
Benjamin Reed
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1
00:00:07,909 --> 00:00:04,749
good afternoon and welcome to today's

2
00:00:10,790 --> 00:00:07,919
sts-135 mission status briefing all the

3
00:00:12,950 --> 00:00:10,800
details of the one and only spacewalk of

4
00:00:14,870 --> 00:00:12,960
this mission with us today we have chris

5
00:00:17,029 --> 00:00:14,880
edelen who is the lead space station

6
00:00:19,189 --> 00:00:17,039
flight director for this mission

7
00:00:21,429 --> 00:00:19,199
glenda brown who is the lead spacewalk

8
00:00:23,750 --> 00:00:21,439
officer or eva officer for the flight

9
00:00:26,310 --> 00:00:23,760
and ben reed who is the satellite

10
00:00:27,990 --> 00:00:26,320
servicing capabilities office deputy

11
00:00:29,990 --> 00:00:28,000
project manager associated with the

12
00:00:31,990 --> 00:00:30,000
robotic refueling mission we'll start

13
00:00:33,270 --> 00:00:32,000

off with opening comments from all three

14
00:00:34,790 --> 00:00:33,280
of them and then we'll move on to your

15
00:00:36,630 --> 00:00:34,800
questions chris

16
00:00:38,950 --> 00:00:36,640
thank you kelly and thank you all for

17
00:00:39,750 --> 00:00:38,960
coming today i'm very pleased to report

18
00:00:42,350 --> 00:00:39,760
that

19
00:00:45,190 --> 00:00:42,360
the one and only eva planned for

20
00:00:47,190 --> 00:00:45,200
sts-3135 was a great success today the

21
00:00:49,670 --> 00:00:47,200
crew completed all of their planned

22
00:00:51,910 --> 00:00:49,680
activities including return of the

23
00:00:53,510 --> 00:00:51,920
failed pump module to the shuttle's

24
00:00:54,310 --> 00:00:53,520
payload bay in order to bring it back to

25
00:00:56,229 --> 00:00:54,320
earth

26
00:00:58,790 --> 00:00:56,239
transfer of the robotics refueling

27
00:01:00,790 --> 00:00:58,800
module to the space station for future

28
00:01:02,549 --> 00:01:00,800
technology demonstration as well as

29
00:01:04,469 --> 00:01:02,559
several other uh several other tasks

30
00:01:06,870 --> 00:01:04,479
that were on our objectives list and the

31
00:01:08,630 --> 00:01:06,880
crew completed the eva within one minute

32
00:01:10,710 --> 00:01:08,640
of the planned time which should give

33
00:01:13,030 --> 00:01:10,720
you some indication of how right on

34
00:01:14,789 --> 00:01:13,040
target they were all day and

35
00:01:17,109 --> 00:01:14,799
what a good job that the the team on the

36
00:01:18,630 --> 00:01:17,119
ground did planning this eva and just to

37
00:01:20,469 --> 00:01:18,640
give you a little bit of a little bit of

38
00:01:22,710 --> 00:01:20,479

historical background

39
00:01:25,830 --> 00:01:22,720
this eva was not originally part of the

40
00:01:29,510 --> 00:01:25,840
mission plan when the sts-135 was

41
00:01:30,950 --> 00:01:29,520
baselined about nine months ago

42
00:01:32,550 --> 00:01:30,960
the station program soon after the

43
00:01:34,950 --> 00:01:32,560
flight was baseline

44
00:01:36,870 --> 00:01:34,960
identified a high priority objective to

45
00:01:39,590 --> 00:01:36,880
bring back the failed pump module so

46
00:01:41,109 --> 00:01:39,600
they added the eva to this flight and

47
00:01:42,710 --> 00:01:41,119
the pump module

48
00:01:44,950 --> 00:01:42,720
on the station is the one that failed

49
00:01:46,710 --> 00:01:44,960
last summer this pumps ammonia through

50
00:01:49,030 --> 00:01:46,720
the uh the coolant loops on the outside

51
00:01:51,109 --> 00:01:49,040
of the station sort of like the fluid in

52
00:01:54,230 --> 00:01:51,119
your radiator of your car that cools

53
00:01:56,230 --> 00:01:54,240
your engine so without the pump module

54
00:01:58,630 --> 00:01:56,240
the electronics inside of space station

55
00:02:00,870 --> 00:01:58,640
cannot be cooled off so we have two that

56
00:02:02,389 --> 00:02:00,880
run on space station all the time again

57
00:02:05,270 --> 00:02:02,399
this one that we just returned to the

58
00:02:07,109 --> 00:02:05,280
payload bay uh failed last summer and

59
00:02:07,910 --> 00:02:07,119
we're bringing it back to earth in order

60
00:02:09,589 --> 00:02:07,920
to

61
00:02:10,949 --> 00:02:09,599
determine what happened with it what

62
00:02:13,110 --> 00:02:10,959
caused it to fail and that's very

63
00:02:15,110 --> 00:02:13,120

important for uh for the space station

64
00:02:17,430 --> 00:02:15,120
program to have an understanding of what

65
00:02:19,910 --> 00:02:17,440
kind of lifetime to expect with the pump

66
00:02:22,229 --> 00:02:19,920
modules that are currently on orbit so

67
00:02:24,550 --> 00:02:22,239
uh that went very well we as i mentioned

68
00:02:26,309 --> 00:02:24,560
we also installed a new technology

69
00:02:28,790 --> 00:02:26,319
demonstrator the robotic refueling

70
00:02:30,550 --> 00:02:28,800
mission uh mr reed will be telling you

71
00:02:33,589 --> 00:02:30,560
more about that in a few minutes the

72
00:02:35,910 --> 00:02:33,599
crew also uh installed a uh

73
00:02:37,750 --> 00:02:35,920
a materials exposure experiment called

74
00:02:40,150 --> 00:02:37,760
ormate which stands for optical

75
00:02:41,509 --> 00:02:40,160
reflective materials experiment it'll

76
00:02:44,550 --> 00:02:41,519
study the effects of

77
00:02:45,910 --> 00:02:44,560
of space on various high-tech materials

78
00:02:48,390 --> 00:02:45,920
they also

79
00:02:50,390 --> 00:02:48,400
cleared out a wire that was interfering

80
00:02:52,390 --> 00:02:50,400
with a robotics

81
00:02:54,470 --> 00:02:52,400
grapple fixture a payload data grapple

82
00:02:58,630 --> 00:02:54,480
fixture or pdgf

83
00:03:00,390 --> 00:02:58,640
on the the fgb module and uh that that

84
00:03:02,309 --> 00:03:00,400
robotics grapple fixture is not

85
00:03:04,869 --> 00:03:02,319
operational yet but we've gotten one

86
00:03:07,030 --> 00:03:04,879
step closer by clearing out this a

87
00:03:10,149 --> 00:03:07,040
ground wire a small wire that was that

88
00:03:13,430 --> 00:03:10,159

was blocking access to one of the uh

89
00:03:15,030 --> 00:03:13,440
the data and power latches inside that

90
00:03:17,910 --> 00:03:15,040
fixture

91
00:03:20,149 --> 00:03:17,920
the crew also installed a thermal cover

92
00:03:21,750 --> 00:03:20,159
over our permanent mating adapter number

93
00:03:24,309 --> 00:03:21,760
three which is on the

94
00:03:27,589 --> 00:03:24,319
port side of the station attached to the

95
00:03:30,470 --> 00:03:27,599
node 3 tranquility module this

96
00:03:32,070 --> 00:03:30,480
is a side facing hatch and it has a

97
00:03:34,550 --> 00:03:32,080
pressure equalization valve that when

98
00:03:36,949 --> 00:03:34,560
it's exposed to sunlight it gets very

99
00:03:39,750 --> 00:03:36,959
warm and that the continuous thermal

100
00:03:42,229 --> 00:03:39,760
cycling on this valve is causing its

101
00:03:43,910 --> 00:03:42,239
seal to degrade over time so this was

102
00:03:46,070 --> 00:03:43,920
again a high priority objective for the

103
00:03:47,110 --> 00:03:46,080
space station program to get a thermal

104
00:03:49,670 --> 00:03:47,120
cover

105
00:03:51,190 --> 00:03:49,680
over this uh over this hatch and uh and

106
00:03:53,509 --> 00:03:51,200
we've already seen from the data that

107
00:03:56,149 --> 00:03:53,519
the the temperatures are stabilizing at

108
00:03:58,149 --> 00:03:56,159
a nice uh comfortable level so uh we'll

109
00:04:00,309 --> 00:03:58,159
be confident that this seal will last

110
00:04:04,550 --> 00:04:00,319
through the life of the station through

111
00:04:06,869 --> 00:04:04,560
past 2020 and not cause a potential leak

112
00:04:08,470 --> 00:04:06,879
so again

113
00:04:10,789 --> 00:04:08,480

the history of this flight when we added

114
00:04:13,910 --> 00:04:10,799
this eva there were lots of challenges

115
00:04:16,469 --> 00:04:13,920
we had a small shuttle crew of four so

116
00:04:18,390 --> 00:04:16,479
we knew that uh putting this eva on on

117
00:04:20,390 --> 00:04:18,400
the shuttle cruise back would uh would

118
00:04:23,270 --> 00:04:20,400
be uh would lead to excessive amount of

119
00:04:26,710 --> 00:04:23,280
uh excessively high training load so we

120
00:04:29,030 --> 00:04:26,720
uh we came up with the idea of putting

121
00:04:31,430 --> 00:04:29,040
the eva on the station crew and we took

122
00:04:34,390 --> 00:04:31,440
advantage of the fact that our two eva

123
00:04:36,710 --> 00:04:34,400
astronauts mike fossum and ron garan had

124
00:04:38,390 --> 00:04:36,720
already performed three evas before on a

125
00:04:40,790 --> 00:04:38,400
previous shuttle flight so we took

126
00:04:42,629 --> 00:04:40,800
advantage of that synergy and uh and

127
00:04:44,870 --> 00:04:42,639
they jumped right in with their training

128
00:04:47,270 --> 00:04:44,880
we uh we trained this uh several times

129
00:04:48,870 --> 00:04:47,280
in the weightless uh swimming the

130
00:04:50,469 --> 00:04:48,880
weightless uh simulator here which is

131
00:04:53,110 --> 00:04:50,479
essentially a huge swimming pool the

132
00:04:55,270 --> 00:04:53,120
neutral buoyancy lab and uh one of the

133
00:04:56,550 --> 00:04:55,280
challenges was that because

134
00:04:59,350 --> 00:04:56,560
mike and ron

135
00:05:01,270 --> 00:04:59,360
uh were flying up to space station on

136
00:05:03,590 --> 00:05:01,280
soyuz vehicles and not the shuttle

137
00:05:05,110 --> 00:05:03,600
atlantis they would arrive in place uh

138
00:05:07,270 --> 00:05:05,120

several months before they'd execute the

139
00:05:10,790 --> 00:05:07,280
eva so that basically compressed the

140
00:05:12,070 --> 00:05:10,800
entire training flow for mike and ron

141
00:05:13,749 --> 00:05:12,080
and

142
00:05:16,950 --> 00:05:13,759
so the last time they were in the pool

143
00:05:18,870 --> 00:05:16,960
together was back in february so we uh

144
00:05:21,189 --> 00:05:18,880
with the help of the ground team and our

145
00:05:24,070 --> 00:05:21,199
great eva team here represented by

146
00:05:26,390 --> 00:05:24,080
glinda they they provided an excellent

147
00:05:27,909 --> 00:05:26,400
training plan for mike and ron on orbit

148
00:05:29,670 --> 00:05:27,919
they've been preparing for the past

149
00:05:31,670 --> 00:05:29,680
several weeks

150
00:05:34,070 --> 00:05:31,680
doing a suit fit check

151
00:05:35,510 --> 00:05:34,080
self-study reviewing the checklist and

152
00:05:37,510 --> 00:05:35,520
they've conducted several conferences

153
00:05:39,189 --> 00:05:37,520
with our eva team here in houston to

154
00:05:40,790 --> 00:05:39,199
make sure they were ready and you can

155
00:05:43,909 --> 00:05:40,800
really tell how smoothly things went

156
00:05:45,350 --> 00:05:43,919
today how well prepared they were and i

157
00:05:48,550 --> 00:05:45,360
just couldn't be happier with the what

158
00:05:50,230 --> 00:05:48,560
the performance of the team and the crew

159
00:05:51,270 --> 00:05:50,240
um just to just to fill you in a little

160
00:05:53,430 --> 00:05:51,280
bit on

161
00:05:55,510 --> 00:05:53,440
on this the overall status of space

162
00:05:57,909 --> 00:05:55,520
station today

163
00:05:59,830 --> 00:05:57,919

again the focus was on the eva most of

164
00:06:02,070 --> 00:05:59,840
the crew was involved directly with the

165
00:06:03,430 --> 00:06:02,080
eva support our shuttle crew even though

166
00:06:06,790 --> 00:06:03,440
they didn't go out the door and perform

167
00:06:09,110 --> 00:06:06,800
the eva they were still key members

168
00:06:11,430 --> 00:06:09,120
chris ferguson our shuttle commander

169
00:06:14,230 --> 00:06:11,440
was in charge of uh

170
00:06:16,150 --> 00:06:14,240
prepping before uh prepping the eva

171
00:06:17,670 --> 00:06:16,160
suits and helping mike and ron into

172
00:06:21,029 --> 00:06:17,680
their suits both before and after the

173
00:06:23,350 --> 00:06:21,039
eva rex walheim was our

174
00:06:25,430 --> 00:06:23,360
spacewalk choreographer he was on the

175
00:06:27,430 --> 00:06:25,440
aft flight deck of atlantis all day

176
00:06:29,590 --> 00:06:27,440
today without a break reading through

177
00:06:31,430 --> 00:06:29,600
each specific step of the checklist

178
00:06:34,070 --> 00:06:31,440
helping mike and ron through through

179
00:06:35,670 --> 00:06:34,080
every every single task that they had to

180
00:06:39,749 --> 00:06:35,680
perform and making sure that they did

181
00:06:44,309 --> 00:06:42,469
doug and sandy were in the cupola on the

182
00:06:46,710 --> 00:06:44,319
robotic arm driving uh driving the

183
00:06:48,390 --> 00:06:46,720
robotic arm to support the transfer of

184
00:06:50,550 --> 00:06:48,400
the pump module

185
00:06:51,670 --> 00:06:50,560
and the rrm and you'll again you'll see

186
00:06:53,589 --> 00:06:51,680
more of that

187
00:06:54,710 --> 00:06:53,599
later in the presentation

188
00:06:56,070 --> 00:06:54,720

so uh

189
00:06:58,309 --> 00:06:56,080
otherwise

190
00:07:00,469 --> 00:06:58,319
there was some cargo transfer conducted

191
00:07:02,629 --> 00:07:00,479
today although we had most of the crew

192
00:07:03,990 --> 00:07:02,639
busy supporting the eva we were

193
00:07:05,350 --> 00:07:04,000
fortunate to have

194
00:07:06,390 --> 00:07:05,360
great support from our russian

195
00:07:07,430 --> 00:07:06,400
colleagues

196
00:07:08,790 --> 00:07:07,440
working with

197
00:07:11,270 --> 00:07:08,800
some of the spare hands we had from the

198
00:07:13,189 --> 00:07:11,280
shuttle crew and satoshi furukawa they

199
00:07:17,029 --> 00:07:13,199
were able to complete

200
00:07:19,270 --> 00:07:17,039
almost 30 hours of transfer from the

201
00:07:21,589 --> 00:07:19,280
multi-purpose logistics module into the

202
00:07:22,950 --> 00:07:21,599
space station so we're slightly ahead on

203
00:07:24,790 --> 00:07:22,960
the transfer schedule which is really

204
00:07:26,550 --> 00:07:24,800
good news with the extra day that we

205
00:07:27,990 --> 00:07:26,560
added to the mission yesterday we're

206
00:07:30,230 --> 00:07:28,000
going to be in great shape on cargo

207
00:07:31,830 --> 00:07:30,240
transfer i have no concerns there so

208
00:07:36,950 --> 00:07:31,840
with that i'll hand it over to glenda to

209
00:07:41,510 --> 00:07:39,270
hello everyone and thank you for coming

210
00:07:44,710 --> 00:07:41,520
first of all i just have to say wow this

211
00:07:46,710 --> 00:07:44,720
was so great we work so hard

212
00:07:49,270 --> 00:07:46,720
to get these crews ready especially

213
00:07:51,510 --> 00:07:49,280

during the space shuttle training

214
00:07:53,990 --> 00:07:51,520
template and this was an accelerated

215
00:07:56,790 --> 00:07:54,000
template as chris said we all had to put

216
00:07:58,629 --> 00:07:56,800
in extra hours for many months to try to

217
00:08:01,670 --> 00:07:58,639
get this all together because the crew

218
00:08:03,830 --> 00:08:01,680
was on orbit we had to pull in ground

219
00:08:05,990 --> 00:08:03,840
team members to help us out

220
00:08:08,070 --> 00:08:06,000
more so than we ever have before

221
00:08:10,790 --> 00:08:08,080
and it took a lot of people working

222
00:08:12,390 --> 00:08:10,800
really hard together and it was just

223
00:08:14,790 --> 00:08:12,400
so good to see it all come together and

224
00:08:17,189 --> 00:08:14,800
all goes really so smoothly right before

225
00:08:19,589 --> 00:08:17,199
the eva i leaned over to my on-the-job

226
00:08:21,350 --> 00:08:19,599
trainer and said i just got to say this

227
00:08:23,430 --> 00:08:21,360
is so cool

228
00:08:25,110 --> 00:08:23,440
to finally get there and be ready for

229
00:08:27,990 --> 00:08:25,120
the eva

230
00:08:30,390 --> 00:08:28,000
that was that was quite a moment uh

231
00:08:33,509 --> 00:08:30,400
it we went out the door about 40 minutes

232
00:08:35,509 --> 00:08:33,519
late fergie and satoshi were helping

233
00:08:37,670 --> 00:08:35,519
ron and rex get into the i'm sorry ron

234
00:08:39,750 --> 00:08:37,680
and mike get into their suits and mike

235
00:08:41,670 --> 00:08:39,760
i'm sorry mike and ron get into their

236
00:08:42,550 --> 00:08:41,680
suits while rex was finishing up their

237
00:08:45,750 --> 00:08:42,560
final

238
00:08:47,910 --> 00:08:47,030

and then

239
00:08:49,269 --> 00:08:47,920
as

240
00:08:51,509 --> 00:08:49,279
they were working through all of that

241
00:08:54,870 --> 00:08:51,519
including the aisle or in-suit light

242
00:08:57,509 --> 00:08:54,880
exercise pre-breathe protocol

243
00:08:58,790 --> 00:08:57,519
they were making sure very meticulously

244
00:09:00,070 --> 00:08:58,800
checking through all their steps and

245
00:09:01,750 --> 00:09:00,080
they ended up going out the door about

246
00:09:03,269 --> 00:09:01,760
40 minutes late but we were not at all

247
00:09:05,590 --> 00:09:03,279
concerned about that chris and i had

248
00:09:09,110 --> 00:09:05,600
talked about that and had a good plan

249
00:09:10,310 --> 00:09:09,120
for managing the overall day length

250
00:09:12,070 --> 00:09:10,320
for the crew

251
00:09:17,670 --> 00:09:12,080
and i brought some video so let's go

252
00:09:20,470 --> 00:09:18,630
we

253
00:09:22,710 --> 00:09:20,480
started out installing the new colt

254
00:09:23,590 --> 00:09:22,720
tools or the contingency operation lapid

255
00:09:25,430 --> 00:09:23,600
tools

256
00:09:28,550 --> 00:09:25,440
onto the

257
00:09:30,870 --> 00:09:28,560
back side of the pump module platform

258
00:09:32,470 --> 00:09:30,880
those went right into position what a

259
00:09:34,230 --> 00:09:32,480
great team working together to get that

260
00:09:36,790 --> 00:09:34,240
designed

261
00:09:37,509 --> 00:09:36,800
those tools worked flawlessly

262
00:09:40,230 --> 00:09:37,519
uh

263
00:09:41,269 --> 00:09:40,240

module hung up just a little bit on the

264
00:09:43,269 --> 00:09:41,279
uh

265
00:09:45,350 --> 00:09:43,279
external stowage platform before we got

266
00:09:47,110 --> 00:09:45,360
it released he gave it uh one more a

267
00:09:49,670 --> 00:09:47,120
little try with the

268
00:09:50,870 --> 00:09:49,680
pgt bolt didn't turn it all so he gave

269
00:09:53,269 --> 00:09:50,880
it a little

270
00:09:54,470 --> 00:09:53,279
little yank and the whole thing came

271
00:09:56,310 --> 00:09:54,480
loose

272
00:09:58,310 --> 00:09:56,320
and uh

273
00:10:01,190 --> 00:09:58,320
there you can see it's starting to move

274
00:10:02,470 --> 00:10:01,200
it's about 1500 pounds so

275
00:10:07,509 --> 00:10:02,480
it

276
00:10:09,910 --> 00:10:07,519
here you see ron controlling the whole

277
00:10:11,910 --> 00:10:09,920
thing on the robot arm and notice he's

278
00:10:14,230 --> 00:10:11,920
just very slowly turning the whole thing

279
00:10:15,910 --> 00:10:14,240
over it started out in one orientation

280
00:10:18,949 --> 00:10:15,920
kind of a heads up orientation and he

281
00:10:20,310 --> 00:10:18,959
needed to turn it 180 degrees around so

282
00:10:22,069 --> 00:10:20,320
that when he got down to the payload bay

283
00:10:23,509 --> 00:10:22,079
he'd be heads down

284
00:10:26,470 --> 00:10:23,519
in the payload bay and could install the

285
00:10:29,110 --> 00:10:26,480
pump module when he got down there

286
00:10:31,190 --> 00:10:29,120
all of that went really smoothly it was

287
00:10:33,509 --> 00:10:31,200
just like watching the training in the

288
00:10:35,829 --> 00:10:33,519

vr lab and in the neutral buoyancy

289
00:10:36,949 --> 00:10:35,839
laboratory we're really glad to see all

290
00:10:38,870 --> 00:10:36,959
of that

291
00:10:41,269 --> 00:10:38,880
here you see the robotics refueling

292
00:10:44,069 --> 00:10:41,279
mission uh just about to be installed

293
00:10:46,630 --> 00:10:44,079
and handed off to the dexter arm over on

294
00:10:48,470 --> 00:10:46,640
the lab nader

295
00:10:50,069 --> 00:10:48,480
i know that everybody at goddard was

296
00:10:51,190 --> 00:10:50,079
holding their breath here making sure

297
00:10:52,550 --> 00:10:51,200
that

298
00:10:54,470 --> 00:10:52,560
we were all

299
00:10:56,069 --> 00:10:54,480
sending them good wishes and

300
00:10:58,389 --> 00:10:56,079
we were able to get it installed onto

301
00:11:01,430 --> 00:10:58,399
the dexter just fine then it was off to

302
00:11:03,670 --> 00:11:01,440
install the missy or the materials iss

303
00:11:06,069 --> 00:11:03,680
experiment the small portion of that

304
00:11:08,069 --> 00:11:06,079
called the ormate

305
00:11:10,550 --> 00:11:08,079
took some photos of that that's material

306
00:11:13,350 --> 00:11:10,560
samples that are exposed to the

307
00:11:15,269 --> 00:11:13,360
ram and wake of space

308
00:11:17,829 --> 00:11:15,279
from there we went on to work on the

309
00:11:19,110 --> 00:11:17,839
grapple fixture that had the little wire

310
00:11:20,710 --> 00:11:19,120
sticking out through one of the latch

311
00:11:23,910 --> 00:11:20,720
doors you can see it getting cleared

312
00:11:25,990 --> 00:11:23,920
there and then pulled out of the way

313
00:11:27,430 --> 00:11:26,000

that went just like the training it

314
00:11:30,790 --> 00:11:27,440
could not it was just like watching

315
00:11:32,710 --> 00:11:30,800
trainia video to see how well this went

316
00:11:34,389 --> 00:11:32,720
just like we had planned it doesn't

317
00:11:38,150 --> 00:11:34,399
always go that well but today it sure

318
00:11:41,350 --> 00:11:38,160
did and we were glad to see it

319
00:11:43,350 --> 00:11:41,360
our final task on the eva was installing

320
00:11:45,269 --> 00:11:43,360
the thermal cover that chris was talking

321
00:11:46,710 --> 00:11:45,279
about here you see it coming out of the

322
00:11:49,110 --> 00:11:46,720
bag you can think of a great big

323
00:11:50,870 --> 00:11:49,120
comforter coming out of the

324
00:11:54,870 --> 00:11:50,880
oru bag or the

325
00:11:58,790 --> 00:11:56,310
here you can see it in its final

326
00:12:00,550 --> 00:11:58,800
configuration strapped down it's got

327
00:12:03,509 --> 00:12:00,560
nine velcro straps that hold it into

328
00:12:05,190 --> 00:12:03,519
position and

329
00:12:07,110 --> 00:12:05,200
about the time that they had it

330
00:12:09,350 --> 00:12:07,120
installed in this configuration the

331
00:12:10,949 --> 00:12:09,360
thermal officer in the front room in the

332
00:12:13,350 --> 00:12:10,959
mission control center stood up and

333
00:12:16,069 --> 00:12:13,360
turned around and said i can already see

334
00:12:17,670 --> 00:12:16,079
it starting to take effect

335
00:12:19,509 --> 00:12:17,680
he had already seen in his data just

336
00:12:21,750 --> 00:12:19,519
that fast so that's very successful

337
00:12:22,470 --> 00:12:21,760
project

338
00:12:24,389 --> 00:12:22,480

we

339
00:12:26,949 --> 00:12:24,399
wanted to wrap up as close on time as

340
00:12:28,710 --> 00:12:26,959
possible today and we did that we were

341
00:12:31,350 --> 00:12:28,720
able to pick up the large cutter tool

342
00:12:32,629 --> 00:12:31,360
out of the port

343
00:12:34,230 --> 00:12:32,639
toolbox

344
00:12:35,829 --> 00:12:34,240
we brought that inside the russians are

345
00:12:37,430 --> 00:12:35,839
going to borrow that from us on their

346
00:12:40,389 --> 00:12:37,440
russian eva that's coming up a little

347
00:12:41,990 --> 00:12:40,399
bit later this summer

348
00:12:44,550 --> 00:12:42,000
i'm going to take just a minute to thank

349
00:12:47,190 --> 00:12:44,560
my team what a great team we had ernie

350
00:12:49,030 --> 00:12:47,200
bell on the airlock position

351
00:12:51,269 --> 00:12:49,040
giving me calls on the configuration of

352
00:12:53,509 --> 00:12:51,279
the airlock throughout the eva grant

353
00:12:55,829 --> 00:12:53,519
schlesser was keeping track of the emu

354
00:12:57,990 --> 00:12:55,839
consumables or the spacesuit consumables

355
00:13:01,350 --> 00:12:58,000
how much oxygen we had remaining how

356
00:13:03,829 --> 00:13:01,360
much power and co2 scrubbing capability

357
00:13:05,430 --> 00:13:03,839
he was assisted by tamara york it was

358
00:13:07,030 --> 00:13:05,440
great to hear all of them on the loops

359
00:13:08,310 --> 00:13:07,040
and we like to hear them as little as

360
00:13:09,350 --> 00:13:08,320
possible because the more we hear of

361
00:13:11,670 --> 00:13:09,360
them the

362
00:13:13,590 --> 00:13:11,680
more problems we're having and they got

363
00:13:14,870 --> 00:13:13,600

to be really quiet today so we were glad

364
00:13:17,190 --> 00:13:14,880
about that

365
00:13:18,870 --> 00:13:17,200
darren welsh was on the task console

366
00:13:21,190 --> 00:13:18,880
giving a task times as we went along

367
00:13:22,949 --> 00:13:21,200
long pointers just in case the crew ran

368
00:13:24,310 --> 00:13:22,959
into trouble keeping one finger in the

369
00:13:26,470 --> 00:13:24,320
contingency

370
00:13:28,629 --> 00:13:26,480
pages just in case they ran into trouble

371
00:13:30,629 --> 00:13:28,639
and he could give me a quick words to

372
00:13:32,389 --> 00:13:30,639
help straighten them out if required

373
00:13:34,230 --> 00:13:32,399
scott ray was assisting him and he

374
00:13:35,750 --> 00:13:34,240
actually took over and was primed for a

375
00:13:37,829 --> 00:13:35,760
little while he's one of our trainers

376
00:13:41,509 --> 00:13:37,839
and we allowed him to what we call hot

377
00:13:42,949 --> 00:13:41,519
ojt or hot on the job training um for a

378
00:13:44,790 --> 00:13:42,959
few minutes in the eva while we

379
00:13:47,350 --> 00:13:44,800
installed the pma 3 cover we kind of

380
00:13:49,590 --> 00:13:47,360
gave that to him as a prime task to get

381
00:13:51,910 --> 00:13:49,600
him ready for

382
00:13:52,949 --> 00:13:51,920
certification on international space

383
00:13:55,350 --> 00:13:52,959
station

384
00:13:58,310 --> 00:13:55,360
spacewalks in the future they were also

385
00:14:01,189 --> 00:13:58,320
assisted by charles goff

386
00:14:03,590 --> 00:14:01,199
who was also helping them keep track of

387
00:14:06,069 --> 00:14:03,600
tools tethers watching what was going on

388
00:14:08,069 --> 00:14:06,079

during the eva making sure that

389
00:14:09,590 --> 00:14:08,079
while we were listening he was watching

390
00:14:11,430 --> 00:14:09,600
on the down link while we were taking

391
00:14:13,750 --> 00:14:11,440
notes and had our eyes off of the tv for

392
00:14:14,389 --> 00:14:13,760
a minute he was the one watching keeping

393
00:14:17,030 --> 00:14:14,399
us

394
00:14:18,790 --> 00:14:17,040
straight on all the other calls

395
00:14:21,189 --> 00:14:18,800
i have to say there was a little

396
00:14:23,910 --> 00:14:21,199
poignant moment while uh ron was

397
00:14:27,030 --> 00:14:23,920
finishing up down in the payload bay

398
00:14:29,509 --> 00:14:27,040
those words about it being the last eva

399
00:14:31,189 --> 00:14:29,519
in the shuttle payload bay were

400
00:14:32,629 --> 00:14:31,199
pretty touching to all of us of course

401
00:14:34,230 --> 00:14:32,639
we're technical people and we keep our

402
00:14:35,509 --> 00:14:34,240
heads in the game in real time but there

403
00:14:37,030 --> 00:14:35,519
wasn't any one of us that didn't have a

404
00:14:38,790 --> 00:14:37,040
little bit of a catch in our throat as

405
00:14:42,949 --> 00:14:38,800
we

406
00:14:46,790 --> 00:14:44,710
i also wanted to thank all the people

407
00:14:49,350 --> 00:14:46,800
out at the neutral buoyancy laboratory

408
00:14:52,069 --> 00:14:49,360
um they've been great throughout the ins

409
00:14:53,750 --> 00:14:52,079
the shuttle program prior to that we had

410
00:14:54,790 --> 00:14:53,760
the wet af or weightless environment

411
00:14:56,310 --> 00:14:54,800
training

412
00:14:58,389 --> 00:14:56,320
facility at

413
00:14:59,990 --> 00:14:58,399

johnson johnson

414
00:15:02,629 --> 00:15:00,000
a lot of those folks started at the wet

415
00:15:04,069 --> 00:15:02,639
off and moved over to the nbl and

416
00:15:06,069 --> 00:15:04,079
have supported the shuttle program

417
00:15:08,710 --> 00:15:06,079
throughout and wanted to thank them

418
00:15:11,350 --> 00:15:08,720
for doing such a phenomenal job

419
00:15:14,870 --> 00:15:11,360
we've now come down to the point where

420
00:15:17,030 --> 00:15:14,880
we can watch a task in the nbl and

421
00:15:19,110 --> 00:15:17,040
compare it to on orbit times and know

422
00:15:21,110 --> 00:15:19,120
just about exactly

423
00:15:23,670 --> 00:15:21,120
how much time it's going to take in

424
00:15:25,990 --> 00:15:23,680
space based on adjustment factors

425
00:15:28,710 --> 00:15:26,000
knowing the experience level of the crew

426
00:15:31,350 --> 00:15:28,720
the complexity of the task

427
00:15:33,670 --> 00:15:31,360
the history of the various tools and

428
00:15:36,069 --> 00:15:33,680
products involved i'm not saying it's

429
00:15:37,829 --> 00:15:36,079
all science it took some luck today too

430
00:15:40,230 --> 00:15:37,839
to hit it on the numbers but we

431
00:15:41,269 --> 00:15:40,240
certainly did and it's a good validation

432
00:15:43,910 --> 00:15:41,279
of all the

433
00:15:45,189 --> 00:15:43,920
the work that folks prior to this have

434
00:15:46,870 --> 00:15:45,199
put in to

435
00:15:48,870 --> 00:15:46,880
help us out with all of our planning

436
00:15:50,310 --> 00:15:48,880
tools so a lot of thanks to all the eva

437
00:15:51,990 --> 00:15:50,320
officers that have gone before me and

438
00:15:54,310 --> 00:15:52,000

all the hot hard work that they've done

439
00:15:55,910 --> 00:15:54,320
on the space shuttle program we're not

440
00:15:57,829 --> 00:15:55,920
done though we're we still have an

441
00:16:00,150 --> 00:15:57,839
international space station to maintain

442
00:16:01,829 --> 00:16:00,160
and we're preparing for all of that and

443
00:16:04,389 --> 00:16:01,839
then we're getting ready to go explore

444
00:16:05,829 --> 00:16:04,399
the universe as well and looking forward

445
00:16:07,829 --> 00:16:05,839
to that as well

446
00:16:09,350 --> 00:16:07,839
that's all i have and i know ben wants

447
00:16:11,509 --> 00:16:09,360
to say some special words about the

448
00:16:13,110 --> 00:16:11,519
robotics revealing mission i would also

449
00:16:15,350 --> 00:16:13,120
like to talk about the future thank you

450
00:16:17,030 --> 00:16:15,360
glenda because this is not the end this

451
00:16:19,110 --> 00:16:17,040
is the beginning

452
00:16:19,910 --> 00:16:19,120
so first off let me start off by saying

453
00:16:22,790 --> 00:16:19,920
that

454
00:16:24,069 --> 00:16:22,800
the words cannot express how excited

455
00:16:26,710 --> 00:16:24,079
proud

456
00:16:29,430 --> 00:16:26,720
and humbled i am to be part of this

457
00:16:31,350 --> 00:16:29,440
this historic mission um it truly is a

458
00:16:33,189 --> 00:16:31,360
great day

459
00:16:37,269 --> 00:16:33,199
i speak for the entire satellite

460
00:16:39,350 --> 00:16:37,279
servicing capabilities office at goddard

461
00:16:42,230 --> 00:16:39,360
when i give my thanks

462
00:16:43,590 --> 00:16:42,240
first to the sts-135 team it's a very

463
00:16:46,069 --> 00:16:43,600

large team

464
00:16:48,310 --> 00:16:46,079
at kennedy space center we get excellent

465
00:16:51,269 --> 00:16:48,320
support there whenever goddard processed

466
00:16:53,910 --> 00:16:51,279
as a payload through the the shuttle

467
00:16:55,829 --> 00:16:53,920
program we have had fantastic support

468
00:16:58,230 --> 00:16:55,839
with all the hubble servicing missions

469
00:17:00,870 --> 00:16:58,240
and now with rrm cannot say enough about

470
00:17:03,509 --> 00:17:00,880
our good friends down in florida

471
00:17:05,909 --> 00:17:03,519
from the payloads office to the four eva

472
00:17:06,870 --> 00:17:05,919
crew members who gave us a fantastic

473
00:17:07,750 --> 00:17:06,880
ride

474
00:17:09,990 --> 00:17:07,760
to

475
00:17:12,630 --> 00:17:10,000
the international space station a couple

476
00:17:15,669 --> 00:17:13,990
speaking of the international space

477
00:17:18,150 --> 00:17:15,679
station i would

478
00:17:19,350 --> 00:17:18,160
now like to thank the two eva crew

479
00:17:22,230 --> 00:17:19,360
members

480
00:17:25,029 --> 00:17:22,240
ron and mike for excellent work today in

481
00:17:27,429 --> 00:17:25,039
getting us from the shuttle on to

482
00:17:30,950 --> 00:17:27,439
station they did a fantastic job thank

483
00:17:33,270 --> 00:17:30,960
you glenda for making that happen

484
00:17:35,430 --> 00:17:33,280
i think again i think it's a testament

485
00:17:37,029 --> 00:17:35,440
to the ability for the various centers

486
00:17:41,029 --> 00:17:37,039
at goddard to work

487
00:17:43,830 --> 00:17:41,039
as a unified agency what you saw today

488
00:17:45,830 --> 00:17:43,840

the iss payloads office at both johnson

489
00:17:48,470 --> 00:17:45,840
and at marshall

490
00:17:52,549 --> 00:17:48,480
i don't think it's a stretch to say that

491
00:17:55,110 --> 00:17:52,559
rrm is the most complicated

492
00:17:58,390 --> 00:17:55,120
payload experiment to

493
00:18:00,549 --> 00:17:58,400
sit on iss and be poised for future

494
00:18:01,990 --> 00:18:00,559
operations and we could not have gotten

495
00:18:03,990 --> 00:18:02,000
to where we are today without the

496
00:18:08,390 --> 00:18:04,000
excellent support from the payloads

497
00:18:11,190 --> 00:18:08,400
offices at both johnson and at marshall

498
00:18:12,470 --> 00:18:11,200
canadian space agency they are trusted

499
00:18:15,270 --> 00:18:12,480
friends

500
00:18:17,590 --> 00:18:15,280
with the iss program and they

501
00:18:20,390 --> 00:18:17,600
again came through it's excellent forum

502
00:18:22,950 --> 00:18:20,400
today with the canadarm2

503
00:18:24,630 --> 00:18:22,960
transferring us helping mike and ron

504
00:18:26,390 --> 00:18:24,640
transfer us from

505
00:18:28,070 --> 00:18:26,400
the shuttle to

506
00:18:30,150 --> 00:18:28,080
iss

507
00:18:32,630 --> 00:18:30,160
and in the future we will be using their

508
00:18:34,390 --> 00:18:32,640
dexter robot their two-arm dexterous

509
00:18:36,950 --> 00:18:34,400
robot named dexter

510
00:18:39,669 --> 00:18:36,960
to perform operations with

511
00:18:42,630 --> 00:18:39,679
uh rrm module so thank you to the

512
00:18:45,270 --> 00:18:42,640
canadian space agency

513
00:18:48,310 --> 00:18:45,280

and lastly my thanks to the robotics

514
00:18:52,150 --> 00:18:48,320
refueling mission team at goddard

515
00:18:53,830 --> 00:18:52,160
my team back at goddard is

516
00:18:57,510 --> 00:18:53,840
is a great team

517
00:18:58,710 --> 00:18:57,520
from top to the bottom from design

518
00:19:01,029 --> 00:18:58,720
development

519
00:19:02,870 --> 00:19:01,039
configuration management the electrical

520
00:19:03,750 --> 00:19:02,880
team the mechanical team the thermal

521
00:19:05,350 --> 00:19:03,760
team

522
00:19:07,190 --> 00:19:05,360
contamination

523
00:19:08,549 --> 00:19:07,200
it's a large team

524
00:19:11,190 --> 00:19:08,559
and they all

525
00:19:13,190 --> 00:19:11,200
put in incredibly long hours

526
00:19:15,590 --> 00:19:13,200
essentially nobody on my team had a

527
00:19:16,470 --> 00:19:15,600
christmas or a new year this year as we

528
00:19:18,789 --> 00:19:16,480
were

529
00:19:20,150 --> 00:19:18,799
frantically assembling and testing the

530
00:19:21,590 --> 00:19:20,160
flight hardware

531
00:19:23,270 --> 00:19:21,600
to make

532
00:19:24,390 --> 00:19:23,280
the launch schedule because we did not

533
00:19:26,230 --> 00:19:24,400
want to

534
00:19:30,870 --> 00:19:26,240
miss the opportunity

535
00:19:37,510 --> 00:19:33,590
so here we are our rrm the robotic

536
00:19:39,830 --> 00:19:37,520
refueling mission is now poised on iss

537
00:19:42,070 --> 00:19:39,840
which is a fantastic on orbit laboratory

538
00:19:43,750 --> 00:19:42,080

we could not

539
00:19:46,870 --> 00:19:43,760
conceivably

540
00:19:48,470 --> 00:19:46,880
envision getting a payload to orbit from

541
00:19:51,270 --> 00:19:48,480
concept

542
00:19:54,870 --> 00:19:51,280
to capture on orbit in 18 months without

543
00:19:57,510 --> 00:19:54,880
having iss that fantastic

544
00:19:59,430 --> 00:19:57,520
infrastructure already in place

545
00:20:00,789 --> 00:19:59,440
power communication

546
00:20:03,110 --> 00:20:00,799
thermal

547
00:20:05,270 --> 00:20:03,120
three axis stabilized telemetry to the

548
00:20:08,310 --> 00:20:05,280
ground commands up

549
00:20:10,149 --> 00:20:08,320
and a two-armed dexterous robot waiting

550
00:20:12,470 --> 00:20:10,159
for action

551
00:20:14,630 --> 00:20:12,480
without all those capabilities we would

552
00:20:17,270 --> 00:20:14,640
not have been able to get rrm

553
00:20:19,990 --> 00:20:17,280
to orbit as quickly as we did so we are

554
00:20:21,909 --> 00:20:20,000
looking forward to our future operations

555
00:20:23,909 --> 00:20:21,919
on such an incredible orbiting

556
00:20:24,870 --> 00:20:23,919
laboratory

557
00:20:27,510 --> 00:20:24,880
so

558
00:20:29,270 --> 00:20:27,520
not to be overly dramatic but what we

559
00:20:33,190 --> 00:20:29,280
hope to do

560
00:20:34,710 --> 00:20:33,200
with rrm is to demonstrate the tools

561
00:20:36,310 --> 00:20:34,720
the technology

562
00:20:39,190 --> 00:20:36,320
and the techniques

563
00:20:41,350 --> 00:20:39,200

for on-orbit servicing

564
00:20:44,149 --> 00:20:41,360
so what is on orbit servicing what can

565
00:20:46,470 --> 00:20:44,159
it do for an agency

566
00:20:48,310 --> 00:20:46,480
well with on-orbit servicing

567
00:20:51,190 --> 00:20:48,320
a satellite that's out of fuel does not

568
00:20:52,549 --> 00:20:51,200
necessarily have to be discarded thrown

569
00:20:54,630 --> 00:20:52,559
away

570
00:20:57,110 --> 00:20:54,640
with on-orbit servicing

571
00:20:59,669 --> 00:20:57,120
a brand new satellite just delivered to

572
00:21:01,909 --> 00:20:59,679
orbit with a deployment failure does not

573
00:21:04,310 --> 00:21:01,919
necessarily have to be hobbled for the

574
00:21:05,430 --> 00:21:04,320
remainder of its operational life but

575
00:21:06,470 --> 00:21:05,440
rather

576
00:21:09,830 --> 00:21:06,480
could be

577
00:21:11,350 --> 00:21:09,840
brought back to fully operational status

578
00:21:13,510 --> 00:21:11,360
so

579
00:21:15,190 --> 00:21:13,520
servicing is not a panacea it's not

580
00:21:16,789 --> 00:21:15,200
magical it will not solve all of our

581
00:21:20,549 --> 00:21:16,799
problems but

582
00:21:23,029 --> 00:21:20,559
if done properly it can be a useful tool

583
00:21:26,310 --> 00:21:23,039
in the agency's toolbox it can be

584
00:21:28,230 --> 00:21:26,320
another arrow another set of options

585
00:21:31,830 --> 00:21:28,240
in the agency's quiver

586
00:21:32,950 --> 00:21:31,840
should they want to use it for

587
00:21:36,230 --> 00:21:32,960
repair

588
00:21:38,470 --> 00:21:36,240

refueling or on orbit construction

589
00:21:39,909 --> 00:21:38,480
so thank you for your attention and back

590
00:21:40,870 --> 00:21:39,919
to you mike

591
00:21:42,630 --> 00:21:40,880
okay

592
00:21:44,630 --> 00:21:42,640
thanks very much for the opening

593
00:21:46,789 --> 00:21:44,640
statements we'll move first to questions

594
00:21:49,510 --> 00:21:46,799
here in houston and then i understand we

595
00:21:51,029 --> 00:21:49,520
have a reporter on the phone bridge so

596
00:21:52,870 --> 00:21:51,039
any questions

597
00:21:55,029 --> 00:21:52,880
gina please say sorry about the

598
00:21:55,830 --> 00:21:55,039
microphone but if you'll just step up to

599
00:22:00,390 --> 00:21:55,840
it

600
00:22:02,310 --> 00:22:00,400
like the space walkers were in a

601
00:22:03,990 --> 00:22:02,320
particularly good mood today i thought i

602
00:22:06,070 --> 00:22:04,000
heard them trying to whistle they were

603
00:22:08,310 --> 00:22:06,080
making jokes tell me a little bit about

604
00:22:10,230 --> 00:22:08,320
their attitude out on the spacewalk

605
00:22:12,310 --> 00:22:10,240
oh that the whistling thing is kind of

606
00:22:14,310 --> 00:22:12,320
fun because

607
00:22:16,390 --> 00:22:14,320
you know among all the spacewalkers they

608
00:22:19,029 --> 00:22:16,400
all talk about it can you really whistle

609
00:22:21,029 --> 00:22:19,039
because of the

610
00:22:24,230 --> 00:22:21,039
lower pressure in the suit less

611
00:22:25,430 --> 00:22:24,240
molecules in the air so it's you really

612
00:22:27,669 --> 00:22:25,440
have to

613
00:22:30,710 --> 00:22:27,679

take a deep breath and blow hard to

614
00:22:32,230 --> 00:22:30,720
whistle and so they all try it well i

615
00:22:33,510 --> 00:22:32,240
won't say they all try it but mike

616
00:22:35,350 --> 00:22:33,520
definitely wanted to try it and you

617
00:22:37,990 --> 00:22:35,360
could you could hear him trying to to

618
00:22:39,830 --> 00:22:38,000
give it a go he got a little whistle out

619
00:22:42,630 --> 00:22:39,840
out at the beginning and i think that's

620
00:22:44,630 --> 00:22:42,640
just a little fun for them um

621
00:22:45,990 --> 00:22:44,640
you know

622
00:22:47,750 --> 00:22:46,000
you need a little something to break the

623
00:22:49,830 --> 00:22:47,760
tension too because you're going out

624
00:22:51,990 --> 00:22:49,840
you've got uh you've got six and a half

625
00:22:53,190 --> 00:22:52,000
hours ahead of you and uh there's not a

626
00:22:55,430 --> 00:22:53,200
lunch break

627
00:22:57,750 --> 00:22:55,440
so uh it's it's a lot to be thinking

628
00:23:00,070 --> 00:22:57,760
about is just as you head out the door

629
00:23:01,830 --> 00:23:00,080
as we sat down at our console too so

630
00:23:03,909 --> 00:23:01,840
it's a it's fun to hear that and that

631
00:23:06,549 --> 00:23:03,919
kind of puts us all in a good mood for

632
00:23:08,230 --> 00:23:06,559
the day ron was also in a good mood

633
00:23:11,190 --> 00:23:08,240
those two like to work together they've

634
00:23:13,350 --> 00:23:11,200
done three evas in the past uh worked

635
00:23:15,110 --> 00:23:13,360
that whole mission together and did

636
00:23:16,630 --> 00:23:15,120
their as much of their training together

637
00:23:19,110 --> 00:23:16,640
as they could they were on separate

638
00:23:21,029 --> 00:23:19,120

rotations in the training schedule but

639
00:23:24,470 --> 00:23:21,039
uh always fun to see them working

640
00:23:32,070 --> 00:23:26,789
rob

641
00:23:34,789 --> 00:23:32,080
i think i heard that the next u.s based

642
00:23:36,950 --> 00:23:34,799
eba is about a year away if that's

643
00:23:37,990 --> 00:23:36,960
correct um so are there any special

644
00:23:40,630 --> 00:23:38,000
things that need to be done with the

645
00:23:43,269 --> 00:23:40,640
quest airlock at the close of the cba to

646
00:23:45,430 --> 00:23:43,279
put in to maintain it for a year i mean

647
00:23:47,510 --> 00:23:45,440
is there anything that can sit dormant

648
00:23:50,310 --> 00:23:47,520
for a year and then just be powered back

649
00:23:52,310 --> 00:23:50,320
on when needed oh we've got a regular

650
00:23:53,269 --> 00:23:52,320
maintenance schedule

651
00:23:55,190 --> 00:23:53,279
each

652
00:23:57,029 --> 00:23:55,200
piece of the equipment has its own

653
00:23:59,669 --> 00:23:57,039
maintenance requirements so at a certain

654
00:24:02,070 --> 00:23:59,679
rotation time we've got to get the suits

655
00:24:04,070 --> 00:24:02,080
out hook them up to

656
00:24:05,750 --> 00:24:04,080
the surface and cooling umbilicals and

657
00:24:08,789 --> 00:24:05,760
start the pumps on them and the water

658
00:24:11,029 --> 00:24:08,799
pumps to pump cooling fluid through

659
00:24:13,110 --> 00:24:11,039
the lines um

660
00:24:16,549 --> 00:24:13,120
it's water that runs through the lines

661
00:24:18,950 --> 00:24:16,559
and we re-iodinate it there's an ion

662
00:24:21,750 --> 00:24:18,960
filter that we use to clear out any

663
00:24:23,669 --> 00:24:21,760

particulate matter that might have have

664
00:24:25,830 --> 00:24:23,679
have grown in the line when it wasn't

665
00:24:28,230 --> 00:24:25,840
being used as well as

666
00:24:30,549 --> 00:24:28,240
adding iodine to keep it in a separate

667
00:24:33,510 --> 00:24:30,559
filter that adds iodine in to keep

668
00:24:35,990 --> 00:24:33,520
anything from growing um so we do that

669
00:24:37,510 --> 00:24:36,000
on a regular basis we scrub the suits

670
00:24:39,669 --> 00:24:37,520
within a certain amount of time right

671
00:24:41,830 --> 00:24:39,679
after we use them so in the next couple

672
00:24:43,990 --> 00:24:41,840
of weeks you'll be hearing us uh

673
00:24:45,669 --> 00:24:44,000
doing some what we call loop scrub it

674
00:24:47,990 --> 00:24:45,679
scrubs both the

675
00:24:49,350 --> 00:24:48,000
the suit itself and the cooling lines

676
00:24:52,230 --> 00:24:49,360
going to it

677
00:24:54,470 --> 00:24:52,240
um so that's a regular maintenance thing

678
00:24:55,430 --> 00:24:54,480
there are also things that are as simple

679
00:24:58,310 --> 00:24:55,440
as

680
00:25:00,149 --> 00:24:58,320
the positive pressure relief valve that

681
00:25:01,909 --> 00:25:00,159
would provide for

682
00:25:04,870 --> 00:25:01,919
keeping the crew the suit from over

683
00:25:07,430 --> 00:25:04,880
pressurizing it has to be able to crack

684
00:25:09,510 --> 00:25:07,440
and open up if it got to the suit

685
00:25:12,310 --> 00:25:09,520
pressure got too high and in order to

686
00:25:14,549 --> 00:25:12,320
make sure that that does indeed open and

687
00:25:16,870 --> 00:25:14,559
re-seat once a year we've got to get a

688
00:25:18,630 --> 00:25:16,880

little poppet keeper out and

689
00:25:20,950 --> 00:25:18,640
depress that

690
00:25:23,110 --> 00:25:20,960
so something's really simple like that

691
00:25:24,549 --> 00:25:23,120
and other things fairly complex like the

692
00:25:26,549 --> 00:25:24,559
loop scrubs

693
00:25:28,549 --> 00:25:26,559
they're certain in order to maintain the

694
00:25:30,870 --> 00:25:28,559
battery charging

695
00:25:32,950 --> 00:25:30,880
capability we've got to occasionally get

696
00:25:35,590 --> 00:25:32,960
out the batteries and do maintenance on

697
00:25:38,070 --> 00:25:35,600
those which involve charging them up and

698
00:25:40,149 --> 00:25:38,080
then discharging them again to make sure

699
00:25:42,470 --> 00:25:40,159
those are in a good configuration

700
00:25:44,149 --> 00:25:42,480
so a lot of little requirements on all

701
00:25:45,510 --> 00:25:44,159
the various hardware

702
00:25:48,950 --> 00:25:45,520
we'll have

703
00:25:51,190 --> 00:25:48,960
couple weeks we'll be back in the

704
00:25:53,190 --> 00:25:51,200
control room doing something

705
00:25:56,230 --> 00:25:53,200
and that'll help keep our team fresh as

706
00:26:01,590 --> 00:25:58,870
oh thank you mark caro for aviation week

707
00:26:03,669 --> 00:26:01,600
and mine's for mr reed

708
00:26:05,669 --> 00:26:03,679
when would you expect to do

709
00:26:07,350 --> 00:26:05,679
some work with the

710
00:26:09,269 --> 00:26:07,360
refueling experiment and what would be

711
00:26:11,350 --> 00:26:09,279
some of the first things that he would

712
00:26:12,630 --> 00:26:11,360
do and then what would sort of happen

713
00:26:14,549 --> 00:26:12,640

after that

714
00:26:16,149 --> 00:26:14,559
great question

715
00:26:17,750 --> 00:26:16,159
so

716
00:26:19,830 --> 00:26:17,760
the first thing we're going to do

717
00:26:21,350 --> 00:26:19,840
with the rrm module

718
00:26:23,990 --> 00:26:21,360
is transfer it from its temporary

719
00:26:27,190 --> 00:26:24,000
location where it's stored now on eotp

720
00:26:29,029 --> 00:26:27,200
and move it over to elc4

721
00:26:31,510 --> 00:26:29,039
that will be a permanent home for

722
00:26:34,470 --> 00:26:31,520
operations on the express logistics

723
00:26:39,590 --> 00:26:36,789
once there we will conduct vision

724
00:26:42,549 --> 00:26:39,600
experiments

725
00:26:44,070 --> 00:26:42,559
future robotic activity whether

726
00:26:47,269 --> 00:26:44,080
on space station

727
00:26:49,269 --> 00:26:47,279
a free flying servicing spacecraft all

728
00:26:51,590 --> 00:26:49,279
are going to involve some form of

729
00:26:53,830 --> 00:26:51,600
machine vision algorithms right the

730
00:26:56,390 --> 00:26:53,840
ability for

731
00:26:59,750 --> 00:26:56,400
natural feature detection

732
00:27:01,909 --> 00:26:59,760
edge detection the ability for

733
00:27:04,310 --> 00:27:01,919
these computer algorithms to sense

734
00:27:05,029 --> 00:27:04,320
features automatically

735
00:27:07,750 --> 00:27:05,039
it's

736
00:27:10,390 --> 00:27:07,760
nearly impossible to replicate the harsh

737
00:27:12,149 --> 00:27:10,400
unorbit lighting of space on the ground

738
00:27:15,590 --> 00:27:12,159

so we're going to take advantage of the

739
00:27:16,950 --> 00:27:15,600
early time of rrm on orbit

740
00:27:19,990 --> 00:27:16,960
to conduct

741
00:27:21,110 --> 00:27:20,000
these non-contact experiments

742
00:27:22,870 --> 00:27:21,120
after that

743
00:27:24,950 --> 00:27:22,880
we will then get into the contact and

744
00:27:26,070 --> 00:27:24,960
that's where we will use the dexter

745
00:27:26,870 --> 00:27:26,080
robot

746
00:27:28,070 --> 00:27:26,880
to

747
00:27:30,389 --> 00:27:28,080
access

748
00:27:33,510 --> 00:27:30,399
a panel that's on the top of our rm so i

749
00:27:35,990 --> 00:27:33,520
have a model here of rrm

750
00:27:37,830 --> 00:27:36,000
and on the this is how it sits on will

751
00:27:40,630 --> 00:27:37,840
sit on elc 4

752
00:27:43,350 --> 00:27:40,640
on the top we have this panel here so

753
00:27:45,190 --> 00:27:43,360
our first set of operations will take

754
00:27:46,950 --> 00:27:45,200
the end of the

755
00:27:49,029 --> 00:27:46,960
dexter robot arm

756
00:27:50,549 --> 00:27:49,039
it will come over and it will pick up

757
00:27:52,149 --> 00:27:50,559
our very first tool which will be the

758
00:27:53,510 --> 00:27:52,159
wire cutter tool

759
00:27:56,630 --> 00:27:53,520
and see if i can do this without

760
00:27:58,870 --> 00:27:56,640
breaking the model on live tv

761
00:28:00,789 --> 00:27:58,880
so the wire cutter tool comes out

762
00:28:03,430 --> 00:28:00,799
and guess what the wire cutter tool will

763
00:28:05,830 --> 00:28:03,440

do

764
00:28:07,750 --> 00:28:05,840
cut wire that's right so we have safety

765
00:28:10,310 --> 00:28:07,760
wire on these valves what you have here

766
00:28:13,590 --> 00:28:10,320
is a panel that is very similar to

767
00:28:16,070 --> 00:28:13,600
panels on orbit right now on satellites

768
00:28:17,990 --> 00:28:16,080
to access some of these interfaces we

769
00:28:20,789 --> 00:28:18,000
first need to cut safety wire before we

770
00:28:22,389 --> 00:28:20,799
can unscrew a cap so the wire cutter

771
00:28:24,950 --> 00:28:22,399
tool will come in

772
00:28:28,070 --> 00:28:24,960
it will be flown via the robo operator

773
00:28:30,950 --> 00:28:28,080
from here at johnson space center

774
00:28:33,110 --> 00:28:30,960
they will be using on board cameras

775
00:28:35,190 --> 00:28:33,120
located here and here that are pointing

776
00:28:37,990 --> 00:28:35,200
at the business end of the tool and so

777
00:28:41,990 --> 00:28:38,000
that robo flyer will come in hook safety

778
00:28:43,029 --> 00:28:42,000
wire command the dexter robot's torquer

779
00:28:45,830 --> 00:28:43,039
drive

780
00:28:47,909 --> 00:28:45,840
to turn on and that will chop the wire

781
00:28:49,510 --> 00:28:47,919
in half so that's just one example of

782
00:28:51,990 --> 00:28:49,520
many many more you see the outside of

783
00:28:53,669 --> 00:28:52,000
the module is covered with many

784
00:28:55,430 --> 00:28:53,679
satellite interfaces

785
00:28:57,590 --> 00:28:55,440
basically half of what you see are the

786
00:29:00,470 --> 00:28:57,600
tools to perform the operations and the

787
00:29:03,029 --> 00:29:00,480
other half of what you see items here on

788
00:29:04,549 --> 00:29:03,039

the front and on our task boards on the

789
00:29:06,070 --> 00:29:04,559
sides those are all

790
00:29:08,070 --> 00:29:06,080
interfaces

791
00:29:10,149 --> 00:29:08,080
that are presently on orbit on legacy

792
00:29:11,430 --> 00:29:10,159
satellites so we have mock satellite

793
00:29:15,909 --> 00:29:11,440
interfaces

794
00:29:18,070 --> 00:29:15,919
and the tools to robotically access them

795
00:29:23,510 --> 00:29:18,080
so these operations will take place over

796
00:29:26,789 --> 00:29:24,830
philip sloss with

797
00:29:30,789 --> 00:29:26,799
nasaspaceflight.com just a question on

798
00:29:32,470 --> 00:29:30,799
the uh the grapple fixture where you uh

799
00:29:34,389 --> 00:29:32,480
got the grounding wire out of there it

800
00:29:35,430 --> 00:29:34,399
looked like one of the latch doors stuck

801
00:29:37,510 --> 00:29:35,440
open

802
00:29:39,029 --> 00:29:37,520
before he left the work site and i know

803
00:29:41,510 --> 00:29:39,039
that on the air to ground they said that

804
00:29:43,669 --> 00:29:41,520
that was okay but was that anticipated

805
00:29:46,070 --> 00:29:43,679
ahead of time and i mean what why is

806
00:29:49,110 --> 00:29:46,080
that okay i guess is the other question

807
00:29:51,029 --> 00:29:49,120
okay well we have seen it before and uh

808
00:29:52,230 --> 00:29:51,039
we definitely anticipated it here when

809
00:29:56,950 --> 00:29:52,240
this uh

810
00:29:58,070 --> 00:29:56,960
prior to the time that was taken out and

811
00:29:59,269 --> 00:29:58,080
installed

812
00:30:01,430 --> 00:29:59,279
um

813
00:30:04,149 --> 00:30:01,440

the crew members were in making a good

814
00:30:06,230 --> 00:30:04,159
inspection of it and uh at that time

815
00:30:08,630 --> 00:30:06,240
they'd happen to notice that one of the

816
00:30:10,149 --> 00:30:08,640
doors was hanging up like that and they

817
00:30:12,710 --> 00:30:10,159
were concerned about that so they had

818
00:30:14,389 --> 00:30:12,720
sent us some downlink video of it which

819
00:30:16,470 --> 00:30:14,399
was interesting because we pulled that

820
00:30:19,110 --> 00:30:16,480
video out when the on the last mission

821
00:30:21,669 --> 00:30:19,120
during the sts-134 mission to see if

822
00:30:24,870 --> 00:30:21,679
this wire was visible at that time

823
00:30:26,789 --> 00:30:24,880
and interestingly enough it wasn't

824
00:30:28,389 --> 00:30:26,799
somehow between that time when that

825
00:30:31,190 --> 00:30:28,399
video was taken

826
00:30:33,190 --> 00:30:31,200
maybe i think that was last september or

827
00:30:36,710 --> 00:30:33,200
october

828
00:30:38,630 --> 00:30:36,720
sometime between then and the sts-134

829
00:30:39,669 --> 00:30:38,640
mission that wire managed to find its

830
00:30:41,909 --> 00:30:39,679
way out

831
00:30:43,269 --> 00:30:41,919
you asked about the door though and

832
00:30:44,870 --> 00:30:43,279
during that time he was seeing that the

833
00:30:46,389 --> 00:30:44,880
door was sticking and that's why he sent

834
00:30:48,710 --> 00:30:46,399
us the video down

835
00:30:49,350 --> 00:30:48,720
and we had all the folks

836
00:30:53,750 --> 00:30:49,360
up

837
00:30:55,909 --> 00:30:53,760
sure that that was uh that was okay

838
00:30:57,590 --> 00:30:55,919

and uh they think that they have seen it

839
00:30:59,509 --> 00:30:57,600
a number of times before it eventually

840
00:31:01,590 --> 00:30:59,519
shakes loose so we're not they're not at

841
00:31:04,870 --> 00:31:01,600
all concerned about it

842
00:31:07,430 --> 00:31:04,880
thanks and then uh for mr reed um

843
00:31:08,630 --> 00:31:07,440
what is there is there a sort of a set

844
00:31:10,870 --> 00:31:08,640
period of time that you're going to be

845
00:31:11,750 --> 00:31:10,880
running all of these tests and then long

846
00:31:13,430 --> 00:31:11,760
term

847
00:31:15,750 --> 00:31:13,440
is there any thought about doing you

848
00:31:17,990 --> 00:31:15,760
know a second generation module that

849
00:31:21,110 --> 00:31:18,000
might go up

850
00:31:22,789 --> 00:31:21,120
again great question so we

851
00:31:24,950 --> 00:31:22,799
will be using

852
00:31:27,909 --> 00:31:24,960
the dexter robot the dexter robot is

853
00:31:28,750 --> 00:31:27,919
held at the end of canada arm 2 the 55

854
00:31:32,389 --> 00:31:28,760
foot

855
00:31:34,630 --> 00:31:32,399
ssrms um

856
00:31:37,350 --> 00:31:34,640
space station is a busy place

857
00:31:39,509 --> 00:31:37,360
it is a can it is a buzzing hub of

858
00:31:41,430 --> 00:31:39,519
activity with incoming vehicles visiting

859
00:31:44,870 --> 00:31:41,440
vehicles um

860
00:31:48,389 --> 00:31:44,880
the canadarm2 and dexter are needed for

861
00:31:50,310 --> 00:31:48,399
some of those operations so when

862
00:31:52,549 --> 00:31:50,320
the robotic

863
00:31:55,590 --> 00:31:52,559

facilities are busy

864
00:31:58,710 --> 00:31:55,600
we stand down when they are available

865
00:32:01,269 --> 00:31:58,720
we will be scheduled in and we will

866
00:32:03,350 --> 00:32:01,279
conduct our operations so i cannot tell

867
00:32:05,269 --> 00:32:03,360
you exactly what days in the next two

868
00:32:07,509 --> 00:32:05,279
years our operations will take place

869
00:32:09,269 --> 00:32:07,519
that's going to depend on a lot of

870
00:32:11,990 --> 00:32:09,279
factors outside of our control we

871
00:32:14,070 --> 00:32:12,000
anticipate roughly about two years to

872
00:32:15,750 --> 00:32:14,080
finish off all the the various tasks we

873
00:32:17,669 --> 00:32:15,760
have on the module

874
00:32:19,830 --> 00:32:17,679
um

875
00:32:21,909 --> 00:32:19,840
each individual task we anticipate

876
00:32:24,070 --> 00:32:21,919
running for in the neighborhood of six

877
00:32:27,909 --> 00:32:24,080
to eight hours a day if we need to go

878
00:32:29,190 --> 00:32:27,919
longer the robo operators here at jsc

879
00:32:32,149 --> 00:32:29,200
have

880
00:32:33,509 --> 00:32:32,159
eagerly volunteered to work extra hours

881
00:32:34,389 --> 00:32:33,519
we think this is going to be fun for

882
00:32:36,389 --> 00:32:34,399
them

883
00:32:38,070 --> 00:32:36,399
not that moving large or used around

884
00:32:39,590 --> 00:32:38,080
isn't also fun

885
00:32:41,909 --> 00:32:39,600
but we think this will be different kind

886
00:32:44,549 --> 00:32:41,919
of fun to be able to use dexter to

887
00:32:46,950 --> 00:32:44,559
perform these types of operations

888
00:32:50,310 --> 00:32:46,960

um and you asked about follow on um we

889
00:32:52,870 --> 00:32:50,320
built our module with future expansion

890
00:32:54,950 --> 00:32:52,880
in mind so on top

891
00:32:56,470 --> 00:32:54,960
of the mod well first on the side we

892
00:32:58,549 --> 00:32:56,480
have two task boards

893
00:33:00,470 --> 00:32:58,559
so one task board

894
00:33:03,190 --> 00:33:00,480
is here this footprint and with three

895
00:33:04,950 --> 00:33:03,200
mounting points the lower task board

896
00:33:06,549 --> 00:33:04,960
same footprint it's three mounting

897
00:33:07,990 --> 00:33:06,559
points here here and here

898
00:33:10,310 --> 00:33:08,000
well on top

899
00:33:12,549 --> 00:33:10,320
we built the possibility for a future

900
00:33:15,110 --> 00:33:12,559
task board so you see there are three

901
00:33:17,029 --> 00:33:15,120
receptacles with no task board around it

902
00:33:19,269 --> 00:33:17,039
so we gave ourselves the option that if

903
00:33:20,789 --> 00:33:19,279
we get in orbit we realize gosh

904
00:33:22,149 --> 00:33:20,799
it should have been great if we'd flown

905
00:33:23,750 --> 00:33:22,159
this other doohickey that we didn't

906
00:33:25,990 --> 00:33:23,760
think about at the time or if another

907
00:33:27,750 --> 00:33:26,000
customer comes to us

908
00:33:30,310 --> 00:33:27,760
with issues with their satellite in

909
00:33:31,909 --> 00:33:30,320
space and says hey could you fly a

910
00:33:33,909 --> 00:33:31,919
zipper i want to see if i can unzip a

911
00:33:37,110 --> 00:33:33,919
zipper with a robot or whatever the case

912
00:33:41,590 --> 00:33:37,120
may be but we have the option here

913
00:33:45,269 --> 00:33:43,830

denise ciao with space.com um question

914
00:33:46,389 --> 00:33:45,279
for chris or glenda i'm not actually

915
00:33:48,149 --> 00:33:46,399
sure

916
00:33:50,310 --> 00:33:48,159
with this being the last spacewalk of

917
00:33:53,190 --> 00:33:50,320
the shuttle era what exactly does that

918
00:33:54,870 --> 00:33:53,200
mean for future space station evas does

919
00:33:56,310 --> 00:33:54,880
that mean that astronauts are going to

920
00:33:57,669 --> 00:33:56,320
have to get more extensive training in

921
00:34:00,070 --> 00:33:57,679
robotics because they're going to be

922
00:34:01,669 --> 00:34:00,080
fewer hands on deck or are there going

923
00:34:03,909 --> 00:34:01,679
to be any changes at all

924
00:34:05,990 --> 00:34:03,919
yeah this spacewalk really was a bridge

925
00:34:07,669 --> 00:34:06,000
between the past and the future because

926
00:34:10,149 --> 00:34:07,679
it was it was part shuttle based and

927
00:34:12,629 --> 00:34:10,159
part station based the the payload uh

928
00:34:14,629 --> 00:34:12,639
the rrm payload came up on the shuttle

929
00:34:16,069 --> 00:34:14,639
uh the pump module was going back home

930
00:34:17,510 --> 00:34:16,079
on the shuttle

931
00:34:19,109 --> 00:34:17,520
and we had shuttle crew members

932
00:34:21,750 --> 00:34:19,119
supporting the spacewalk through

933
00:34:22,710 --> 00:34:21,760
robotics and through the uh the

934
00:34:25,589 --> 00:34:22,720
inside the vehicle with the

935
00:34:27,990 --> 00:34:25,599
choreographing but uh it also shows you

936
00:34:29,750 --> 00:34:28,000
the the way of the future because our

937
00:34:31,510 --> 00:34:29,760
space station crew performed the space

938
00:34:33,589 --> 00:34:31,520

walk that is how all our future

939
00:34:35,349 --> 00:34:33,599
spacewalks will be performed glenda

940
00:34:37,669 --> 00:34:35,359
mentioned how we always keep our airlock

941
00:34:39,109 --> 00:34:37,679
on the space station ready to go that's

942
00:34:42,230 --> 00:34:39,119
to support not only the planned

943
00:34:43,909 --> 00:34:42,240
spacewalks but also contingencies

944
00:34:45,349 --> 00:34:43,919
i mentioned how the pump module failed

945
00:34:47,510 --> 00:34:45,359
last summer the one that we brought back

946
00:34:49,589 --> 00:34:47,520
today or put in the payload bay today

947
00:34:51,349 --> 00:34:49,599
that that is an example of one of our uh

948
00:34:53,589 --> 00:34:51,359
currently we have about 11 on the list

949
00:34:55,909 --> 00:34:53,599
of evas that we need to be able to be

950
00:34:58,550 --> 00:34:55,919
ready to execute within about a two week

951
00:35:00,069 --> 00:34:58,560
time frame um there are again other

952
00:35:03,270 --> 00:35:00,079
other contingency cases that would

953
00:35:05,430 --> 00:35:03,280
require a short turnaround eva

954
00:35:07,589 --> 00:35:05,440
in order to assure the survival of the

955
00:35:09,990 --> 00:35:07,599
space station so

956
00:35:11,990 --> 00:35:10,000
every space station crew that flies

957
00:35:13,670 --> 00:35:12,000
receives training in

958
00:35:15,910 --> 00:35:13,680
those contingency evas so that they're

959
00:35:18,550 --> 00:35:15,920
ready to go if they're called to do so

960
00:35:21,030 --> 00:35:18,560
and as well as any planned evas for

961
00:35:22,870 --> 00:35:21,040
example if we end up adding additional

962
00:35:25,190 --> 00:35:22,880
components to rrm there's just one

963
00:35:26,069 --> 00:35:25,200

example or other tasks that

964
00:35:28,470 --> 00:35:26,079
you know

965
00:35:30,470 --> 00:35:28,480
will be required then we'll train crews

966
00:35:33,270 --> 00:35:30,480
specifically for those tasks we'll train

967
00:35:35,589 --> 00:35:33,280
them similarly to what we did for

968
00:35:37,349 --> 00:35:35,599
mike and for ron for this eva extensive

969
00:35:39,829 --> 00:35:37,359
training in our neutral buoyancy

970
00:35:41,510 --> 00:35:39,839
facility here in houston as well as uh

971
00:35:42,870 --> 00:35:41,520
after they get on orbit may have been a

972
00:35:44,390 --> 00:35:42,880
couple months since the last time they

973
00:35:45,430 --> 00:35:44,400
practiced it

974
00:35:47,910 --> 00:35:45,440
they'll get

975
00:35:49,430 --> 00:35:47,920
additionally extensive training on orbit

976
00:35:53,190 --> 00:35:49,440
study and preparation before they go out

977
00:35:58,630 --> 00:35:56,470
any further questions here in houston

978
00:36:01,030 --> 00:35:58,640
if not uh marcia down are you on the

979
00:36:03,910 --> 00:36:01,040
phone yes i'm here thank you i have a

980
00:36:05,990 --> 00:36:03,920
couple questions for glenda um i was

981
00:36:08,150 --> 00:36:06,000
wondering when exactly is the next next

982
00:36:10,390 --> 00:36:08,160
spacewalk by american astronauts at the

983
00:36:12,550 --> 00:36:10,400
space station

984
00:36:14,630 --> 00:36:12,560
uh i don't have the exact date with me

985
00:36:17,990 --> 00:36:14,640
but it has been moving around a little

986
00:36:20,630 --> 00:36:18,000
bit it will get the the current plan

987
00:36:23,510 --> 00:36:20,640
date it is next fall

988
00:36:25,589 --> 00:36:23,520

in fall of 2012 but i can't get you an

989
00:36:28,230 --> 00:36:25,599
exact date

990
00:36:30,790 --> 00:36:28,240
that we're pretty far out from that so

991
00:36:32,310 --> 00:36:30,800
i would anticipate that it could very

992
00:36:33,589 --> 00:36:32,320
easily move

993
00:36:35,990 --> 00:36:33,599
move a little bit

994
00:36:37,190 --> 00:36:36,000
a month or two maybe even just depends

995
00:36:39,030 --> 00:36:37,200
on

996
00:36:41,510 --> 00:36:39,040
some of the visiting vehicle traffic

997
00:36:43,270 --> 00:36:41,520
that that we were hearing about um

998
00:36:45,190 --> 00:36:43,280
there's a lot going on on space station

999
00:36:47,670 --> 00:36:45,200
right now so we'll have to fit that eva

1000
00:36:50,069 --> 00:36:47,680
in between all the other work

1001
00:36:51,910 --> 00:36:50,079
thank you that that's close enough and i

1002
00:36:53,670 --> 00:36:51,920
i was wondering as the pump was going

1003
00:36:56,790 --> 00:36:53,680
into the payload bay there there seemed

1004
00:36:59,109 --> 00:36:56,800
to be a brief uh hubbub up there about a

1005
00:37:01,270 --> 00:36:59,119
strap that may have gotten away i i

1006
00:37:04,150 --> 00:37:01,280
couldn't tell if if it was ascertained

1007
00:37:06,390 --> 00:37:04,160
whether a strap did float away or not do

1008
00:37:07,670 --> 00:37:06,400
you have any detail

1009
00:37:12,390 --> 00:37:07,680
so

1010
00:37:14,630 --> 00:37:12,400
said everybody's got a job and uh we've

1011
00:37:16,310 --> 00:37:14,640
got a couple of people that are just

1012
00:37:19,430 --> 00:37:16,320
supposed to be watching for things like

1013
00:37:22,150 --> 00:37:19,440

that there was what looked like a short

1014
00:37:23,109 --> 00:37:22,160
strap maybe one of the strap hand holds

1015
00:37:25,670 --> 00:37:23,119
from the

1016
00:37:28,069 --> 00:37:25,680
pup module multi-layer insulation that

1017
00:37:30,230 --> 00:37:28,079
might have come free at the time that it

1018
00:37:32,390 --> 00:37:30,240
came loose mike was

1019
00:37:34,550 --> 00:37:32,400
maneuvering around in the payload bay

1020
00:37:36,390 --> 00:37:34,560
around the back portion of the payload

1021
00:37:38,390 --> 00:37:36,400
bay trying to

1022
00:37:39,990 --> 00:37:38,400
secure some of that multi-layer

1023
00:37:42,550 --> 00:37:40,000
insulation that had come

1024
00:37:44,710 --> 00:37:42,560
come up on the top of the pump module

1025
00:37:46,230 --> 00:37:44,720
was sometime during that time frame that

1026
00:37:49,109 --> 00:37:46,240
the guys saw it

1027
00:37:52,069 --> 00:37:49,119
float away it was about about an inch

1028
00:37:54,310 --> 00:37:52,079
wide and about six inches long

1029
00:37:57,589 --> 00:37:54,320
looked like it was a one of the cloth

1030
00:38:00,390 --> 00:37:57,599
straps those deorbit really quickly

1031
00:38:02,150 --> 00:38:00,400
then we passed on the information to

1032
00:38:03,990 --> 00:38:02,160
to our

1033
00:38:06,550 --> 00:38:04,000
topo folks to make sure that there

1034
00:38:08,390 --> 00:38:06,560
wasn't any vehicle

1035
00:38:10,550 --> 00:38:08,400
concerns with that

1036
00:38:12,069 --> 00:38:10,560
and that's all i have on it right now we

1037
00:38:14,150 --> 00:38:12,079
may learn more after we get the pump

1038
00:38:15,910 --> 00:38:14,160

module back and and look at the

1039
00:38:17,670 --> 00:38:15,920
insulation on it

1040
00:38:20,310 --> 00:38:17,680
so it sounds like then that the strap

1041
00:38:21,349 --> 00:38:20,320
did get loose did get away

1042
00:38:23,750 --> 00:38:21,359
um

1043
00:38:26,870 --> 00:38:23,760
it's possible i i don't know exactly

1044
00:38:30,069 --> 00:38:26,880
what it was um it that multi-layer

1045
00:38:31,829 --> 00:38:30,079
insulation that's on the pump module

1046
00:38:33,109 --> 00:38:31,839
has several

1047
00:38:35,589 --> 00:38:33,119
handholds

1048
00:38:37,910 --> 00:38:35,599
they're really just meant to help you

1049
00:38:39,750 --> 00:38:37,920
maneuver the multi-layer insulation

1050
00:38:41,750 --> 00:38:39,760
around they're not really meant to be

1051
00:38:44,150 --> 00:38:41,760
used as translation aid

1052
00:38:45,589 --> 00:38:44,160
it is possible that if he had a tether

1053
00:38:47,109 --> 00:38:45,599
hooked on one of those they might have

1054
00:38:48,710 --> 00:38:47,119
come loose

1055
00:38:51,430 --> 00:38:48,720
they're not designed to take a lot of

1056
00:38:53,829 --> 00:38:51,440
loads they're just meant to help you

1057
00:38:55,349 --> 00:38:53,839
manipulate the mli

1058
00:38:57,190 --> 00:38:55,359
i don't really want to speculate on it

1059
00:38:58,390 --> 00:38:57,200
anymore it could have been any number of

1060
00:39:00,230 --> 00:38:58,400
things

1061
00:39:02,790 --> 00:39:00,240
again we aren't concerned about it being

1062
00:39:05,349 --> 00:39:02,800
a recontact issue or anything like that

1063
00:39:06,390 --> 00:39:05,359

but that's fine thank you

1064
00:39:09,750 --> 00:39:06,400
okay

1065
00:39:12,150 --> 00:39:09,760
uh any further questions here in houston

1066
00:39:14,069 --> 00:39:12,160
if not we'll wrap this briefing up uh

1067
00:39:16,950 --> 00:39:14,079
thank you very much for coming uh

1068
00:39:19,349 --> 00:39:16,960
looking forward on nasa tv schedule uh

1069
00:39:21,270 --> 00:39:19,359
coming up at uh six o'clock central

1070
00:39:22,150 --> 00:39:21,280
seven eastern we'll have today's video

1071
00:39:24,150 --> 00:39:22,160
file

1072
00:39:26,310 --> 00:39:24,160
uh and uh the crew of course is getting

1073
00:39:28,790 --> 00:39:26,320
ready to go to bed right now uh on both

1074
00:39:30,470 --> 00:39:28,800
sides of the station the shuttle and

1075
00:39:32,069 --> 00:39:30,480
then we'll be having the international

1076
00:39:35,430 --> 00:39:32,079
space station flight director update

1077
00:39:37,510 --> 00:39:35,440
with courtney mcmillan at 11 45 central

1078
00:39:38,870 --> 00:39:37,520
12 45 eastern

1079
00:39:48,310 --> 00:39:38,880
and with that we'll close this breaking

1080
00:39:53,030 --> 00:39:50,870
hi i'm glenda brown we're the eva team