
n Space

1
00:00:06,789 --> 00:00:04,630
good afternoon thank you for joining us

2
00:00:08,870 --> 00:00:06,799
for today's mission status briefing uh

3
00:00:11,749 --> 00:00:08,880
we are here today with the lead station

4
00:00:13,589 --> 00:00:11,759
director chris edelen of this last

5
00:00:15,589 --> 00:00:13,599
shuttle mission and uh he will begin

6
00:00:17,349 --> 00:00:15,599
with a few remarks and then we'll open

7
00:00:18,710 --> 00:00:17,359
the floor for some questions chris thank

8
00:00:20,390 --> 00:00:18,720
you amico

9
00:00:22,550 --> 00:00:20,400
uh i'm pleased to report another good

10
00:00:24,310 --> 00:00:22,560
day of operations on the

11
00:00:26,390 --> 00:00:24,320
international space station and space

12
00:00:28,790 --> 00:00:26,400
shuttle atlantis the crew made very good

13
00:00:30,390 --> 00:00:28,800

progress today on transferring the

14
00:00:32,630 --> 00:00:30,400
remaining cargo

15
00:00:36,069 --> 00:00:32,640
the atlantis crew spent most of their

16
00:00:38,549 --> 00:00:36,079
time in the rafaello logistics module

17
00:00:41,190 --> 00:00:38,559
they are now 70 percent complete with

18
00:00:44,150 --> 00:00:41,200
the uh with the planned cargo transfer

19
00:00:46,069 --> 00:00:44,160
from the mplm as well as about 70

20
00:00:48,709 --> 00:00:46,079
percent complete with their planned

21
00:00:50,470 --> 00:00:48,719
mid-deck cargo transfer total of 10 000

22
00:00:51,670 --> 00:00:50,480
pounds of cargo is being brought up on

23
00:00:53,750 --> 00:00:51,680
atlantis and

24
00:00:55,430 --> 00:00:53,760
most of the cargo is now on the correct

25
00:00:57,430 --> 00:00:55,440
side of the hatches the things that we

26
00:00:58,630 --> 00:00:57,440
were bringing up to the space station

27
00:01:00,709 --> 00:00:58,640
are now

28
00:01:02,950 --> 00:01:00,719
on inside the space station some stowed

29
00:01:05,030 --> 00:01:02,960
away some waiting to be uh to be

30
00:01:07,109 --> 00:01:05,040
permanently stowed and the items to be

31
00:01:08,789 --> 00:01:07,119
brought back to earth are now most of

32
00:01:10,950 --> 00:01:08,799
those items are now in the logistics

33
00:01:12,550 --> 00:01:10,960
module uh it still looks a little

34
00:01:14,870 --> 00:01:12,560
cluttered because a lot of those items

35
00:01:17,350 --> 00:01:14,880
have not been placed into their return

36
00:01:19,510 --> 00:01:17,360
position yet fully strapped down so

37
00:01:21,510 --> 00:01:19,520
that's the the primary remaining task

38
00:01:22,789 --> 00:01:21,520

for the crew is to get all the return

39
00:01:25,270 --> 00:01:22,799
cargo

40
00:01:27,429 --> 00:01:25,280
safely stowed we needed secured for the

41
00:01:28,789 --> 00:01:27,439
trip home so we make sure to maintain

42
00:01:31,910 --> 00:01:28,799
the proper center of gravity on the

43
00:01:34,069 --> 00:01:31,920
space shuttle for its uh for its entry

44
00:01:36,230 --> 00:01:34,079
just to give you a couple specific

45
00:01:38,310 --> 00:01:36,240
examples of some of the cargo that we

46
00:01:40,469 --> 00:01:38,320
transferred today

47
00:01:42,550 --> 00:01:40,479
as far as a couple return items

48
00:01:44,789 --> 00:01:42,560
we're bringing back some old quick don

49
00:01:46,469 --> 00:01:44,799
masks these are emergency masks from the

50
00:01:48,310 --> 00:01:46,479
space station that are used to provide

51
00:01:49,510 --> 00:01:48,320
oxygen in the invent of a fire or other

52
00:01:51,190 --> 00:01:49,520
emergency

53
00:01:51,990 --> 00:01:51,200
some expired masks are being brought

54
00:01:53,590 --> 00:01:52,000
back

55
00:01:55,590 --> 00:01:53,600
we also

56
00:01:56,870 --> 00:01:55,600
brought back

57
00:02:13,910 --> 00:01:56,880
a

58
00:02:15,990 --> 00:02:13,920
progress supply freighter

59
00:02:18,710 --> 00:02:16,000
for ex examples of some new hardware

60
00:02:20,710 --> 00:02:18,720
that came up and was transferred

61
00:02:23,990 --> 00:02:20,720
we transferred the or the crew transfer

62
00:02:25,910 --> 00:02:24,000
the cargo integration

63
00:02:28,630 --> 00:02:25,920

correction combustion

64
00:02:30,869 --> 00:02:28,640
and integration rack or sir these are

65
00:02:31,990 --> 00:02:30,879
fuel bottles that are used to

66
00:02:34,790 --> 00:02:32,000
to

67
00:02:36,790 --> 00:02:34,800
study how flames propagate and how fire

68
00:02:38,790 --> 00:02:36,800
behaves in zero gravity that's an

69
00:02:41,509 --> 00:02:38,800
important thing to know not only for

70
00:02:43,350 --> 00:02:41,519
spacecraft design and safety but also

71
00:02:45,509 --> 00:02:43,360
just to better understand how fire

72
00:02:47,190 --> 00:02:45,519
behaves and you know for

73
00:02:48,229 --> 00:02:47,200
plasma physics

74
00:02:50,550 --> 00:02:48,239
so

75
00:02:53,350 --> 00:02:50,560
we got that transferred as well as a new

76
00:02:55,589 --> 00:02:53,360
treadmill track for the tvis treadmill

77
00:02:56,949 --> 00:02:55,599
that's the the treadmill located down in

78
00:02:58,869 --> 00:02:56,959
the service module in the russian

79
00:03:00,550 --> 00:02:58,879
segment so that's a spare track that

80
00:03:02,470 --> 00:03:00,560
will that will be used in the future

81
00:03:05,670 --> 00:03:02,480
when that needs to be changed out

82
00:03:08,229 --> 00:03:05,680
and the crew also transferred a hydrogen

83
00:03:10,229 --> 00:03:08,239
dome sensor for the oxygen generation

84
00:03:11,110 --> 00:03:10,239
system or ogs

85
00:03:13,190 --> 00:03:11,120
this

86
00:03:14,869 --> 00:03:13,200
sensor is used as part of the system

87
00:03:17,110 --> 00:03:14,879
that takes water

88
00:03:19,190 --> 00:03:17,120

recycled water from the space station

89
00:03:21,670 --> 00:03:19,200
and using electricity splits the water

90
00:03:23,350 --> 00:03:21,680
into hydrogen and oxygen the crew

91
00:03:25,030 --> 00:03:23,360
breathes the oxygen and that's how we uh

92
00:03:27,030 --> 00:03:25,040
primarily how we generate the oxygen on

93
00:03:28,630 --> 00:03:27,040
the space station and then

94
00:03:30,390 --> 00:03:28,640
we have a new device on board a

95
00:03:34,070 --> 00:03:30,400
relatively new device

96
00:03:37,270 --> 00:03:34,080
called sabatiere that takes the hydrogen

97
00:03:39,910 --> 00:03:37,280
from ogs combines it with the co2 that

98
00:03:42,710 --> 00:03:39,920
we extract from the air with our carbon

99
00:03:45,430 --> 00:03:42,720
dioxide removal assembly or sidra it

100
00:03:47,670 --> 00:03:45,440
combines those two and puts out water

101
00:03:49,270 --> 00:03:47,680
which can be reused again in the entire

102
00:03:52,390 --> 00:03:49,280
process for drinking or oxygen

103
00:03:54,470 --> 00:03:52,400
generation and it also produces methane

104
00:03:56,309 --> 00:03:54,480
which is vented overboard but someday

105
00:03:58,630 --> 00:03:56,319
could be used to produce rocket fuel in

106
00:04:00,710 --> 00:03:58,640
future spacecraft so again

107
00:04:03,670 --> 00:04:00,720
we're bringing up spare parts for our

108
00:04:05,589 --> 00:04:03,680
life support system that is a key part

109
00:04:07,589 --> 00:04:05,599
of the purpose of the space station

110
00:04:11,589 --> 00:04:07,599
which is to demonstrate advanced life

111
00:04:13,509 --> 00:04:11,599
support systems for future space systems

112
00:04:15,830 --> 00:04:13,519
as far as the space station today our

113
00:04:18,710 --> 00:04:15,840

space station crew was doing uh some

114
00:04:20,789 --> 00:04:18,720
science and some routine cleaning ron

115
00:04:23,350 --> 00:04:20,799
garan cleaned out the uh some of the

116
00:04:26,070 --> 00:04:23,360
ducting in his crewmate satoshi

117
00:04:27,830 --> 00:04:26,080
furukawa's crew quarter to uh just like

118
00:04:29,670 --> 00:04:27,840
you would do at home replacing an air

119
00:04:31,350 --> 00:04:29,680
filter and cleaning the air filters when

120
00:04:32,629 --> 00:04:31,360
they get clogged with dust

121
00:04:35,430 --> 00:04:32,639
mike fossum

122
00:04:37,030 --> 00:04:35,440
performed an a spacesuit water loop

123
00:04:39,430 --> 00:04:37,040
scrub to clean out the water and

124
00:04:41,749 --> 00:04:39,440
iodinate the water in two of the

125
00:04:43,350 --> 00:04:41,759
spacesuit cooling loops and satoshi

126
00:04:45,749 --> 00:04:43,360
furukawa worked

127
00:04:48,550 --> 00:04:45,759
on a science experiment called c-spins

128
00:04:50,469 --> 00:04:48,560
which is a study of how plants grow and

129
00:04:52,629 --> 00:04:50,479
regulate their growth in the absence of

130
00:04:55,030 --> 00:04:52,639
gravity in this case it was cucumber

131
00:04:57,030 --> 00:04:55,040
plants and that's a jaxa experiment

132
00:04:58,950 --> 00:04:57,040
conducted on behalf of the japanese

133
00:05:01,990 --> 00:04:58,960
space agency

134
00:05:05,830 --> 00:05:02,000
and mike fossum and ron guerin together

135
00:05:10,230 --> 00:05:08,070
part of their duties to support that

136
00:05:13,350 --> 00:05:10,240
portion of the mission they organized

137
00:05:15,590 --> 00:05:13,360
the node 3 or tranquility end cone

138
00:05:17,189 --> 00:05:15,600

they reorganized all the stowage there

139
00:05:18,870 --> 00:05:17,199
and have created a lot more of an

140
00:05:21,189 --> 00:05:18,880
organized space which is important

141
00:05:23,430 --> 00:05:21,199
because that's where our resistive

142
00:05:25,029 --> 00:05:23,440
exercise device or a-red is located

143
00:05:27,110 --> 00:05:25,039
that's the essentially the weightlifting

144
00:05:29,350 --> 00:05:27,120
machine that the crew uses to exercise

145
00:05:31,110 --> 00:05:29,360
it's also located near our cupola where

146
00:05:32,629 --> 00:05:31,120
we have our robotics workstation and all

147
00:05:34,790 --> 00:05:32,639
the windows that they use when they

148
00:05:36,950 --> 00:05:34,800
operate the station robotic arm so that

149
00:05:40,390 --> 00:05:36,960
area has been uh been reorganized quite

150
00:05:42,550 --> 00:05:40,400
nicely the russian crew today spent uh

151
00:05:43,830 --> 00:05:42,560
several hours troubleshooting their

152
00:05:46,230 --> 00:05:43,840
treadmill i mentioned earlier it's

153
00:05:48,230 --> 00:05:46,240
called tevus it's the the treadmill down

154
00:05:51,350 --> 00:05:48,240
in the russian segment uh we had

155
00:05:52,469 --> 00:05:51,360
believed that gyro had failed on tevis

156
00:05:54,150 --> 00:05:52,479
and uh

157
00:05:57,990 --> 00:05:54,160
and that occurred several months ago so

158
00:05:59,670 --> 00:05:58,000
we brought up a new gyro on sts-135 and

159
00:06:02,710 --> 00:05:59,680
we thought that by replacing that that

160
00:06:04,710 --> 00:06:02,720
would uh restore the the tvs treadmill

161
00:06:06,870 --> 00:06:04,720
to operational use however when it was

162
00:06:08,790 --> 00:06:06,880
installed it did not fix the problem we

163
00:06:11,189 --> 00:06:08,800

are seeing the same failure signature

164
00:06:13,189 --> 00:06:11,199
which is that the gyroscope is receiving

165
00:06:15,029 --> 00:06:13,199
power but is not spinning up so that

166
00:06:17,990 --> 00:06:15,039
seems to indicate that the problem is

167
00:06:20,469 --> 00:06:18,000
upstream of the gyroscope perhaps

168
00:06:22,309 --> 00:06:20,479
in the in the controller to that device

169
00:06:24,070 --> 00:06:22,319
so we are looking at rescheduling

170
00:06:26,309 --> 00:06:24,080
additional maintenance on tvis to

171
00:06:27,909 --> 00:06:26,319
replace that controller

172
00:06:30,150 --> 00:06:27,919
and that is all i have to report on

173
00:06:33,029 --> 00:06:30,160
today's activities tomorrow the crew

174
00:06:34,629 --> 00:06:33,039
will be performing more cargo transfer

175
00:06:37,029 --> 00:06:34,639
and also there will be a joint news

176
00:06:41,029 --> 00:06:37,039
conference with the entire crew of

177
00:06:42,070 --> 00:06:41,039
atlantis and the space station at 13 24

178
00:06:44,790 --> 00:06:42,080
gmt

179
00:06:47,510 --> 00:06:44,800
and also um there will be

180
00:06:50,390 --> 00:06:47,520
some work on the spacesuits rex

181
00:06:53,189 --> 00:06:50,400
walheim will be resizing the spacesuit

182
00:06:55,189 --> 00:06:53,199
that ron garan used on his eva he'll be

183
00:06:56,710 --> 00:06:55,199
resizing it because that spacesuit is

184
00:06:58,550 --> 00:06:56,720
now approaching the end of its useful

185
00:07:01,270 --> 00:06:58,560
life and is returning to earth on

186
00:07:03,029 --> 00:07:01,280
atlantis this will be rex's spacesuit to

187
00:07:04,950 --> 00:07:03,039
be used in the event of a contingency

188
00:07:07,510 --> 00:07:04,960

where he'll have to where he

189
00:07:09,909 --> 00:07:07,520
might have to to use that suit he's also

190
00:07:12,629 --> 00:07:09,919
going to be resizing a new spacesuit

191
00:07:15,110 --> 00:07:12,639
that was brought up on atlantis and this

192
00:07:17,029 --> 00:07:15,120
suit replaces the one that's coming back

193
00:07:18,870 --> 00:07:17,039
and we'll have a lifetime of anywhere

194
00:07:20,230 --> 00:07:18,880
from three to six years and we'll

195
00:07:22,070 --> 00:07:20,240
receive regular maintenance so that we

196
00:07:24,629 --> 00:07:22,080
can stretch out that lifetime as long as

197
00:07:26,150 --> 00:07:24,639
possible and that suit will be resized

198
00:07:29,029 --> 00:07:26,160
for ron garan

199
00:07:31,029 --> 00:07:29,039
in case he has an additional spacesuit

200
00:07:33,350 --> 00:07:31,039
or need to do a space walk on the space

201
00:07:36,070 --> 00:07:33,360
station and that's all i had on the

202
00:07:37,670 --> 00:07:36,080
timeline summary so i can open it up for

203
00:07:39,670 --> 00:07:37,680
questions

204
00:07:41,029 --> 00:07:39,680
thank you chris and we have a few people

205
00:07:42,790 --> 00:07:41,039
on the phone bridge but we also have a

206
00:07:44,070 --> 00:07:42,800
few folks here so if you will folks that

207
00:07:46,230 --> 00:07:44,080
are here if you will just step up to the

208
00:07:47,110 --> 00:07:46,240
mic and state your name and affiliation

209
00:07:49,029 --> 00:07:47,120
gina

210
00:07:50,869 --> 00:07:49,039
yeah genius and siri abc news could you

211
00:07:53,110 --> 00:07:50,879
go back to the device that you talked

212
00:07:55,670 --> 00:07:53,120
about and spell the name and go into a

213
00:07:57,350 --> 00:07:55,680

little bit more civilian detail for me i

214
00:07:59,990 --> 00:07:57,360
i didn't on which one

215
00:08:02,390 --> 00:08:00,000
the device that

216
00:08:03,830 --> 00:08:02,400
takes hydrogen and puts out i kind of

217
00:08:06,309 --> 00:08:03,840
like whip right through that and i need

218
00:08:09,029 --> 00:08:06,319
a little bit more okay you bet

219
00:08:10,790 --> 00:08:09,039
that device is called sabati a

220
00:08:14,869 --> 00:08:10,800
it's a

221
00:08:20,710 --> 00:08:17,830
it's named after a french scientist

222
00:08:22,469 --> 00:08:20,720
it's the sabatier process

223
00:08:26,070 --> 00:08:22,479
i guess in texas you would pronounce it

224
00:08:31,670 --> 00:08:28,550
it it is part of our regenerative life

225
00:08:32,630 --> 00:08:31,680
support system on the station it takes

226
00:08:33,990 --> 00:08:32,640
uh

227
00:08:36,149 --> 00:08:34,000
hydrogen

228
00:08:37,990 --> 00:08:36,159
from the oxygen generating system

229
00:08:41,190 --> 00:08:38,000
leftover hydrogen that up to this point

230
00:08:42,709 --> 00:08:41,200
has been vented overboard up to

231
00:08:44,550 --> 00:08:42,719
several months ago we've been just

232
00:08:47,110 --> 00:08:44,560
venting that hydrogen because it's it

233
00:08:49,990 --> 00:08:47,120
can be a hazard but now that sabatia is

234
00:08:52,550 --> 00:08:50,000
operational we're taking that hydrogen

235
00:08:55,509 --> 00:08:52,560
and we're combining it with the x with

236
00:08:58,230 --> 00:08:55,519
the waste co2 from our carbon dioxide

237
00:09:00,470 --> 00:08:58,240
removal assembly or sidra

238
00:09:02,790 --> 00:09:00,480

we combine those in in the sabatier

239
00:09:04,150 --> 00:09:02,800
assembly to produce

240
00:09:05,910 --> 00:09:04,160
water

241
00:09:06,790 --> 00:09:05,920
which feeds back into the whole process

242
00:09:07,990 --> 00:09:06,800
again

243
00:09:10,230 --> 00:09:08,000
and

244
00:09:12,710 --> 00:09:10,240
methane

245
00:09:15,910 --> 00:09:12,720
so if you work through the chemical

246
00:09:17,430 --> 00:09:15,920
equation it all balances out and i don't

247
00:09:19,350 --> 00:09:17,440
have the excuse me i don't have the

248
00:09:21,590 --> 00:09:19,360
exact number of months that we've been

249
00:09:23,670 --> 00:09:21,600
operating sabaria it was

250
00:09:26,070 --> 00:09:23,680
made operational last year

251
00:09:27,509 --> 00:09:26,080
but we've been using it on and off more

252
00:09:28,630 --> 00:09:27,519
and more frequently so we're very

253
00:09:30,550 --> 00:09:28,640
pleased that that

254
00:09:33,190 --> 00:09:30,560
that system's been working

255
00:09:34,949 --> 00:09:33,200
but again it's just part of the overall

256
00:09:40,710 --> 00:09:34,959
regenerative life support system on

257
00:09:45,430 --> 00:09:43,030
dan vergano with usa today you mentioned

258
00:09:46,550 --> 00:09:45,440
the japanese astronaut working on an

259
00:09:48,150 --> 00:09:46,560
experiment i was wondering could you

260
00:09:49,910 --> 00:09:48,160
talk about looking ahead

261
00:09:51,910 --> 00:09:49,920
as you're finishing up with the packing

262
00:09:53,509 --> 00:09:51,920
and snowing what's sort of the share of

263
00:09:55,110 --> 00:09:53,519

tasks going towards

264
00:09:57,590 --> 00:09:55,120
uh

265
00:09:59,030 --> 00:09:57,600
stowing and towards tasks and towards

266
00:10:00,949 --> 00:09:59,040
things like science experiments just to

267
00:10:02,710 --> 00:10:00,959
give us a sense of what's coming up

268
00:10:04,630 --> 00:10:02,720
i don't have the exact breakdown but i

269
00:10:06,069 --> 00:10:04,640
will tell you when this mission was

270
00:10:08,790 --> 00:10:06,079
first planned

271
00:10:11,910 --> 00:10:08,800
we had no time set aside for science

272
00:10:14,310 --> 00:10:11,920
operations but it was because of the

273
00:10:16,710 --> 00:10:14,320
additional day that we were able to add

274
00:10:19,110 --> 00:10:16,720
to the mission as well as the efficiency

275
00:10:22,150 --> 00:10:19,120
of the crew that has allowed us to uh to

276
00:10:24,069 --> 00:10:22,160
begin adding back in science operations

277
00:10:25,590 --> 00:10:24,079
so uh the experiment that satoshi

278
00:10:27,430 --> 00:10:25,600
furukawa has been working on is one of

279
00:10:29,509 --> 00:10:27,440
the high priority experiments that we

280
00:10:31,910 --> 00:10:29,519
wanted to make sure on behalf of jaxa

281
00:10:34,069 --> 00:10:31,920
that he was able to complete that and we

282
00:10:35,910 --> 00:10:34,079
are also looking at additional science

283
00:10:38,630 --> 00:10:35,920
before the end of the mission

284
00:10:40,150 --> 00:10:38,640
again things that uh things that are on

285
00:10:42,870 --> 00:10:40,160
the top of our research list that we

286
00:10:47,030 --> 00:10:44,710
i don't have the specific experiments i

287
00:10:48,630 --> 00:10:47,040
know we're doing more c-spins

288
00:10:49,829 --> 00:10:48,640

but uh the additional experiments i

289
00:10:56,630 --> 00:10:49,839
don't have that with me but i'll

290
00:11:02,949 --> 00:10:58,710
phillips loss with nasaspaceflight.com

291
00:11:06,470 --> 00:11:02,959
uh question on the tvs gyros um was the

292
00:11:08,870 --> 00:11:06,480
plan going in uh to bring the the the

293
00:11:11,670 --> 00:11:08,880
one that was thought to be bad home

294
00:11:13,670 --> 00:11:11,680
and now now that you're not sure

295
00:11:15,750 --> 00:11:13,680
if what's the plan basically going

296
00:11:17,670 --> 00:11:15,760
forward or is it still to be determined

297
00:11:19,430 --> 00:11:17,680
it is still to be determined what you

298
00:11:21,590 --> 00:11:19,440
mentioned is is exactly what is being

299
00:11:22,790 --> 00:11:21,600
discussed right now amongst uh the

300
00:11:25,110 --> 00:11:22,800
engineering community and the space

301
00:11:28,310 --> 00:11:25,120
station program and the flight

302
00:11:31,030 --> 00:11:28,320
controllers and mission control

303
00:11:33,030 --> 00:11:31,040
with the the new gyroscope being

304
00:11:34,790 --> 00:11:33,040
installed and it is indicating the same

305
00:11:36,470 --> 00:11:34,800
signature as the old one

306
00:11:38,870 --> 00:11:36,480
that would seem to

307
00:11:41,030 --> 00:11:38,880
lead one to postulate that perhaps

308
00:11:43,750 --> 00:11:41,040
it was not the gyroscope after all and

309
00:11:45,590 --> 00:11:43,760
if so why would you return uh

310
00:11:47,829 --> 00:11:45,600
the old one and that is exactly what's

311
00:11:49,350 --> 00:11:47,839
being discussed and uh there are pros

312
00:11:51,829 --> 00:11:49,360
and cons because of course if we keep it

313
00:11:53,590 --> 00:11:51,839

on station it takes up stowage space so

314
00:11:56,389 --> 00:11:53,600
that's all being looked at and we're

315
00:11:58,470 --> 00:11:56,399
working up an alternate stowage plan if

316
00:12:00,230 --> 00:11:58,480
we decide to bring that home so that we

317
00:12:01,829 --> 00:12:00,240
can delay the decision as late as

318
00:12:03,509 --> 00:12:01,839
possible to give the engineers more time

319
00:12:06,389 --> 00:12:03,519
to look at the data

320
00:12:08,550 --> 00:12:06,399
and then just a quick follow um how how

321
00:12:10,790 --> 00:12:08,560
big is the is the gyro is this something

322
00:12:12,470 --> 00:12:10,800
that can be brought down on on another

323
00:12:13,590 --> 00:12:12,480
vehicle like the dragon for instance in

324
00:12:16,150 --> 00:12:13,600
the future

325
00:12:17,910 --> 00:12:16,160
it it will fit through

326
00:12:20,150 --> 00:12:17,920
the common berthing mechanism hatch

327
00:12:22,389 --> 00:12:20,160
easily it's uh it's about this big

328
00:12:24,150 --> 00:12:22,399
around it's pretty it's pretty big

329
00:12:27,030 --> 00:12:24,160
but it'll fit through the hatch do you

330
00:12:33,829 --> 00:12:27,040
have any idea about mass on that

331
00:12:37,670 --> 00:12:35,910
hi robert perlman with collectspace.com

332
00:12:38,550 --> 00:12:37,680
i think i heard sandy magnus call down

333
00:12:40,949 --> 00:12:38,560
about

334
00:12:42,710 --> 00:12:40,959
that the mplm was getting so packed that

335
00:12:45,829 --> 00:12:42,720
it was getting to the point where

336
00:12:48,069 --> 00:12:45,839
specifying locations didn't really

337
00:12:50,069 --> 00:12:48,079
didn't really count for anything

338
00:12:52,389 --> 00:12:50,079

it was where things fit

339
00:12:53,910 --> 00:12:52,399
how important is it that that things go

340
00:12:56,230 --> 00:12:53,920
where you would originally prescribe

341
00:12:58,550 --> 00:12:56,240
them to go or can can you now just start

342
00:13:02,310 --> 00:12:58,560
packing the last 30 in

343
00:13:05,430 --> 00:13:02,320
um as she said just where they can fit

344
00:13:09,509 --> 00:13:05,440
well we are aiming for a 90

345
00:13:11,829 --> 00:13:09,519
full mplm return by volume and

346
00:13:14,470 --> 00:13:11,839
everything will have to be stowed in its

347
00:13:16,870 --> 00:13:14,480
proper place um

348
00:13:18,389 --> 00:13:16,880
we can't have anything moving around

349
00:13:20,310 --> 00:13:18,399
during entry on the shuttle we wouldn't

350
00:13:22,150 --> 00:13:20,320
want that to interfere with the center

351
00:13:23,110 --> 00:13:22,160
of gravity of the shuttle or or

352
00:13:24,629 --> 00:13:23,120
interfere

353
00:13:27,030 --> 00:13:24,639
potentially cause a structural problem

354
00:13:28,710 --> 00:13:27,040
so everything will have to be secured um

355
00:13:30,550 --> 00:13:28,720
but we have plenty of flexibility and we

356
00:13:33,110 --> 00:13:30,560
have you know math models and

357
00:13:35,590 --> 00:13:33,120
engineering models so that we can

358
00:13:38,150 --> 00:13:35,600
adapt in real time to the changing cargo

359
00:13:40,310 --> 00:13:38,160
situation and make sure that that uh we

360
00:13:42,310 --> 00:13:40,320
have correct structural margins for

361
00:13:44,550 --> 00:13:42,320
where things are stowed and mounted if

362
00:13:46,710 --> 00:13:44,560
there are nooks and crannies of space

363
00:13:47,990 --> 00:13:46,720

found then uh as long as we have a way

364
00:13:49,990 --> 00:13:48,000
to strap it down we can generally

365
00:13:53,110 --> 00:13:50,000
accommodate that so the goal is going to

366
00:13:55,189 --> 00:13:53,120
be to bring back as much of the stuff

367
00:13:57,509 --> 00:13:55,199
from station as we can to you know to

368
00:13:59,430 --> 00:13:57,519
relieve the stowage issue on station

369
00:14:01,430 --> 00:13:59,440
clear things out and uh you know and

370
00:14:03,430 --> 00:14:01,440
leave station in as good of shape as

371
00:14:04,790 --> 00:14:03,440
possible

372
00:14:06,949 --> 00:14:04,800
thanks and um

373
00:14:08,310 --> 00:14:06,959
the crew took part or was or will still

374
00:14:10,710 --> 00:14:08,320
take part in a

375
00:14:12,470 --> 00:14:10,720
well-publicized meal an all-american

376
00:14:14,389 --> 00:14:12,480
meal that was publicized by nasa as

377
00:14:16,230 --> 00:14:14,399
being shared here on the ground

378
00:14:17,670 --> 00:14:16,240
i was wondering did mission control take

379
00:14:20,150 --> 00:14:17,680
part in the same meal

380
00:14:22,870 --> 00:14:20,160
or um or some type of ceremonial meal to

381
00:14:26,310 --> 00:14:22,880
mark the end of the program uh that did

382
00:14:28,470 --> 00:14:26,320
not happen today um the crew did head

383
00:14:29,509 --> 00:14:28,480
over to the space shuttle for a joint

384
00:14:31,350 --> 00:14:29,519
dinner

385
00:14:32,550 --> 00:14:31,360
on the space shuttle side of the hatches

386
00:14:34,069 --> 00:14:32,560
this evening

387
00:14:36,870 --> 00:14:34,079
that of course that was a

388
00:14:39,350 --> 00:14:36,880

private affair for the crew but um

389
00:14:40,949 --> 00:14:39,360
as far as any you know joint mills to be

390
00:14:43,189 --> 00:14:40,959
shared with the ground

391
00:14:48,310 --> 00:14:43,199
i don't have the exact plan for that i'm

392
00:14:53,269 --> 00:14:51,030
denise childspace.com um in one of the

393
00:14:55,750 --> 00:14:53,279
interviews this morning sandy um called

394
00:14:57,030 --> 00:14:55,760
the view from the cupola it's as if it's

395
00:14:58,389 --> 00:14:57,040
taking a space walk without the

396
00:15:00,069 --> 00:14:58,399
spacesuit

397
00:15:01,350 --> 00:15:00,079
other than the amazing views of the

398
00:15:02,550 --> 00:15:01,360
earth that you get from the cupola i was

399
00:15:04,069 --> 00:15:02,560
wondering if you could speak about some

400
00:15:05,829 --> 00:15:04,079
of the other benefits that you get from

401
00:15:07,670 --> 00:15:05,839
having that observatory especially with

402
00:15:09,829 --> 00:15:07,680
robotics operations

403
00:15:12,949 --> 00:15:09,839
right you mentioned the robotics we do

404
00:15:15,269 --> 00:15:12,959
have our prime robotics workstation

405
00:15:16,470 --> 00:15:15,279
which is essentially a control panel

406
00:15:20,470 --> 00:15:16,480
and a

407
00:15:22,470 --> 00:15:20,480
and those just like on a video game

408
00:15:25,750 --> 00:15:22,480
they're used to drive the huge space

409
00:15:27,430 --> 00:15:25,760
station robot arm the canada arm and

410
00:15:29,110 --> 00:15:27,440
they have of course monitors to help

411
00:15:31,030 --> 00:15:29,120
them

412
00:15:32,550 --> 00:15:31,040
see where the arm is moving and make

413
00:15:34,470 --> 00:15:32,560

sure that it doesn't collide with any

414
00:15:36,310 --> 00:15:34,480
parts of the space station or any other

415
00:15:38,310 --> 00:15:36,320
hardware that's moving around

416
00:15:40,230 --> 00:15:38,320
when it's out of view of the windows but

417
00:15:40,870 --> 00:15:40,240
the seven windows on the cupola provide

418
00:15:52,150 --> 00:15:40,880
a

419
00:15:55,269 --> 00:15:52,160
just to be dependent upon their video

420
00:15:56,230 --> 00:15:55,279
monitors it's also very useful for earth

421
00:15:58,150 --> 00:15:56,240
observe

422
00:16:00,790 --> 00:15:58,160
earth photography and earth observing

423
00:16:03,910 --> 00:16:00,800
operations we send up the crew

424
00:16:05,269 --> 00:16:03,920
a message every day with a few features

425
00:16:07,509 --> 00:16:05,279
on the ground that we want them to look

426
00:16:09,030 --> 00:16:07,519
at if their ground track happens to take

427
00:16:11,829 --> 00:16:09,040
them over some interesting features for

428
00:16:14,069 --> 00:16:11,839
example a volcano that may be erupting

429
00:16:16,150 --> 00:16:14,079
or a hurricane or some or some flooding

430
00:16:17,189 --> 00:16:16,160
or drought so they can take pictures and

431
00:16:18,629 --> 00:16:17,199
then they

432
00:16:20,389 --> 00:16:18,639
downlink that to the ground and then

433
00:16:21,990 --> 00:16:20,399
scientists use that data

434
00:16:25,749 --> 00:16:22,000
as part of you know understanding the

435
00:16:25,759 --> 00:16:29,350
okay any other questions here

436
00:16:35,509 --> 00:16:30,790
okay we'll go ahead and go to the phone

437
00:16:39,670 --> 00:16:37,030
yes uh good afternoon charlottesville

438
00:16:41,509 --> 00:16:39,680

without examiner.com spaceonstreams.com

439
00:16:43,670 --> 00:16:41,519
uh you covered a little bit about this

440
00:16:45,670 --> 00:16:43,680
but i was curious are there specific

441
00:16:48,310 --> 00:16:45,680
prime goals that you're still needing to

442
00:16:51,509 --> 00:16:48,320
look at or perform prior to undocking on

443
00:16:55,350 --> 00:16:53,350
i could not understand that question if

444
00:16:56,710 --> 00:16:55,360
you could repeat that

445
00:16:58,150 --> 00:16:56,720
sure um

446
00:17:00,150 --> 00:16:58,160
can you hear me okay

447
00:17:02,870 --> 00:17:00,160
i can hear you better now

448
00:17:04,150 --> 00:17:02,880
okay great thank you uh john thanks an

449
00:17:05,750 --> 00:17:04,160
example

450
00:17:07,909 --> 00:17:05,760
looking to see if there were specific

451
00:17:08,789 --> 00:17:07,919
prime goals that are still needed to be

452
00:17:12,949 --> 00:17:08,799
uh

453
00:17:15,750 --> 00:17:12,959
performed prior to undocking on tuesday

454
00:17:18,470 --> 00:17:15,760
okay your question is in regards to are

455
00:17:21,110 --> 00:17:18,480
we meeting certain time goals in order

456
00:17:24,549 --> 00:17:21,120
to proceed with undocking

457
00:17:26,549 --> 00:17:24,559
yes we we have a

458
00:17:29,510 --> 00:17:26,559
certain number of hours that we expect

459
00:17:30,549 --> 00:17:29,520
is required to complete the mplm cargo

460
00:17:31,909 --> 00:17:30,559
process

461
00:17:35,350 --> 00:17:31,919
the number we were going into the

462
00:17:37,190 --> 00:17:35,360
mission was about uh 120 hours to load

463
00:17:39,590 --> 00:17:37,200

up the mplm to 80

464
00:17:42,470 --> 00:17:39,600
full by volume we are now estimating

465
00:17:44,310 --> 00:17:42,480
that with that same 120 crew hours we'll

466
00:17:47,190 --> 00:17:44,320
be able to get to about 90 percent

467
00:17:49,270 --> 00:17:47,200
return on the mplm and of course all the

468
00:17:51,430 --> 00:17:49,280
the uh the resupply cargo over the

469
00:17:53,029 --> 00:17:51,440
station is is factored in that as well

470
00:17:55,669 --> 00:17:53,039
so we are

471
00:17:58,150 --> 00:17:55,679
uh every every night we get a

472
00:18:01,029 --> 00:17:58,160
update from from sandy magnus to report

473
00:18:03,669 --> 00:18:01,039
on what items were transferred and then

474
00:18:05,590 --> 00:18:03,679
our the small team here in houston looks

475
00:18:08,310 --> 00:18:05,600
at our list of cargo transfer items and

476
00:18:11,270 --> 00:18:08,320
computes uh how many hours are remaining

477
00:18:14,070 --> 00:18:11,280
so we're about 70 percent complete with

478
00:18:16,070 --> 00:18:14,080
the uh with the estimated 120 hours of

479
00:18:18,710 --> 00:18:16,080
cargo transfer so we'll continue to

480
00:18:21,350 --> 00:18:18,720
monitor that on a daily basis as we

481
00:18:23,590 --> 00:18:21,360
track down towards 100 complete and

482
00:18:25,270 --> 00:18:23,600
we'll make sure that before we have to

483
00:18:26,630 --> 00:18:25,280
close up the logistics module and

484
00:18:28,870 --> 00:18:26,640
transfer it back to the payload bay of

485
00:18:30,230 --> 00:18:28,880
atlantis that we've completed all of the

486
00:18:32,950 --> 00:18:30,240
cargo transfer but we're actually

487
00:18:34,710 --> 00:18:32,960
running ahead of schedule

488
00:18:37,350 --> 00:18:34,720

and of course this being the final

489
00:18:40,070 --> 00:18:37,360
flight for shuttle could you and is

490
00:18:43,510 --> 00:18:40,080
there talk in inside the doors of a

491
00:18:45,270 --> 00:18:43,520
extension because of the

492
00:18:47,029 --> 00:18:45,280
because you might have that extra day of

493
00:18:48,230 --> 00:18:47,039
propellant

494
00:18:50,470 --> 00:18:48,240
um

495
00:18:53,190 --> 00:18:50,480
even though propellant would uh we could

496
00:18:55,190 --> 00:18:53,200
stay indefinitely docked to the space

497
00:18:57,270 --> 00:18:55,200
station uh because the shuttle is not

498
00:18:59,029 --> 00:18:57,280
using any propellant while it's docked

499
00:19:01,750 --> 00:18:59,039
right now the space stations

500
00:19:03,669 --> 00:19:01,760
control moment gyros the cmgs are

501
00:19:05,830 --> 00:19:03,679
maintaining attitude so the shuttle is

502
00:19:07,270 --> 00:19:05,840
not even using any attitude

503
00:19:10,310 --> 00:19:07,280
propellant gas

504
00:19:12,870 --> 00:19:10,320
to control the the orientation so the

505
00:19:15,830 --> 00:19:12,880
limiting consumable on atlantis is

506
00:19:17,430 --> 00:19:15,840
cryogenic oxygen and hydrogen which

507
00:19:19,590 --> 00:19:17,440
supplies the fuel cells to keep the

508
00:19:21,590 --> 00:19:19,600
lights on and the computers running so

509
00:19:23,110 --> 00:19:21,600
that's a hard constraint we already

510
00:19:25,909 --> 00:19:23,120
committed our

511
00:19:28,230 --> 00:19:25,919
our cryo margin to add the extra day

512
00:19:30,950 --> 00:19:28,240
so we will be undocking on

513
00:19:32,789 --> 00:19:30,960

on tuesday early tuesday morning and

514
00:19:35,350 --> 00:19:32,799
that is to protect to make sure that we

515
00:19:37,350 --> 00:19:35,360
have enough cryogenic

516
00:19:39,990 --> 00:19:37,360
fuel cell consumables to make it to the

517
00:19:42,230 --> 00:19:40,000
ground and we'll protect actually for

518
00:19:44,870 --> 00:19:42,240
two additional days we call that end of

519
00:19:46,549 --> 00:19:44,880
mission plus two capability on our fuel

520
00:19:48,870 --> 00:19:46,559
cells

521
00:19:51,110 --> 00:19:48,880
and one final one um a little off

522
00:19:53,669 --> 00:19:51,120
subject but will you soon give

523
00:19:56,470 --> 00:19:53,679
permission for spacex for the dragon

524
00:19:58,950 --> 00:19:56,480
docking to station this december

525
00:20:00,390 --> 00:19:58,960
that is scheduled for early december um

526
00:20:02,470 --> 00:20:00,400
and we are looking forward to that and

527
00:20:04,070 --> 00:20:02,480
that that is on the on the books and on

528
00:20:06,470 --> 00:20:04,080
the plan so we're looking forward to

529
00:20:08,230 --> 00:20:06,480
having the spacex dragon dock with the

530
00:20:10,070 --> 00:20:08,240
international space station because

531
00:20:11,990 --> 00:20:10,080
that's going to be one of our new

532
00:20:13,909 --> 00:20:12,000
commercial cargo providers and and

533
00:20:15,270 --> 00:20:13,919
someday maybe even a crew transport

534
00:20:16,950 --> 00:20:15,280
vehicle

535
00:20:19,190 --> 00:20:16,960
okay so that's on the books for december

536
00:20:20,870 --> 00:20:19,200
for docking will there be a dragonfly

537
00:20:21,909 --> 00:20:20,880
prior to that or will that be the next

538
00:20:25,029 --> 00:20:21,919

one

539
00:20:27,029 --> 00:20:25,039
the plan is to combine uh the the second

540
00:20:29,190 --> 00:20:27,039
dragon flight which was to be a demo

541
00:20:31,750 --> 00:20:29,200
mission uh and the third one which was

542
00:20:33,350 --> 00:20:31,760
to be the first docked mission the plan

543
00:20:36,310 --> 00:20:33,360
is going to be to combine those two

544
00:20:37,830 --> 00:20:36,320
missions into one and uh the current

545
00:20:39,669 --> 00:20:37,840
date that they're working towards is

546
00:20:42,230 --> 00:20:39,679
early december but that

547
00:20:43,750 --> 00:20:42,240
that date is is uh is not a hard date

548
00:20:44,710 --> 00:20:43,760
that that may slip around a little bit

549
00:20:46,630 --> 00:20:44,720
because of the fact that they're

550
00:20:48,630 --> 00:20:46,640
combining those missions it might slip

551
00:20:50,950 --> 00:20:48,640
into january but i would expect uh

552
00:20:53,830 --> 00:20:50,960
fairly early you know either december or

553
00:20:55,669 --> 00:20:53,840
early 2012 we'll see that mission fly

554
00:20:56,549 --> 00:20:55,679
great thanks chris you're welcome

555
00:20:58,149 --> 00:20:56,559
charlie

556
00:20:59,990 --> 00:20:58,159
okay up next on the phone bridge we have

557
00:21:02,870 --> 00:21:00,000
marsha dunn marcia

558
00:21:05,430 --> 00:21:02,880
yes hi um i hate to pester you about the

559
00:21:07,430 --> 00:21:05,440
all-american meal but could it be that

560
00:21:10,149 --> 00:21:07,440
the lunch uh ended up being the

561
00:21:11,909 --> 00:21:10,159
all-american meal do you know

562
00:21:13,669 --> 00:21:11,919
well i will admit i think you guys know

563
00:21:15,350 --> 00:21:13,679

more about the all-american meal than i

564
00:21:18,549 --> 00:21:15,360
do

565
00:21:19,990 --> 00:21:18,559
but i'll certainly work with amico to

566
00:21:22,070 --> 00:21:20,000
find out the answer

567
00:21:23,830 --> 00:21:22,080
be great because there were several news

568
00:21:25,990 --> 00:21:23,840
releases put out you know in the last

569
00:21:28,070 --> 00:21:26,000
couple days regarding the big meal and i

570
00:21:32,549 --> 00:21:28,080
just wanted to try to ascertain when the

571
00:21:36,230 --> 00:21:34,070
with you on that

572
00:21:38,310 --> 00:21:36,240
did you have any other questions

573
00:21:40,950 --> 00:21:38,320
for me thank you okay next on the phone

574
00:21:42,870 --> 00:21:40,960
bridge we have irene klotz irene

575
00:21:45,110 --> 00:21:42,880
hi thanks very much um

576
00:21:48,870 --> 00:21:45,120
i just had a two questions the first um

577
00:21:51,430 --> 00:21:48,880
on the spacex docking when did nasa um

578
00:21:55,029 --> 00:21:51,440
decide to go ahead and give spacex

579
00:21:56,470 --> 00:21:55,039
permission to do the docking

580
00:21:58,070 --> 00:21:56,480
i don't have the exact date on that

581
00:21:59,830 --> 00:21:58,080
decision but that's the working plan

582
00:22:02,470 --> 00:21:59,840
right now so if you're asking if it's

583
00:22:03,750 --> 00:22:02,480
been formally formally released

584
00:22:04,789 --> 00:22:03,760
i would have to go back and check on

585
00:22:08,549 --> 00:22:04,799
that

586
00:22:10,230 --> 00:22:08,559
okay

587
00:22:12,630 --> 00:22:10,240
and the other question i had is i think

588
00:22:13,909 --> 00:22:12,640

you mentioned that the crew transfers

589
00:22:15,830 --> 00:22:13,919
were about

590
00:22:19,110 --> 00:22:15,840
the cargo transfers were

591
00:22:20,230 --> 00:22:19,120
about 70 percent complete is that ahead

592
00:22:21,830 --> 00:22:20,240
of um

593
00:22:24,549 --> 00:22:21,840
where the schedule

594
00:22:26,630 --> 00:22:24,559
expected was expected by this time

595
00:22:34,230 --> 00:22:26,640
yes we are about 12 hours ahead of where

596
00:22:39,750 --> 00:22:36,149
is that all your questions irene yes

597
00:22:41,430 --> 00:22:39,760
thanks you're welcome uh

598
00:22:43,029 --> 00:22:41,440
uh yeah hi bill harwood could you chris

599
00:22:45,510 --> 00:22:43,039
could you just what is the signature on

600
00:22:47,990 --> 00:22:45,520
the tvs i mean what is it not doing that

601
00:22:50,070 --> 00:22:48,000
you know it wasn't doing before

602
00:22:52,630 --> 00:22:50,080
uh the the again that the gyroscope

603
00:22:55,350 --> 00:22:52,640
obviously has to spin you know quickly

604
00:22:57,029 --> 00:22:55,360
uh i don't have the exact number of rpms

605
00:22:59,430 --> 00:22:57,039
that it typically spins at but the

606
00:23:01,909 --> 00:22:59,440
purpose of the gyro is to spin rapidly

607
00:23:03,510 --> 00:23:01,919
and to provide gyroscopic stability for

608
00:23:04,789 --> 00:23:03,520
the treadmill if you've ever seen video

609
00:23:05,830 --> 00:23:04,799
of the crew members running on the

610
00:23:08,230 --> 00:23:05,840
treadmill you know obviously there's a

611
00:23:09,510 --> 00:23:08,240
lot of force when you you know press

612
00:23:11,909 --> 00:23:09,520
your feet into the treadmill when you're

613
00:23:13,669 --> 00:23:11,919

running so the gyroscope helps to

614
00:23:16,710 --> 00:23:13,679
stabilize it so that it doesn't move and

615
00:23:18,710 --> 00:23:16,720
bang into structure and also to uh

616
00:23:20,789 --> 00:23:18,720
by stabilizing it it minimizes the

617
00:23:22,230 --> 00:23:20,799
number of vibrations that are introduced

618
00:23:24,789 --> 00:23:22,240
into the structure of the space station

619
00:23:26,789 --> 00:23:24,799
that could interfere with uh experiments

620
00:23:29,510 --> 00:23:26,799
so the signature that we've been seeing

621
00:23:34,070 --> 00:23:29,520
is that the gyroscope receives power but

622
00:23:37,110 --> 00:23:35,750
so the things we can

623
00:23:38,710 --> 00:23:37,120
so the things we've been looking at are

624
00:23:39,909 --> 00:23:38,720
it's it it's either a failure in the

625
00:23:41,750 --> 00:23:39,919
gyroscope

626
00:23:43,430 --> 00:23:41,760
uh or perhaps the cable and we did

627
00:23:46,390 --> 00:23:43,440
replace the cable today as well and we

628
00:23:47,510 --> 00:23:46,400
exonerated the cable or at least uh it

629
00:23:49,590 --> 00:23:47,520
would not seem to indicate that the

630
00:23:51,269 --> 00:23:49,600
cable is the problem or it could be the

631
00:23:53,830 --> 00:23:51,279
the viz controller the vibration

632
00:23:56,310 --> 00:23:53,840
isolation system controller that's the

633
00:23:57,510 --> 00:23:56,320
next leg in the uh the fault tree that

634
00:23:59,029 --> 00:23:57,520
we're going to go

635
00:24:00,630 --> 00:23:59,039
investigate and we'll be swapping that

636
00:24:02,149 --> 00:24:00,640
out on a future date that we're still

637
00:24:05,750 --> 00:24:02,159
working

638
00:24:09,510 --> 00:24:07,590

okay thank you chris

639
00:24:12,470 --> 00:24:09,520
with that this uh concludes today's

640
00:24:14,230 --> 00:24:12,480
briefing and uh the station and the uh

641
00:24:17,190 --> 00:24:14,240
shuttle crew have both gone to bed at 3

642
00:24:19,510 --> 00:24:17,200
and 3 30 respectively up next on nasa tv

643
00:24:21,990 --> 00:24:19,520
if you haven't seen it already the um

644
00:24:25,029 --> 00:24:22,000
solid rocket booster camera views video

645
00:24:27,510 --> 00:24:25,039
of atlantis's solid rocket boosters will

646
00:24:29,590 --> 00:24:27,520
replay at 4 30 this afternoon or

647
00:24:31,510 --> 00:24:29,600
immediately following this briefing and

648
00:24:32,950 --> 00:24:31,520
then we have the flight day 7 highlights

649
00:24:35,750 --> 00:24:32,960
that will begin at

650
00:24:38,789 --> 00:24:35,760
5 pm central time and those will be

651
00:24:41,110 --> 00:24:38,799
aired at the top of every hour

652
00:24:42,710 --> 00:24:41,120
every every hour throughout the crew

653
00:24:44,390 --> 00:24:42,720
sleep and then we have iss flight

654
00:24:47,029 --> 00:24:44,400
director update with courtney mcmillan

655
00:24:48,710 --> 00:24:47,039
tonight at 11 45 pm

656
00:24:50,870 --> 00:24:48,720
once again thank you chris and i'd like

657
00:24:55,909 --> 00:24:50,880
to thank everyone here for joining us

658
00:24:59,830 --> 00:24:58,149
hi i'm james keaton i'm roger gomez i'm

659
00:25:01,909 --> 00:24:59,840
jonathan hawthorne senior i'm dan

660
00:25:04,070 --> 00:25:01,919
jackson i'm tony raynos i'm george

661
00:25:05,909 --> 00:25:04,080
salazar i'm andrew lee we are the

662
00:25:07,669 --> 00:25:05,919
communications and tracking officers on