00:11:06,300 --> 00:11:03,880
the station Alexander and Andre will be

260
00:11:07,830 --> 00:11:06,310
awake with the ISS crude that are

261
00:11:10,110 --> 00:11:07,840
departing and they'll be supporting them

262
00:11:11,760 --> 00:11:10,120
through the through the whole period so

263
00:11:13,710 --> 00:11:11,770

they will be in communication for a good

264
00:11:19,260 --> 00:11:13,720
part of the undock and separation

265
00:11:20,760 --> 00:11:19,270
timeline and that is all I have thanks

266
00:11:22,350 --> 00:11:20,770
Courtney thanks Kenny we'll take

267
00:11:24,660 --> 00:11:22,360
questions here in Houston we also have

268
00:11:28,680 --> 00:11:24,670
reporters on the phone bridge so we'll

269
00:11:31,230 --> 00:11:28,690
start here Phil Phillips lost with NASA

270
00:11:34,350 --> 00:11:31,240
Space Flight calm I guess this is for

271
00:11:37,440 --> 00:11:34,360
Courtney can you kind of contrast what

272
00:11:39,330 --> 00:11:37,450
would be more sort of seems like more of

273
00:11:42,390 --> 00:11:39,340
us the straightforward normal undocking

274
00:11:44,840 --> 00:11:42,400
and sep is that timeline and what the

275
00:11:49,110 --> 00:11:44,850
crew has to do differently for this

276
00:11:50,820 --> 00:11:49,120
undocking and maneuvers sure there's two

277
00:11:53,370 --> 00:11:50,830
big differences the first big difference

278
00:11:55,560 --> 00:11:53,380
is the timeline they're actually the

279
00:11:57,930 --> 00:11:55,570
crew will actually be getting up about

280
00:11:59,130 --> 00:11:57,940
an hour and a half earlier maybe not

281
00:12:01,020 --> 00:11:59,140
quite an hour and a half they're getting

282
00:12:03,150 --> 00:12:01,030
up earlier that day the undocking is

283
00:12:05,820 --> 00:12:03,160
occurring an hour and a half earlier

284
00:12:11,130 --> 00:12:05,830
than it usually would so normally we

285
00:12:13,140 --> 00:12:11,140
would undock on daily orbit 14 which is

286
00:12:16,230 --> 00:12:13,150
you know which orbit which pass ground

287
00:12:18,480 --> 00:12:16,240
pass over Russia for a landing on three

288
00:12:20,400 --> 00:12:18,490

orbits later on this one there they're

289
00:12:23,250 --> 00:12:20,410
getting up earlier so that they can

290
00:12:26,430 --> 00:12:23,260
undock one rev earlier one orbit earlier

291
00:12:28,320 --> 00:12:26,440
to fit the operations into the timeline

292
00:12:30,720 --> 00:12:28,330
without perturbing any of the nominal

293
00:12:32,670 --> 00:12:30,730
descent operations so that's the first

294
00:12:35,340 --> 00:12:32,680
big difference is the overall timeline

295
00:12:38,100 --> 00:12:35,350
second difference for this one is the

296
00:12:40,020 --> 00:12:38,110
attitudes were specifically designed to

297
00:12:41,970 --> 00:12:40,030
make sure that we've got good lighting

298
00:12:42,620 --> 00:12:41,980
for the for the imagery we usually are

299
00:12:45,470 --> 00:12:42,630
not

300
00:12:48,290 --> 00:12:45,480
that into consideration so and and in

301
00:12:50,180 --> 00:12:48,300
particular Dmitri will be flying

302
00:12:51,950 --> 00:12:50,190
manually out to the station keeping

303
00:12:55,820 --> 00:12:51,960
point and then maintaining the station

304
00:12:58,670 --> 00:12:55,830
keeping point as on manual pilot mode in

305
00:13:00,320 --> 00:12:58,680
the Soyuz so we need to make sure he's

306
00:13:02,240 --> 00:13:00,330
got a good line of sight to the vehicle

307
00:13:05,300 --> 00:13:02,250
but also good lighting and no Sun in his

308
00:13:07,280 --> 00:13:05,310
eyes so we made that you saw the

309
00:13:09,560 --> 00:13:07,290
attitude was up a little bit so that

310
00:13:10,970 --> 00:13:09,570
they're coming above the v-bar behind

311
00:13:12,470 --> 00:13:10,980
the station a little bit and that's so

312
00:13:14,750 --> 00:13:12,480
that when the Sun is coming up it's not

313
00:13:16,850 --> 00:13:14,760

right in his eyes as there as he's back

314
00:13:19,640 --> 00:13:16,860
in a way so that that's another big

315
00:13:22,280 --> 00:13:19,650
difference the operations themselves for

316
00:13:25,070 --> 00:13:22,290
the imagery the window that they need to

317
00:13:27,500 --> 00:13:25,080
use to get the pictures out of is in the

318
00:13:29,810 --> 00:13:27,510
habitation module which typically we

319
00:13:31,430 --> 00:13:29,820
seal up before departure and then the

320
00:13:34,760 --> 00:13:31,440
crew doesn't go back into it after

321
00:13:36,890 --> 00:13:34,770
departure and then of course the the two

322
00:13:40,640 --> 00:13:36,900
modules separate and the habitation

323
00:13:42,560 --> 00:13:40,650
module burns up in in orbit meanwhile

324
00:13:44,870 --> 00:13:42,570
the landing module is what brings them

325
00:13:47,510 --> 00:13:44,880
down to the ground for this operation

326
00:13:49,790 --> 00:13:47,520
they have to actually go back in to the

327
00:13:51,320 --> 00:13:49,800
habitation module so that Paolo can take

328
00:13:52,820 --> 00:13:51,330
the pictures out of the window and then

329
00:13:55,010 --> 00:13:52,830
they have to repeat the leak check so

330
00:13:56,450 --> 00:13:55,020
he's got to go back into the landing

331
00:13:58,780 --> 00:13:56,460
module and make sure it's all sealed up

332
00:14:01,160 --> 00:13:58,790
tight again and get back in his suit

333
00:14:04,210 --> 00:14:01,170
close his suit up he's going to have to

334
00:14:09,590 --> 00:14:04,220
take his gloves often to use the cameras

335
00:14:12,560 --> 00:14:09,600
thank you and for mr. Todd can you talk

336
00:14:15,230 --> 00:14:12,570
about it mean it seems like we heard

337
00:14:17,060 --> 00:14:15,240
that this was not going to happen but

338
00:14:20,240 --> 00:14:17,070

then that was prior to this being a dual

339
00:14:23,660 --> 00:14:20,250
docked operations undocking can you talk

340
00:14:25,730 --> 00:14:23,670
about what what happened what transpired

341
00:14:31,040 --> 00:14:25,740
to bring this kind of back onto the

342
00:14:32,690 --> 00:14:31,050
table in the last few weeks sure as you

343
00:14:35,420 --> 00:14:32,700
as you might recall originally this

344
00:14:40,040 --> 00:14:35,430
flight was supposed to fly several weeks

345
00:14:41,540 --> 00:14:40,050
ago in that particular timeframe when it

346
00:14:43,270 --> 00:14:41,550
was going to fly several weeks ago we

347
00:14:46,310 --> 00:14:43,280
had originally talked about putting

348
00:14:49,670 --> 00:14:46,320
asking the Russians to consider a fly

349
00:14:52,590 --> 00:14:49,680
about when we were on our original date

350
00:14:56,280 --> 00:14:52,600
back in in the middle of April timeframe

351
00:14:58,889 --> 00:14:56,290
at that time when the Russians went and

352
00:15:02,370 --> 00:14:58,899
looked at at their situation with their

353
00:15:03,660 --> 00:15:02,380
two saw use they came back and said well

354
00:15:06,900 --> 00:15:03,670
maybe one of the things we might

355
00:15:09,809 --> 00:15:06,910
consider is just undocking 25's a little

356
00:15:13,319 --> 00:15:09,819
bit earlier the issue that we had with

357
00:15:15,509 --> 00:15:13,329
doing that was that crew time between

358
00:15:18,360 --> 00:15:15,519
these two flights these two shuttle

359
00:15:19,949 --> 00:15:18,370
flights is very critical and so opening

360
00:15:21,629 --> 00:15:19,959
up that amount of time when we're in

361
00:15:24,180 --> 00:15:21,639
what we call an indirect handover period

362
00:15:26,100 --> 00:15:24,190
where we where we let one have one so

363
00:15:27,780 --> 00:15:26,110

you screw come home and we usually like

364
00:15:30,120 --> 00:15:27,790
to keep that time to somewhere around a

365
00:15:32,280 --> 00:15:30,130
couple of weeks having that actually get

366
00:15:34,590 --> 00:15:32,290
larger as a result of trying to share

367
00:15:36,740 --> 00:15:34,600
this objective it was going to cause us

368
00:15:39,990 --> 00:15:36,750
to to lose quite a bit of crew time

369
00:15:42,210 --> 00:15:40,000
while that while that saw use performed

370
00:15:45,629 --> 00:15:42,220
that documentation during the earlier

371
00:15:48,990 --> 00:15:45,639
the earlier launch window so what

372
00:15:51,660 --> 00:15:49,000
happened here was the the Russians came

373
00:15:55,170 --> 00:15:51,670
back and said that they were going to

374
00:15:58,019 --> 00:15:55,180
have to move there they're Russian 27

375
00:16:01,679 --> 00:15:58,029
Soyuz launch in order not to be in the

376
00:16:03,059 --> 00:16:01,689
same issue with losing the crew time we

377
00:16:04,290 --> 00:16:03,069
all got together and agreed that it

378
00:16:07,949 --> 00:16:04,300
would be good if they went ahead and

379
00:16:10,410 --> 00:16:07,959
slid their 25s down period so that we

380
00:16:12,809 --> 00:16:10,420
can maintain that same spacing well at

381
00:16:15,059 --> 00:16:12,819
the same time we are also trying to

382
00:16:16,920 --> 00:16:15,069
negotiate with a shuttle program as they

383
00:16:18,990 --> 00:16:16,930
work through the issues that they were

384
00:16:21,030 --> 00:16:19,000
having and and where they could get

385
00:16:22,679 --> 00:16:21,040
ready to go fly and so it was kind of a

386
00:16:24,600 --> 00:16:22,689
serendipitous thing that everybody sort

387
00:16:26,460 --> 00:16:24,610
of ended up in a position where when the

388
00:16:28,079 --> 00:16:26,470

shuttle guys were ready to fly we were

389
00:16:30,360 --> 00:16:28,089
trying to minimize this amount of

390
00:16:33,600 --> 00:16:30,370
downtime where we're at three crew and

391
00:16:36,030 --> 00:16:33,610
and where where it ended up was again

392
00:16:38,879 --> 00:16:36,040
fortunate for all of us and given that

393
00:16:41,100 --> 00:16:38,889
this particular vehicle 25s is an older

394
00:16:43,530 --> 00:16:41,110
series vehicle that didn't have the same

395
00:16:45,780 --> 00:16:43,540
challenges in terms of a new a new

396
00:16:48,150 --> 00:16:45,790
vehicle would and trying not to

397
00:16:50,610 --> 00:16:48,160
overextend what you do with the with the

398
00:16:52,050 --> 00:16:50,620
new vehicle our Russian colleagues felt

399
00:16:53,610 --> 00:16:52,060
much more comfortable in saying hey

400
00:16:55,870 --> 00:16:53,620
we're going to we're going to undock

401
00:16:57,760 --> 00:16:55,880
this vehicle in way anyway and

402
00:16:59,830 --> 00:16:57,770
time period and is it something you

403
00:17:02,350 --> 00:16:59,840
might want to consider for this flight

404
00:17:04,180 --> 00:17:02,360
and so that's that's where we got to

405
00:17:06,370 --> 00:17:04,190
last week and and then we went and

406
00:17:07,780 --> 00:17:06,380
turned on the activity two to try to do

407
00:17:09,370 --> 00:17:07,790
all the right analysis and see if we

408
00:17:14,860 --> 00:17:09,380
couldn't get it across the finish line

409
00:17:17,410 --> 00:17:14,870
and this morning we did mark mark wrote

410
00:17:22,030 --> 00:17:17,420
for aviation week and i had to i think i

411
00:17:25,750 --> 00:17:22,040
can ask together who goes into the into

412
00:17:28,449 --> 00:17:25,760
the hab module to do the photography is

413
00:17:30,460 --> 00:17:28,459

it just paolo nespoli or are there

414
00:17:32,380 --> 00:17:30,470
others and can you talk a little bit

415
00:17:34,240 --> 00:17:32,390
about the kind of photography and i

416
00:17:36,760 --> 00:17:34,250
don't mean to be that technical but it's

417
00:17:39,010 --> 00:17:36,770
still and video or what what is that

418
00:17:41,230 --> 00:17:39,020
you're you're sort of looking and if you

419
00:17:43,450 --> 00:17:41,240
might explain the backdrop do you have

420
00:17:46,030 --> 00:17:43,460
the earth and the in the night sky or

421
00:17:47,920 --> 00:17:46,040
day sky or the limb turning on I'm not

422
00:17:51,790 --> 00:17:47,930
sure exactly what your what effects

423
00:17:53,500 --> 00:17:51,800
you're going for thank you sure I think

424
00:17:56,050 --> 00:17:53,510
the short answer to all your questions

425
00:17:59,140 --> 00:17:56,060
is yes except to the technical stuff

426
00:18:01,480 --> 00:17:59,150
paolo nespoli is the only one who will

427
00:18:04,300 --> 00:18:01,490
be in the in the habitation module

428
00:18:06,250 --> 00:18:04,310
during during this period he will be

429
00:18:08,470 --> 00:18:06,260
doing three three things he'll be doing

430
00:18:11,200 --> 00:18:08,480
still photography he'll be doing some

431
00:18:13,780 --> 00:18:11,210
video he'll also be occasionally doing

432
00:18:16,090 --> 00:18:13,790
laser range finding to assist Dima while

433
00:18:17,770 --> 00:18:16,100
he's doing the piloting so he's got a

434
00:18:20,440 --> 00:18:17,780
couple different functions well he while

435
00:18:23,260 --> 00:18:20,450
he's in there he'll be he'll be busy in

436
00:18:25,480 --> 00:18:23,270
terms of the the view and the lighting

437
00:18:27,970 --> 00:18:25,490
since they're pitched up a little bit we

438
00:18:30,100 --> 00:18:27,980

do expect to get a good view with the

439
00:18:32,920 --> 00:18:30,110
earth and the background for much of

440
00:18:34,630 --> 00:18:32,930
this which which you should have been

441
00:18:35,920 --> 00:18:34,640
able to see also in the animation and

442
00:18:39,100 --> 00:18:35,930
maybe we can show that one more time

443
00:18:40,510 --> 00:18:39,110
that doesn't show any lighting in the

444
00:18:42,760 --> 00:18:40,520
animation so it's kind of hard to tell

445
00:18:46,360 --> 00:18:42,770
but we can certainly show it again if

446
00:18:48,220 --> 00:18:46,370
you'd like and the technical specs you

447
00:18:50,350 --> 00:18:48,230
know when we have talked about this

448
00:18:52,510 --> 00:18:50,360
photography and this imagery since

449
00:18:54,670 --> 00:18:52,520
there's video also in the past that the

450
00:18:57,750 --> 00:18:54,680
goal really is to get some good archival

451
00:19:00,700 --> 00:18:57,760
imagery of the stack with the shuttle

452
00:19:03,700 --> 00:19:00,710
attached to it so we're just looking for

453
00:19:05,840 --> 00:19:03,710
Paulo to use his best photographer

454
00:19:06,890 --> 00:19:05,850
videographer skills while he's

455
00:19:12,710 --> 00:19:06,900
there and he's certainly very

456
00:19:16,580 --> 00:19:12,720
experienced at that get the mic over to

457
00:19:18,980 --> 00:19:16,590
Robert hi Robert perla with

458
00:19:23,720 --> 00:19:18,990
collectspace.com with I guess three

459
00:19:25,340 --> 00:19:23,730
questions first how was Palo selected if

460
00:19:27,289 --> 00:19:25,350
there was a selection process of who

461
00:19:29,900 --> 00:19:27,299
would be the crew member to do the

462
00:19:32,000 --> 00:19:29,910
photography was based on his photo

463
00:19:33,830 --> 00:19:32,010

skills or was it was there a reason that

464
00:19:36,770 --> 00:19:33,840
he was able to get out of the seat

465
00:19:38,539 --> 00:19:36,780
easier it's actually more because he's

466
00:19:40,430 --> 00:19:38,549
got a couple of different jobs like I

467
00:19:43,399 --> 00:19:40,440
said not only is he doing the imagery

468
00:19:44,630 --> 00:19:43,409
but he also will be assisting Dima with

469
00:19:46,070 --> 00:19:44,640
the range finding with the laser

470
00:19:48,649 --> 00:19:46,080
rangefinder and that's part of his

471
00:19:52,730 --> 00:19:48,659
training for for where he sits in the

472
00:19:55,399 --> 00:19:52,740
Soyuz for his role in the Soyuz and will

473
00:19:57,049 --> 00:19:55,409
the tma 20 crew will they need to go

474
00:20:00,200 --> 00:19:57,059
through any type of training not just

475
00:20:02,000 --> 00:20:00,210
just to practice the logistics of Paolo

476
00:20:04,430 --> 00:20:02,010
getting out of a seat and entering the

477
00:20:06,590 --> 00:20:04,440
head module they have done some training

478
00:20:08,840 --> 00:20:06,600
already in fact that specific training

479
00:20:10,279 --> 00:20:08,850
they did last week so they did do a

480
00:20:13,760 --> 00:20:10,289
check to make sure that that was going

481
00:20:16,250 --> 00:20:13,770
to work they are doing some supplemental

482
00:20:18,649 --> 00:20:16,260
training today they had a session to get

483
00:20:20,330 --> 00:20:18,659
the cameras get the cameras ready talk

484
00:20:23,270 --> 00:20:20,340
about the camera settings and what to

485
00:20:25,010 --> 00:20:23,280
expect and go through the procedure for

486
00:20:27,770 --> 00:20:25,020
what they were thinking in terms of

487
00:20:29,450 --> 00:20:27,780
where the cameras will be set up and

488
00:20:31,909 --> 00:20:29,460

then what to do with them after they're

489
00:20:33,680 --> 00:20:31,919
after they're done the cameras will be

490
00:20:35,210 --> 00:20:33,690
staying in the habitation module so

491
00:20:37,789 --> 00:20:35,220
they're going to essentially burn up on

492
00:20:39,860 --> 00:20:37,799
entry they're not coming home they also

493
00:20:43,279 --> 00:20:39,870
have another training session tomorrow

494
00:20:45,500 --> 00:20:43,289
to talk about the piloting specifically

495
00:20:48,560 --> 00:20:45,510
and also the overall choreography of the

496
00:20:50,810 --> 00:20:48,570
event they for every so use mission we

497
00:20:52,970 --> 00:20:50,820
do a standard essentially landing

498
00:20:56,960 --> 00:20:52,980
training session with all three crew

499
00:20:59,720 --> 00:20:56,970
members and that was two days ago and

500
00:21:02,419 --> 00:20:59,730
lastly you mentioned leak checks if

501
00:21:06,260 --> 00:21:02,429
there was a problem in sealy resealing

502
00:21:07,940 --> 00:21:06,270
the hab module would would they have the

503
00:21:10,430 --> 00:21:07,950
option of coming back to the station at

504
00:21:12,140 --> 00:21:10,440
that point or would they would they just

505
00:21:14,539 --> 00:21:12,150
stay in orbit until they fixed it or how

506
00:21:15,310 --> 00:21:14,549
would that work we don't have the option

507
00:21:18,310 --> 00:21:15,320
to come back

508
00:21:20,470 --> 00:21:18,320
to the to the station with the orbiter

509
00:21:23,800 --> 00:21:20,480
there that the analysis to support that

510
00:21:25,210 --> 00:21:23,810
hasn't been done so we have not been

511
00:21:28,030 --> 00:21:25,220
counting on that in any of our

512
00:21:29,850 --> 00:21:28,040
discussions we have made sure that we

513
00:21:33,130 --> 00:21:29,860

understand what the consumables

514
00:21:35,110 --> 00:21:33,140
situation is on Soyuz how long it can

515
00:21:37,210 --> 00:21:35,120
sustain autonomous flight there are

516
00:21:38,770 --> 00:21:37,220
several back up landing opportunities

517
00:21:42,730 --> 00:21:38,780
both on that day and on the following

518
00:21:44,620 --> 00:21:42,740
day so we have in the past when we've

519
00:21:47,260 --> 00:21:44,630
seen issues with leak checks they've

520
00:21:49,690 --> 00:21:47,270
been mainly with the suits and those are

521
00:21:52,570 --> 00:21:49,700
usually easily fixed by the crew members

522
00:21:55,090 --> 00:21:52,580
and so typically we've worked our way

523
00:21:58,270 --> 00:21:55,100
out of out of those with this particular

524
00:22:00,640 --> 00:21:58,280
hatch we have never had any significant

525
00:22:04,150 --> 00:22:00,650
issue with and it's got redundant seals

526
00:22:05,440 --> 00:22:04,160
and is very robust so while we are

527
00:22:07,540 --> 00:22:05,450
certainly thinking about what the

528
00:22:11,370 --> 00:22:07,550
contingency options would be it's a

529
00:22:15,310 --> 00:22:11,380
pretty remote case that we're looking at

530
00:22:18,010 --> 00:22:15,320
Gina gets the mic genus and Sara ABC

531
00:22:21,460 --> 00:22:18,020
news how does the space station actually

532
00:22:22,930 --> 00:22:21,470
rotate is gyros thrusters endeavour how

533
00:22:24,580 --> 00:22:22,940
do you make that happen and who will be

534
00:22:27,460 --> 00:22:24,590
in charge of that it's going to be the

535
00:22:30,010 --> 00:22:27,470
Russian segment thrusters so from the

536
00:22:37,700 --> 00:22:30,020
service module and from progress 42 p

537
00:22:43,430 --> 00:22:41,180
follow nope okay we can go to the phone

538
00:22:45,289 --> 00:22:43,440

bridge now we have four reporters on the

539
00:22:47,570 --> 00:22:45,299
phone bridge starting off with Denise

540
00:22:53,539 --> 00:22:47,580
Chow from space com Denise can you hear

541
00:22:55,760 --> 00:22:53,549
us oh yeah can hear me absolutely for

542
00:22:58,970 --> 00:22:55,770
the sony flyer on when it was discussed

543
00:23:00,620 --> 00:22:58,980
for the 133 mission there was talk about

544
00:23:03,169 --> 00:23:00,630
how there was a lot of engineering data

545
00:23:04,880 --> 00:23:03,179
that could be taken from the photos is

546
00:23:08,740 --> 00:23:04,890
that the same for the flyer on or is

547
00:23:12,200 --> 00:23:08,750
this most wager for a unique photo op

548
00:23:14,000 --> 00:23:12,210
well certainly I think any anytime we

549
00:23:16,610 --> 00:23:14,010
get photo documentation of the station

550
00:23:19,399 --> 00:23:16,620
there's you know there's sort of the

551
00:23:22,370 --> 00:23:19,409
g-wiz factor just because of the

552
00:23:24,590 --> 00:23:22,380
enormity of it obviously with having the

553
00:23:27,590 --> 00:23:24,600
shuttle attached there's going to be

554
00:23:30,620 --> 00:23:27,600
even a greater heightened awareness and

555
00:23:32,210 --> 00:23:30,630
interest in seeing these photos but you

556
00:23:34,159 --> 00:23:32,220
can rest assured there is a community

557
00:23:36,830 --> 00:23:34,169
here at the Johnson Space Center whose

558
00:23:38,480 --> 00:23:36,840
job it is to to look at imagery that

559
00:23:40,549 --> 00:23:38,490
comes from the space station and and

560
00:23:42,260 --> 00:23:40,559
they take every opportunity they can to

561
00:23:44,750 --> 00:23:42,270
look at every every picture that comes

562
00:23:47,299 --> 00:23:44,760
down and so they'll they'll have a

563
00:23:50,799 --> 00:23:47,309

unique opportunity here to get some

564
00:23:53,570 --> 00:23:50,809
photos from from different angles and so

565
00:23:56,210 --> 00:23:53,580
again there will certainly be some some

566
00:23:57,590 --> 00:23:56,220
level of analysis or at least scrutiny

567
00:24:03,980 --> 00:23:57,600
of these pictures from an engineering

568
00:24:08,269 --> 00:24:03,990
perspective thankfully bill Harwood CBS

569
00:24:11,360 --> 00:24:08,279
next yeah guys thanks a lot I appreciate

570
00:24:12,620 --> 00:24:11,370
it how does the head of the video cards

571
00:24:15,440 --> 00:24:12,630
assume that's what they are how do they

572
00:24:16,340 --> 00:24:15,450
get back to the states and I mean

573
00:24:17,539 --> 00:24:16,350
obviously we're not going to see this

574
00:24:19,130 --> 00:24:17,549
lab but how do they get back to the

575
00:24:21,100 --> 00:24:19,140
states and when would the earliest be

576
00:24:23,740 --> 00:24:21,110
that we could expect to see this imagery

577
00:24:25,909 --> 00:24:23,750
well that part of the plan bill is is

578
00:24:29,029 --> 00:24:25,919
still something we're working with our

579
00:24:32,570 --> 00:24:29,039
Russian colleagues we have to figure out

580
00:24:34,880 --> 00:24:32,580
how the handover happens of all the the

581
00:24:37,940 --> 00:24:34,890
video cards the

582
00:24:39,170 --> 00:24:37,950
the photo cards at this point it's

583
00:24:42,470 --> 00:24:39,180
something we're working with the ground

584
00:24:46,010 --> 00:24:42,480
team over in Moscow the folks will be

585
00:24:48,080 --> 00:24:46,020
on-site we will have people on site at

586
00:24:49,460 --> 00:24:48,090
the landing as well and so we're trying

587
00:24:53,180 --> 00:24:49,470
to work an integrated plan that will

588
00:24:55,970 --> 00:24:53,190

allow allow those cards to be removed

589
00:24:57,980 --> 00:24:55,980
from the Soyuz and then if everything

590
00:25:00,650 --> 00:24:57,990
works out ok we'll we'll make several

591
00:25:03,950 --> 00:25:00,660
copies there in and around the landing

592
00:25:07,010 --> 00:25:03,960
site or on the way back to care ganda

593
00:25:09,830 --> 00:25:07,020
and at that point then we can start to

594
00:25:12,830 --> 00:25:09,840
process a distribution and so our goal

595
00:25:14,810 --> 00:25:12,840
hopefully within day we'd like to start

596
00:25:16,640 --> 00:25:14,820
seeing some of those those photos in

597
00:25:21,320 --> 00:25:16,650
that video starting to make its way out

598
00:25:23,300 --> 00:25:21,330
into the airways thanks and for Courtney

599
00:25:24,560 --> 00:25:23,310
you mentioned it a lot of study went

600
00:25:26,840 --> 00:25:24,570
into getting into that rather unique

601
00:25:29,360 --> 00:25:26,850
kind of sideways attitude what are the

602
00:25:32,180 --> 00:25:29,370
issues in that it makes that something

603
00:25:34,400 --> 00:25:32,190
that required a lot of study thanks well

604
00:25:36,500 --> 00:25:34,410
any attitude that we go to that is out

605
00:25:38,510 --> 00:25:36,510
essentially outside of the box outside

606
00:25:42,890 --> 00:25:38,520
of the attitudes that we have fully

607
00:25:45,860 --> 00:25:42,900
analyzed require a lot of scrutiny is a

608
00:25:47,600 --> 00:25:45,870
good word to see really if there will be

609
00:25:49,160 --> 00:25:47,610
any problems and if there will wear

610
00:25:50,750 --> 00:25:49,170
those problems will be and how great

611
00:25:53,000 --> 00:25:50,760
they will be one of the other

612
00:25:54,980 --> 00:25:53,010
complicating factors about this timeline

613
00:25:58,970 --> 00:25:54,990

is the length of time that we're in each

614
00:26:01,220 --> 00:25:58,980
of these attitudes it totals only one

615
00:26:04,520 --> 00:26:01,230
insulation pass so half of an orbit

616
00:26:08,420 --> 00:26:04,530
about 45 minutes but it that is still

617
00:26:10,190 --> 00:26:08,430
longer for being in one position for for

618
00:26:13,040 --> 00:26:10,200
these unusual attitudes than what we're

619
00:26:15,290 --> 00:26:13,050
accustomed to needing to analyze so it's

620
00:26:18,110 --> 00:26:15,300
really just it's it's different enough

621
00:26:20,690 --> 00:26:18,120
from what we usually fly that it is

622
00:26:22,610 --> 00:26:20,700
outside of what we what we know about so

623
00:26:24,380 --> 00:26:22,620
folks had to go off and really do the

624
00:26:27,080 --> 00:26:24,390
math and figure out where the problems

625
00:26:29,120 --> 00:26:27,090
would be it's it's the same kind of

626
00:26:31,190 --> 00:26:29,130
problems we look for so solar arrays are

627
00:26:34,250 --> 00:26:31,200
always a challenge and thermal

628
00:26:35,690 --> 00:26:34,260
conditioning is always a challenge thank

629
00:26:37,580 --> 00:26:35,700
you one more quick one from me for Kenny

630
00:26:40,220 --> 00:26:37,590
you mentioned it to the plan for getting

631
00:26:41,510 --> 00:26:40,230
the cards back is still in work is there

632
00:26:42,800 --> 00:26:41,520
some chance this stuff would end up in

633
00:26:44,930 --> 00:26:42,810
Moscow and would get released through

634
00:26:47,210 --> 00:26:44,940
some other way or you sure it's coming

635
00:26:49,480 --> 00:26:47,220
back I guess on Katie's plane to

636
00:26:52,580 --> 00:26:49,490
to get back within a day or so thanks

637
00:26:54,500 --> 00:26:52,590
okay well again at this point we are

638
00:26:56,630 --> 00:26:54,510

we're working closely with the Russians

639
00:26:58,220 --> 00:26:56,640
first of all to make sure that that we

640
00:26:59,810 --> 00:26:58,230
understand how the cards will be treated

641
00:27:02,180 --> 00:26:59,820
within the soil use amongst the crew

642
00:27:04,570 --> 00:27:02,190
themselves and then and then we're

643
00:27:07,250 --> 00:27:04,580
working with the folks on the ground

644
00:27:09,049 --> 00:27:07,260
both on the Russian side as well as our

645
00:27:11,570 --> 00:27:09,059
our team that's going to be over there

646
00:27:13,190 --> 00:27:11,580
to make sure that we have the assets and

647
00:27:17,210 --> 00:27:13,200
that we're ready and that we can get the

648
00:27:19,549 --> 00:27:17,220
handoff and and as far as whether

649
00:27:21,980 --> 00:27:19,559
they'll be released through Moscow or be

650
00:27:25,760 --> 00:27:21,990
back on the plane our goal would be to

651
00:27:27,950 --> 00:27:25,770
try to get enough copies to to ensure

652
00:27:30,560 --> 00:27:27,960
that we have multiple routes by which to

653
00:27:33,950 --> 00:27:30,570
get the video and the photography back

654
00:27:38,149 --> 00:27:33,960
back to the states and release to to all

655
00:27:42,380 --> 00:27:38,159
the different media outlets okay next up

656
00:27:45,830 --> 00:27:42,390
James Dean from Florida today thank you

657
00:27:50,299 --> 00:27:45,840
very much a few questions if I may first

658
00:27:54,110 --> 00:27:50,309
I'm assuming that proceeding with this

659
00:27:56,870 --> 00:27:54,120
opportunity on this in this week means

660
00:27:59,060 --> 00:27:56,880
that there's no longer consideration of

661
00:28:00,919 --> 00:27:59,070
doing it for 135 when obviously you

662
00:28:07,220 --> 00:28:00,929
don't have that natural occurrence of a

663
00:28:09,649 --> 00:28:07,230

of an undocking at this point we we

664
00:28:13,340 --> 00:28:09,659
still have it in our requirement set as

665
00:28:16,279 --> 00:28:13,350
under consideration for for the Ulf 7

666
00:28:19,070 --> 00:28:16,289
flight the 135 flight if we do get

667
00:28:22,460 --> 00:28:19,080
imagery off this flight will certainly

668
00:28:23,750 --> 00:28:22,470
go back in and and look at the whether

669
00:28:25,760 --> 00:28:23,760
or not that requirement still makes

670
00:28:27,470 --> 00:28:25,770
sense for that particular flight there

671
00:28:29,690 --> 00:28:27,480
certainly be an additional degree of

672
00:28:31,460 --> 00:28:29,700
difficulty in that if we did it during

673
00:28:34,340 --> 00:28:31,470
the 135 flight we'd have to go through

674
00:28:35,659 --> 00:28:34,350
the read aki exercise and and again

675
00:28:37,789 --> 00:28:35,669
that's just brings a little more

676
00:28:39,680 --> 00:28:37,799
complexity to it that that we would have

677
00:28:42,049 --> 00:28:39,690
to go work so this clearly is a better

678
00:28:43,760 --> 00:28:42,059
option for us and we'll see what the

679
00:28:47,659 --> 00:28:43,770
outcome looks like when we when we get

680
00:28:50,570 --> 00:28:47,669
the pictures back Thanks this is this

681
00:28:52,820 --> 00:28:50,580
this maneuver has been called under

682
00:28:55,880 --> 00:28:52,830
under different scenarios a fly about in

683
00:28:57,620 --> 00:28:55,890
the fly around and I I just want to

684
00:29:00,740 --> 00:28:57,630
confirm again I guess I probably look at

685
00:29:04,310 --> 00:29:00,750
that video again to get a closer

686
00:29:06,620 --> 00:29:04,320
but the soy is it does it just stacks

687
00:29:09,470 --> 00:29:06,630
away or you have a name for what what

688
00:29:12,230 --> 00:29:09,480

what this event is as it's currently

689
00:29:16,340 --> 00:29:12,240
designed you just confirm if the soil is

690
00:29:19,190 --> 00:29:16,350
is actually doing anything different

691
00:29:22,400 --> 00:29:19,200
than a normal undocking scenario or is

692
00:29:25,670 --> 00:29:22,410
there any flying that it that it needs

693
00:29:27,350 --> 00:29:25,680
to do to make this work flying that is

694
00:29:29,210 --> 00:29:27,360
going to happen to make this work what

695
00:29:32,030 --> 00:29:29,220
what we've been kind of calling it as a

696
00:29:35,060 --> 00:29:32,040
team is the the undock with imagery it

697
00:29:37,520 --> 00:29:35,070
for the most part it looks exactly like

698
00:29:39,590 --> 00:29:37,530
a normal undock except that the attitude

699
00:29:41,300 --> 00:29:39,600
is a little bit tweaked up to assist

700
00:29:44,570 --> 00:29:41,310
with the manual piloting so he doesn't

701
00:29:47,150 --> 00:29:44,580
get as the Sun in his eyes but in terms

702
00:29:49,820 --> 00:29:47,160
of the overall sort of the relative

703
00:29:52,100 --> 00:29:49,830
motion of the Soyuz on the station it

704
00:29:54,890 --> 00:29:52,110
looks just like an undocking so we had

705
00:29:57,200 --> 00:29:54,900
we have been working hard to keep the

706
00:29:59,450 --> 00:29:57,210
words fly around and fly about out of

707
00:30:02,810 --> 00:29:59,460
our out of our official terminology for

708
00:30:05,660 --> 00:30:02,820
this so Rob two more questions if

709
00:30:07,880 --> 00:30:05,670
there's time when you're referring

710
00:30:10,160 --> 00:30:07,890
coordinate to the attitude could you

711
00:30:13,330 --> 00:30:10,170
just explain that a little further how

712
00:30:15,680 --> 00:30:13,340
again this this attitude that you're

713
00:30:18,590 --> 00:30:15,690

you're going to need to to get into

714
00:30:21,230 --> 00:30:18,600
differs from what you normally do during

715
00:30:23,480 --> 00:30:21,240
a choice on docker I guess even when a

716
00:30:27,050 --> 00:30:23,490
shuttle docks adapt it is change right

717
00:30:29,030 --> 00:30:27,060
we for each vehicle docking we try to

718
00:30:31,220 --> 00:30:29,040
take into account the trajectory of the

719
00:30:33,260 --> 00:30:31,230
approaching vehicle when we're planning

720
00:30:35,930 --> 00:30:33,270
where you know how we want to orient the

721
00:30:38,600 --> 00:30:35,940
station for each vehicle docking and

722
00:30:41,120 --> 00:30:38,610
undocking for the Soyuz vehicles we

723
00:30:43,880 --> 00:30:41,130
undock them basically behind the station

724
00:30:46,490 --> 00:30:43,890
so they go out the back of how the

725
00:30:48,820 --> 00:30:46,500
station is flying what that means for

726
00:30:51,680 --> 00:30:48,830
the two Soyuz vehicles which are docked

727
00:30:53,920 --> 00:30:51,690
one on one on Zenith one above and one

728
00:30:57,140 --> 00:30:53,930
below on Nador is you have to aim that

729
00:30:59,630 --> 00:30:57,150
docking port backwards so that they're

730
00:31:01,400 --> 00:30:59,640
aimed back usually we put them right on

731
00:31:03,890 --> 00:31:01,410
the velocity vector when we're doing

732
00:31:06,110 --> 00:31:03,900
that this time we're tipping it up a

733
00:31:09,380 --> 00:31:06,120
little bit so that they'll come above

734
00:31:11,600 --> 00:31:09,390
the the vector behind the behind the

735
00:31:13,310 --> 00:31:11,610
station and that's really just the Sun

736
00:31:14,810 --> 00:31:13,320
is going to be coming up on the other

737
00:31:17,409 --> 00:31:14,820
and we just want to keep the Sun out of

738
00:31:19,759 --> 00:31:17,419

the pilots eyes out of Dimitris eyes

739
00:31:20,899 --> 00:31:19,769
thanks again and then lastly Kenny I

740
00:31:24,830 --> 00:31:20,909
just wonder if you could speak a little

741
00:31:27,379 --> 00:31:24,840
further to about you know just why so

742
00:31:29,990 --> 00:31:27,389
much work has been put in to to make

743
00:31:33,710 --> 00:31:30,000
this these photos possible what will

744
00:31:36,950 --> 00:31:33,720
these photos mean to NASA to the shuttle

745
00:31:38,779 --> 00:31:36,960
program to station program to to get

746
00:31:41,690 --> 00:31:38,789
these special views obviously get a lot

747
00:31:44,899 --> 00:31:41,700
of neat views on spacewalks or when a

748
00:31:47,119 --> 00:31:44,909
shuttle on Doc's but you know what will

749
00:31:48,799 --> 00:31:47,129
you think will be so I guess inspiring

750
00:31:53,240 --> 00:31:48,809
or important about getting these

751
00:31:54,950 --> 00:31:53,250
particular pictures I'm sure you know

752
00:31:56,629 --> 00:31:54,960
there we talked a little bit about the

753
00:31:59,419 --> 00:31:56,639
engineering aspects of it earlier and

754
00:32:02,419 --> 00:31:59,429
certainly there's some some part of that

755
00:32:03,499 --> 00:32:02,429
that that will be there there will be

756
00:32:06,710 --> 00:32:03,509
people that will look at these pictures

757
00:32:10,039 --> 00:32:06,720
with a different eye then probably those

758
00:32:11,749 --> 00:32:10,049
in the public will but you know when you

759
00:32:14,149 --> 00:32:11,759
when you look at what this program has

760
00:32:15,919 --> 00:32:14,159
accomplished this international

761
00:32:18,740 --> 00:32:15,929
partnership along with the space shuttle

762
00:32:20,539 --> 00:32:18,750
program and you turn the clock forward

763
00:32:22,490 --> 00:32:20,549

and you look into future generations I'd

764
00:32:25,580 --> 00:32:22,500
like to think that that they would look

765
00:32:28,279 --> 00:32:25,590
back on their history and look back at

766
00:32:33,049 --> 00:32:28,289
what what we accomplished between these

767
00:32:35,419 --> 00:32:33,059
two very very large programs and and the

768
00:32:37,549 --> 00:32:35,429
the technology and the engineering that

769
00:32:40,759 --> 00:32:37,559
that went into to making the Space

770
00:32:43,009 --> 00:32:40,769
Shuttle do what it has done for this

771
00:32:44,570 --> 00:32:43,019
country and then look at the the

772
00:32:46,220 --> 00:32:44,580
International Space Station what this

773
00:32:48,560 --> 00:32:46,230
international partnership is done and

774
00:32:51,889 --> 00:32:48,570
look at these two programs represented

775
00:32:54,740 --> 00:32:51,899
in low Earth orbit together I think and

776
00:32:56,600 --> 00:32:54,750
I hope that when those those future

777
00:32:58,639 --> 00:32:56,610
generations look back that they see that

778
00:33:00,200 --> 00:32:58,649
it it was quite a feat to go do this

779
00:33:03,190 --> 00:33:00,210
with the technology that we were dealing

780
00:33:05,749 --> 00:33:03,200
with in this particular timeframe and

781
00:33:07,580 --> 00:33:05,759
hopefully hopefully those pictures will

782
00:33:12,200 --> 00:33:07,590
show up in textbooks for years to come

783
00:33:15,049 --> 00:33:12,210
in medical science books and physical

784
00:33:18,529 --> 00:33:15,059
science books and in you know

785
00:33:21,500 --> 00:33:18,539
engineering textbooks and and it can be

786
00:33:23,330 --> 00:33:21,510
held up as a reason behind a lot of

787
00:33:25,610 --> 00:33:23,340
great discoveries when I when I look at

788
00:33:27,289 --> 00:33:25,620

the International Space Station I see it

789
00:33:30,529 --> 00:33:27,299
truly as a

790
00:33:32,989 --> 00:33:30,539
a vessel of discovery and to have the

791
00:33:35,570 --> 00:33:32,999
the Space Shuttle attached those guys

792
00:33:39,320 --> 00:33:35,580
are a part of everything that has been

793
00:33:41,060 --> 00:33:39,330
done in this program and so if we're

794
00:33:43,580 --> 00:33:41,070
ever it end up in it in the future

795
00:33:45,109 --> 00:33:43,590
somewhere in a book it'd be great to

796
00:33:46,310 --> 00:33:45,119
have the Space Shuttle represented here

797
00:33:49,609 --> 00:33:46,320
with us as well as all the other

798
00:33:53,289 --> 00:33:49,619
international partners okay and I

799
00:33:56,509 --> 00:33:53,299
believe Jim Oberg is on from NBC hi guys

800
00:33:58,970 --> 00:33:56,519
Courtney yeah was that looking at the

801
00:34:01,340 --> 00:33:58,980
video was that the moon coming up behind

802
00:34:04,070 --> 00:34:01,350
the station I'll have to go ask my

803
00:34:05,539 --> 00:34:04,080
pointer I don't know we were paying a

804
00:34:06,830 --> 00:34:05,549
whole lot more attention to what the

805
00:34:08,899 --> 00:34:06,840
station was doing than what the

806
00:34:10,159 --> 00:34:08,909
background was doing when we when we got

807
00:34:13,339 --> 00:34:10,169
that movie that's a great question

808
00:34:16,730 --> 00:34:13,349
though work out the procedure a question

809
00:34:19,309 --> 00:34:16,740
question for Kenny he talking about the

810
00:34:21,950 --> 00:34:19,319
delay at 27 s which turned out to been

811
00:34:23,299 --> 00:34:21,960
very convenient because of our delay but

812
00:34:25,430 --> 00:34:23,309
it was delayed before that we were

813
00:34:27,020 --> 00:34:25,440

delayed and I'm wondering what kind of

814
00:34:29,510 --> 00:34:27,030
background you were giving from the

815
00:34:31,669 --> 00:34:29,520
Russian side is to the reasons that they

816
00:34:34,010 --> 00:34:31,679
had suddenly slipped their launch date

817
00:34:35,960 --> 00:34:34,020
about eight days the press reports of

818
00:34:37,940 --> 00:34:35,970
mosca suggested it was they were not yet

819
00:34:40,909 --> 00:34:37,950
finished working out anomalies on the

820
00:34:43,010 --> 00:34:40,919
first digital salyers flight it to be

821
00:34:45,859 --> 00:34:43,020
perfectly frank Jim I didn't have that

822
00:34:49,970 --> 00:34:45,869
level of insight into what was going on

823
00:34:53,780 --> 00:34:49,980
with 27 s and and so from our

824
00:34:55,520 --> 00:34:53,790
perspective we were looking to try to to

825
00:34:58,160 --> 00:34:55,530
minimize that that amount of time and

826
00:35:00,319 --> 00:34:58,170
that's why we asked them to slide 25 s

827
00:35:01,839 --> 00:35:00,329
but their reasoning behind 27 s I just

828
00:35:04,190 --> 00:35:01,849
don't personally have that insight into

829
00:35:07,250 --> 00:35:04,200
thank you very much and things things

830
00:35:09,799 --> 00:35:07,260
that worked out pretty well Thea and and

831
00:35:11,390 --> 00:35:09,809
yeah and in the end it looks like that

832
00:35:16,490 --> 00:35:11,400
this is going to be a great opportunity

833
00:35:19,430 --> 00:35:16,500
for for the spaceflight community okay

834
00:35:22,460 --> 00:35:19,440
fine thank you okay any follow-ups back

835
00:35:24,559 --> 00:35:22,470
here Robert in the bank I robbed promo

836
00:35:27,200 --> 00:35:24,569
with collectspace.com again with just

837
00:35:28,760 --> 00:35:27,210
two quick follow-ups is there anything

838
00:35:30,920 --> 00:35:28,770

that could happen between now and

839
00:35:31,830 --> 00:35:30,930
undocking that would cause you to not do

840
00:35:40,710 --> 00:35:31,840
this

841
00:35:42,360 --> 00:35:40,720
from an openwork standpoint what we

842
00:35:44,430 --> 00:35:42,370
talked about this morning all seemed

843
00:35:47,250 --> 00:35:44,440
very benign it's it you know we're

844
00:35:50,250 --> 00:35:47,260
talking array angles and things that we

845
00:35:53,130 --> 00:35:50,260
typically look at relative to the 25's

846
00:35:56,550 --> 00:35:53,140
undock itself it's typical Soyuz type of

847
00:35:58,350 --> 00:35:56,560
work that we close on after after go

848
00:36:00,980 --> 00:35:58,360
no-go review and we all agree that

849
00:36:03,270 --> 00:36:00,990
that's normal work and we go do

850
00:36:05,910 --> 00:36:03,280
certainly as they go through their

851
00:36:07,920 --> 00:36:05,920
preparations the crew on board if they

852
00:36:11,550 --> 00:36:07,930
see something if they discover an issue

853
00:36:12,810 --> 00:36:11,560
with the vehicle or just come back to us

854
00:36:14,820 --> 00:36:12,820
and say they're uncomfortable with

855
00:36:16,230 --> 00:36:14,830
something then those are the kinds of

856
00:36:18,180 --> 00:36:16,240
things that would would warrant further

857
00:36:20,640 --> 00:36:18,190
discussion Courtney on and off he any

858
00:36:22,560 --> 00:36:20,650
other specifics a second both of those I

859
00:36:25,170 --> 00:36:22,570
think we're in very good shape with what

860
00:36:28,200 --> 00:36:25,180
we know about the operation today and

861
00:36:30,620 --> 00:36:28,210
what analysis has returned in and and

862
00:36:33,390 --> 00:36:30,630
what new knowledge we have because of it

863
00:36:34,950 --> 00:36:33,400

yeah if there's something out there that

864
00:36:36,450 --> 00:36:34,960
the crew sees that we haven't seen yet

865
00:36:37,770 --> 00:36:36,460
or haven't talked about yet that's

866
00:36:39,270 --> 00:36:37,780
certainly going to cause some more

867
00:36:42,600 --> 00:36:39,280
discussion and make us think about it

868
00:36:44,370 --> 00:36:42,610
again and of course this is this is the

869
00:36:47,370 --> 00:36:44,380
this is a shuttle mission there's a lot

870
00:36:49,500 --> 00:36:47,380
going on and anything could happen so

871
00:36:51,270 --> 00:36:49,510
we're keeping our eyes open to see what

872
00:36:53,400 --> 00:36:51,280
else might be out there but right now we

873
00:36:55,530 --> 00:36:53,410
don't know of any show stopper or

874
00:37:00,810 --> 00:36:55,540
potential showstopper that would turn

875
00:37:03,390 --> 00:37:00,820
this around and just out of just for

876
00:37:05,100 --> 00:37:03,400
curiosity's sake the cameras that are

877
00:37:06,750 --> 00:37:05,110
going to burn up were those extra

878
00:37:08,250 --> 00:37:06,760
cameras that were aboard the ISS or

879
00:37:10,200 --> 00:37:08,260
reach their end of life and we're

880
00:37:12,480 --> 00:37:10,210
already going to be disposed of or do

881
00:37:14,100 --> 00:37:12,490
they need to be replaced the two cameras

882
00:37:17,760 --> 00:37:14,110
specifically are Russian camera so I

883
00:37:19,830 --> 00:37:17,770
don't know if they were end of life we

884
00:37:22,650 --> 00:37:19,840
have quite a few cameras onboard and

885
00:37:25,080 --> 00:37:22,660
actually both both NASA and Russia had

886
00:37:27,000 --> 00:37:25,090
come up with candidate hardware items

887
00:37:29,940 --> 00:37:27,010
and we had the specialist get together

888
00:37:31,680 --> 00:37:29,950

and talk about which items were being

889
00:37:33,930 --> 00:37:31,690
proposed on both sides and what made the

890
00:37:36,660 --> 00:37:33,940
most sense and the two cameras that the

891
00:37:39,720 --> 00:37:36,670
Russians had were made the most sense to

892
00:37:40,400 --> 00:37:39,730
use in this case so on our side yeah

893
00:37:41,780 --> 00:37:40,410
same

894
00:37:43,970 --> 00:37:41,790
kind of thing we're certainly not going

895
00:37:46,010 --> 00:37:43,980
to not use a camera that's on board and

896
00:37:48,740 --> 00:37:46,020
good so you know it's hard to say a

897
00:37:51,650 --> 00:37:48,750
camera is at the end of its life but

898
00:37:53,750 --> 00:37:51,660
these ones these were available and and

899
00:37:58,070 --> 00:37:53,760
willing to give them up if we can get

900
00:38:00,230 --> 00:37:58,080
these photos so okay that wraps up the

901
00:38:02,540 --> 00:38:00,240
questions a few programming notes first

902
00:38:04,340 --> 00:38:02,550
of all will replay that animation right

903
00:38:06,350 --> 00:38:04,350
at the end of this briefing it'll also

904
00:38:07,910 --> 00:38:06,360
be on our website with Courtney's

905
00:38:10,640 --> 00:38:07,920
comments as she narrated through the

906
00:38:13,370 --> 00:38:10,650
animation of the undocking and the

907
00:38:14,990 --> 00:38:13,380
imagery acquisition exercise coming up

908
00:38:16,880 --> 00:38:15,000
at two p.m. central time this afternoon

909
00:38:19,010 --> 00:38:16,890
this is one hour earlier than previously

910
00:38:21,830 --> 00:38:19,020
scheduled today's mission management

911
00:38:23,480 --> 00:38:21,840
team briefing with Leroy Cain the chair

912
00:38:25,730 --> 00:38:23,490
of the mission management team in the

913
00:38:27,950 --> 00:38:25,740

deputy shuttle program manager one hour

914
00:38:30,890 --> 00:38:27,960
earlier than previously scheduled at two

915
00:38:33,020 --> 00:38:30,900
p.m. central time today our flight day

916
00:38:35,570 --> 00:38:33,030
highlights will now follow that briefing

917
00:38:37,880 --> 00:38:35,580
at three p.m. central time space shuttle

918
00:38:40,580 --> 00:38:37,890
crew wakes up tonight at 8 26 p.m.

919
00:38:42,110 --> 00:38:40,590
central time to begin its flight day one

920
00:38:44,420 --> 00:38:42,120
highlight on the cruise scheduled for

921
00:38:46,130 --> 00:38:44,430
early Saturday is a special call from

922
00:38:49,040 --> 00:38:46,140
the Vatican in Rome from His Holiness

923
00:38:50,420 --> 00:38:49,050
Pope Benedict the 16th the Holy Fathers

924
00:38:52,850 --> 00:38:50,430
called to the crew is scheduled on

925
00:38:55,670 --> 00:38:52,860
saturday at six eleven a.m. central

926
00:38:57,140 --> 00:38:55,680
times 7 11 a.m. eastern time you'll see

927
00:38:59,870 --> 00:38:57,150
both sides of that call on NASA

928
00:39:02,630 --> 00:38:59,880
television it will be in English and in

929
00:39:04,580 --> 00:39:02,640
Italian now getting back to so use for a

930
00:39:07,280 --> 00:39:04,590
second the change of command ceremony

931
00:39:11,870 --> 00:39:07,290
between the cruise is scheduled on

932
00:39:13,610 --> 00:39:11,880
sunday at 1042 a.m. central time the off

933
00:39:15,410 --> 00:39:13,620
going station commander dmitry

934
00:39:17,690 --> 00:39:15,420
kondratyev will hand over command of the

935
00:39:20,600 --> 00:39:17,700
station to andrey borisenko at that time

936
00:39:22,850 --> 00:39:20,610
sunday at 1042 a.m. central time and

937
00:39:25,820 --> 00:39:22,860
then on homecoming day for the

938
00:39:28,610 --> 00:39:25,830

expedition 27 trio our coverage is

939
00:39:31,730 --> 00:39:28,620
integrated into the sts-135 Ulf 6

940
00:39:33,680 --> 00:39:31,740
mission coverage monday at 1pm farewells

941
00:39:37,220 --> 00:39:33,690
and hatch closure that's the beginning

942
00:39:39,530 --> 00:39:37,230
of our coverage for 15 p.m. the second

943
00:39:41,980 --> 00:39:39,540
phase of the coverage for undocking and

944
00:39:44,840 --> 00:39:41,990
the imagery acquisition exercise and

945
00:39:47,090 --> 00:39:44,850
then later in the evening 815 p.m.

946
00:39:49,010 --> 00:39:47,100
central time deorbit burn and landing

947
00:39:51,230 --> 00:39:49,020
coverage and we as always hope to have

948
00:39:53,270 --> 00:39:51,240
live television from the landing site

949
00:39:56,750 --> 00:39:53,280
southeast of Jessica's gone

950
00:39:58,670 --> 00:39:56,760
in Kazakhstan you'll see all of that and

951
00:40:00,080 --> 00:39:58,680
our continuing mission coverage on the

952
00:40:04,640 --> 00:40:00,090
website as well as well as NASA

953
00:40:07,040 --> 00:40:04,650
television wws a gov one-stop shopping

954
00:40:08,810 --> 00:40:07,050
for everything in human space flight so

955
00:40:10,340 --> 00:40:08,820
with that we'll go back to mich and

956
00:40:12,050 --> 00:40:10,350
we'll see you later two o'clock for the