



1  
00:00:00,080 --> 00:00:03,670  
watching nasa tv

2  
00:00:03,680 --> 00:00:14,470  
[Music]

3  
00:00:18,470 --> 00:00:16,710  
this is mission control houston good

4  
00:00:20,710 --> 00:00:18,480  
morning you're getting a live view from

5  
00:00:22,150 --> 00:00:20,720  
the inside of the international space

6  
00:00:24,310 --> 00:00:22,160  
station

7  
00:00:25,910 --> 00:00:24,320  
on board at the forward end of your view

8  
00:00:27,670 --> 00:00:25,920  
seeing the back of his head right now is

9  
00:00:30,550 --> 00:00:27,680  
nasa astronaut mike hopkins he's

10  
00:00:33,270 --> 00:00:30,560  
assisting along with japan aerospace

11  
00:00:35,590 --> 00:00:33,280  
exploration agency astronaut suici who

12  
00:00:37,110 --> 00:00:35,600  
is out of frame for two american

13  
00:00:39,510 --> 00:00:37,120

astronauts who are about to conduct a

14

00:00:41,190 --> 00:00:39,520

spacewalk today to prepare for future

15

00:00:45,670 --> 00:00:41,200

upgrades to the international space

16

00:00:51,029 --> 00:00:48,389

already suited up and in between in-suit

17

00:00:52,950 --> 00:00:51,039

light exercise activities to purge the

18

00:00:55,350 --> 00:00:52,960

nitrogen from their bloodstream as they

19

00:00:56,549 --> 00:00:55,360

breathe 100 percent oxygen inside those

20

00:00:58,869 --> 00:00:56,559

suits

21

00:01:01,430 --> 00:00:58,879

our nasa astronauts victor glover who is

22

00:01:03,670 --> 00:01:01,440

uh situated on the left there and nasa

23

00:01:05,350 --> 00:01:03,680

astronaut kate rubins

24

00:01:08,390 --> 00:01:05,360

kate rubins is taking the position of

25

00:01:10,230 --> 00:01:08,400

ev1 as the lead for today's spacewalk

26  
00:01:12,550 --> 00:01:10,240  
she'll be wearing the suit with the red

27  
00:01:13,830 --> 00:01:12,560  
stripes victor glover the suit with no

28  
00:01:15,830 --> 00:01:13,840  
stripes

29  
00:01:17,830 --> 00:01:15,840  
both american astronauts have conducted

30  
00:01:20,550 --> 00:01:17,840  
three spacewalks in their career kate

31  
00:01:22,390 --> 00:01:20,560  
rubin's two previously on her former

32  
00:01:25,270 --> 00:01:22,400  
flight victor glover the two previous

33  
00:01:26,870 --> 00:01:25,280  
spacewalks on this flight

34  
00:01:30,390 --> 00:01:26,880  
you see they're almost matching in terms

35  
00:01:33,030 --> 00:01:30,400  
of total uh career space walking time

36  
00:01:34,870 --> 00:01:33,040  
this spacewalk will be the 235th in

37  
00:01:36,630 --> 00:01:34,880  
support of international space station

38  
00:01:38,469 --> 00:01:36,640

assembly maintenance and upgrades and

39

00:01:46,710 --> 00:01:38,479

the third of this year the fourth

40

00:01:50,710 --> 00:01:49,030

the uh what you're seeing now is the

41

00:01:52,830 --> 00:01:50,720

international space station flight

42

00:01:55,429 --> 00:01:52,840

control room

43

00:01:57,350 --> 00:01:55,439

teams uh this part of the orbit one

44

00:01:59,830 --> 00:01:57,360

shift are uh preparing our two

45

00:02:01,670 --> 00:01:59,840

astronauts uh for their excursion today

46

00:02:04,950 --> 00:02:01,680

they'll be handing over to the orbit two

47

00:02:08,469 --> 00:02:04,960

teams uh here shortly who will uh be uh

48

00:02:10,229 --> 00:02:08,479

positioned in the uh ficker one the room

49

00:02:11,910 --> 00:02:10,239

just down the hall

50

00:02:13,430 --> 00:02:11,920

and they'll be leading our two

51  
00:02:19,110 --> 00:02:13,440  
astronauts through their procedures

52  
00:02:23,670 --> 00:02:21,030  
again the goal of today's spacewalk is

53  
00:02:25,990 --> 00:02:23,680  
to prepare for future upgrades to the

54  
00:02:28,550 --> 00:02:26,000  
space station's power systems uh this

55  
00:02:30,390 --> 00:02:28,560  
will be the arrival of future uh

56  
00:02:32,470 --> 00:02:30,400  
solar arrays

57  
00:02:34,390 --> 00:02:32,480  
the goal today is to install some

58  
00:02:35,350 --> 00:02:34,400  
mounting brackets that will eventually

59  
00:02:37,589 --> 00:02:35,360  
hold

60  
00:02:39,190 --> 00:02:37,599  
the future solar arrays what you're

61  
00:02:40,949 --> 00:02:39,200  
seeing now is the configuration the

62  
00:02:42,790 --> 00:02:40,959  
planned configuration

63  
00:02:44,470 --> 00:02:42,800

for when those roll out solar arrays

64

00:02:46,070 --> 00:02:44,480

eventually arrive on the international

65

00:02:49,270 --> 00:02:46,080

space station the first set set to

66

00:02:53,910 --> 00:02:52,070

rubens and glover will be working on the

67

00:02:56,309 --> 00:02:53,920

first two uh

68

00:02:58,309 --> 00:02:56,319

solar array positions on the far port

69

00:03:00,550 --> 00:02:58,319

side of the international space station

70

00:03:02,710 --> 00:03:00,560

what you're seeing are the 4b and the 2b

71

00:03:05,030 --> 00:03:02,720

channels you can see solar arrays are

72

00:03:07,670 --> 00:03:05,040

planned to go take those two positions

73

00:03:09,110 --> 00:03:07,680

on the nader and zenith or earth-facing

74

00:03:11,509 --> 00:03:09,120

and space-facing side of the

75

00:03:12,550 --> 00:03:11,519

international space station

76

00:03:14,470 --> 00:03:12,560

and what you're seeing now is the

77

00:03:16,470 --> 00:03:14,480

planned configuration for when those uh

78

00:03:18,790 --> 00:03:16,480

six solar arrays

79

00:03:21,830 --> 00:03:18,800

are all uh configured and their

80

00:03:23,670 --> 00:03:21,840

respective power channels

81

00:03:25,350 --> 00:03:23,680

there are six uh

82

00:03:27,030 --> 00:03:25,360

there are six of the eight power

83

00:03:28,630 --> 00:03:27,040

channels are going to be augmented with

84

00:03:30,149 --> 00:03:28,640

solar arrays you can see the existing

85

00:03:31,830 --> 00:03:30,159

solar rays will not be leaving they'll

86

00:03:33,910 --> 00:03:31,840

be held in place and continue to draw

87

00:03:37,110 --> 00:03:33,920

power but they are showing signs of

88

00:03:38,470 --> 00:03:37,120

degradation as is expected uh with the

89

00:03:41,110 --> 00:03:38,480

solar rays through their life they were

90

00:03:42,710 --> 00:03:41,120

expected for about 10 years to provide

91

00:03:45,589 --> 00:03:42,720

power and they've been running smoothly

92

00:03:48,390 --> 00:03:45,599

for about 15 though slowly just not able

93

00:03:49,670 --> 00:03:48,400

to draw as much power so the solar array

94

00:03:51,589 --> 00:03:49,680

plan now that you're seeing with the

95

00:03:53,429 --> 00:03:51,599

role of solar arrays will augment the

96

00:03:56,309 --> 00:03:53,439

existing power supply bring it up to

97

00:03:58,070 --> 00:03:56,319

about 215 kilowatts

98

00:04:00,630 --> 00:03:58,080

when the

99

00:04:03,350 --> 00:04:00,640

configuration is fully set in place with

100

00:04:05,270 --> 00:04:03,360

all six solar arrays and provide power

101  
00:04:07,030 --> 00:04:05,280  
for all the scientific experiments

102  
00:04:08,869 --> 00:04:07,040  
upgrades and commercial activity planned

103  
00:04:11,830 --> 00:04:08,879  
aboard the international space station

104  
00:04:15,270 --> 00:04:11,840  
uh for the remainder of its life

105  
00:04:17,909 --> 00:04:15,280  
suicina gucci now back in as the suit iv

106  
00:04:20,949 --> 00:04:17,919  
it is his role today taking lead in uh

107  
00:04:22,870 --> 00:04:20,959  
walking through our two astronauts and

108  
00:04:25,350 --> 00:04:22,880  
getting them set up with all their tools

109  
00:04:27,510 --> 00:04:25,360  
and spacesuits uh getting ready for uh

110  
00:04:29,749 --> 00:04:27,520  
heading out the door today the planned

111  
00:04:31,270 --> 00:04:29,759  
exit time is just about an hour and a

112  
00:04:33,830 --> 00:04:31,280  
half from now

113  
00:04:36,150 --> 00:04:33,840

5 a.m central time is the planned time

114

00:04:38,870 --> 00:04:36,160

to start today's spacewalk the official

115

00:04:41,350 --> 00:04:38,880

start time of the spacewalk will

116

00:04:44,150 --> 00:04:41,360

officially begin when the suits

117

00:04:46,550 --> 00:04:44,160

themselves are switched to battery power

118

00:04:48,790 --> 00:04:46,560

this will be after the depressurization

119

00:04:50,790 --> 00:04:48,800

of the crew lock which you see

120

00:04:54,390 --> 00:04:50,800

at the back of your view

121

00:04:56,390 --> 00:04:55,430

three

122

00:04:58,790 --> 00:04:56,400

two

123

00:05:00,950 --> 00:04:58,800

one end exercise

124

00:05:03,830 --> 00:05:00,960

that completes all ten cycles great job

125

00:05:06,390 --> 00:05:03,840

guys and ike just an update for you

126

00:05:08,710 --> 00:05:06,400

we've compared all the data the fan and

127

00:05:10,469 --> 00:05:08,720

pump signatures to the previous two evas

128

00:05:12,550 --> 00:05:10,479

that you performed everything looks nice

129

00:05:24,230 --> 00:05:12,560

and solid everything compares well we

130

00:05:30,950 --> 00:05:26,070

what you just heard was the astronauts

131

00:05:35,029 --> 00:05:32,710

the astronauts completing their in-suit

132

00:05:37,350 --> 00:05:35,039

light exercise they're just very subtle

133

00:05:39,990 --> 00:05:37,360

movements inside the suit to get the

134

00:05:42,710 --> 00:05:40,000

blood flowing and purge nitrogen from

135

00:05:43,990 --> 00:05:42,720

their bodies as they breathe 100 oxygen

136

00:05:45,990 --> 00:05:44,000

in the suit

137

00:05:47,670 --> 00:05:46,000

the suits themselves are hooked up to

138

00:05:51,430 --> 00:05:47,680

the international space station which is

139

00:05:52,790 --> 00:05:51,440

providing uh the the oxygen at this time

140

00:05:54,469 --> 00:05:52,800

but once the

141

00:05:56,710 --> 00:05:54,479

suits are switched to battery power and

142

00:05:59,029 --> 00:05:56,720

the o2 actuators are switched

143

00:05:59,749 --> 00:05:59,039

they'll be relying on the oxygen within

144

00:06:23,590 --> 00:05:59,759

the

145

00:06:24,870 --> 00:06:23,600

you're

146

00:06:26,710 --> 00:06:24,880

facing the forward end of the

147

00:06:30,150 --> 00:06:26,720

international space station they'll be

148

00:06:32,390 --> 00:06:30,160

working on the again 4b and 2b power

149

00:06:35,830 --> 00:06:32,400

channels this is on the earth-facing and

150

00:06:37,909 --> 00:06:35,840

space-facing side of that p6 truss

151  
00:06:42,070 --> 00:06:37,919  
their work sites today include the mast

152  
00:06:44,230 --> 00:06:42,080  
canisters of the current uh solar arrays

153  
00:06:47,189 --> 00:06:44,240  
uh the mast canister is the soda can

154  
00:06:49,270 --> 00:06:47,199  
looking fixture at the bottom of the uh

155  
00:06:52,150 --> 00:06:49,280  
of the solar arrays and you can see the

156  
00:06:54,629 --> 00:06:52,160  
configuration now once the mat the

157  
00:06:56,790 --> 00:06:54,639  
fixture is uh the brackets that they'll

158  
00:06:58,550 --> 00:06:56,800  
be working on today once that's affixed

159  
00:07:00,710 --> 00:06:58,560  
to the mast canister themselves you can

160  
00:07:03,270 --> 00:07:00,720  
see the irosa once deployed will take

161  
00:07:05,830 --> 00:07:03,280  
out just a little bit more than half of

162  
00:07:09,029 --> 00:07:05,840  
the full length of the original solar

163  
00:07:11,830 --> 00:07:09,039

arrays those irosa solar arrays

164

00:07:12,790 --> 00:07:11,840

extending just a little bit more than 60

165

00:07:14,790 --> 00:07:12,800

feet

166

00:07:17,909 --> 00:07:14,800

the original solar arrays themselves are

167

00:07:20,070 --> 00:07:17,919

about 112 feet long as comparison

168

00:07:23,589 --> 00:07:20,080

here are the roll out solar arrays fully

169

00:07:25,510 --> 00:07:23,599

deployed about 60 feet in length

170

00:07:27,510 --> 00:07:25,520

contracted by deployable safe space

171

00:07:29,990 --> 00:07:27,520

systems and of course boeing who who was

172

00:07:32,469 --> 00:07:30,000

originally contracted to build the solar

173

00:07:34,070 --> 00:07:32,479

arrays deployable space systems uh one

174

00:07:35,749 --> 00:07:34,080

of their uh one of the folks they worked

175

00:07:38,870 --> 00:07:35,759

with it looks like you're about to step

176  
00:07:41,990 --> 00:07:38,880  
into miami's replacement prior to that

177  
00:07:44,469 --> 00:07:42,000  
we'd like you to go ahead and do another

178  
00:07:45,749 --> 00:07:44,479  
reba cycle on kate

179  
00:07:46,950 --> 00:07:45,759  
eb1

180  
00:07:49,830 --> 00:07:46,960  
so that we

181  
00:07:57,189 --> 00:07:49,840  
cycle the riva 2 off wait 10 seconds

182  
00:08:03,589 --> 00:08:01,110  
okay uh emu one only riva off waits 10

183  
00:08:04,950 --> 00:08:03,599  
seconds one zero second then back on in

184  
00:08:06,469 --> 00:08:04,960  
work

185  
00:08:08,150 --> 00:08:06,479  
good read and again this is just

186  
00:08:19,110 --> 00:08:08,160  
troubleshooting the edar everything else

187  
00:08:24,230 --> 00:08:21,830  
the gucci and hopkins suit ivs for today

188  
00:08:26,230 --> 00:08:24,240

uh getting uh our two spacewalking

189

00:08:27,909 --> 00:08:26,240

astronauts victor glover on the left and

190

00:08:29,909 --> 00:08:27,919

kate rubins on the right

191

00:08:32,709 --> 00:08:29,919

only reba off

192

00:08:33,750 --> 00:08:32,719

waited 10 seconds and now back on

193

00:08:39,509 --> 00:08:33,760

and i believe we are doing the

194

00:08:44,949 --> 00:08:42,310

actually it was for edar heka was uh

195

00:08:50,630 --> 00:08:44,959

checked out fine but it's uh for edar we

196

00:08:54,070 --> 00:08:52,949

okay my bad okay i understand but now

197

00:08:56,070 --> 00:08:54,080

it's back on

198

00:08:58,870 --> 00:08:56,080

and uh we uh standing by for the

199

00:09:01,269 --> 00:08:58,880

meatloaf's replacement

200

00:09:03,509 --> 00:09:01,279

copy and we just got eat our data back

201  
00:09:05,350 --> 00:09:03,519  
so that's a good troubleshooting there

202  
00:09:06,630 --> 00:09:05,360  
and we are ready for

203  
00:09:13,110 --> 00:09:06,640  
uh you to

204  
00:09:20,310 --> 00:09:15,670  
and uh 1033 for

205  
00:09:21,430 --> 00:09:20,320  
emu one and thirty four four ev2 in work

206  
00:09:24,630 --> 00:09:21,440  
for

207  
00:09:40,790 --> 00:09:24,640  
two decimal one two zero

208  
00:09:44,949 --> 00:09:42,710  
again naguchi and hopkins continuing to

209  
00:09:46,790 --> 00:09:44,959  
troubleshoot uh some of those last

210  
00:09:48,630 --> 00:09:46,800  
minute items making sure everything is

211  
00:09:51,350 --> 00:09:48,640  
set for our two space walking astronauts

212  
00:09:53,350 --> 00:09:51,360  
today once again they're going to be

213  
00:09:55,829 --> 00:09:53,360

working on the mounting bracket for what

214

00:09:57,910 --> 00:09:55,839

will be a solar array what you're seeing

215

00:09:59,110 --> 00:09:57,920

now is the uh

216

00:10:01,110 --> 00:09:59,120

rosa

217

00:10:03,030 --> 00:10:01,120

solar array this was essentially what

218

00:10:05,910 --> 00:10:03,040

you'll see when it is eventually on

219

00:10:08,310 --> 00:10:05,920

orbit this was on orbit a few years ago

220

00:10:10,389 --> 00:10:08,320

back in 2017 they conducted a test to

221

00:10:12,230 --> 00:10:10,399

make sure that this technology would

222

00:10:15,910 --> 00:10:12,240

work that it would uh

223

00:10:18,310 --> 00:10:15,920

work in space draw power and unfurl

224

00:10:20,790 --> 00:10:18,320

as expected that test was completed and

225

00:10:24,069 --> 00:10:20,800

the rosa uh

226  
00:10:27,430 --> 00:10:25,110  
was then

227  
00:10:33,110 --> 00:10:27,440  
ejected from the international space

228  
00:10:36,790 --> 00:10:34,870  
the irosa

229  
00:10:38,870 --> 00:10:36,800  
solar arrays that are planned to arrive

230  
00:10:41,829 --> 00:10:38,880  
on the international space station uh

231  
00:10:52,949 --> 00:10:41,839  
the first set being later this year will

232  
00:10:56,790 --> 00:10:54,630  
back in the equipment lock of the

233  
00:10:58,550 --> 00:10:56,800  
international space station again the

234  
00:11:00,470 --> 00:10:58,560  
space walking astronauts getting ready

235  
00:11:02,550 --> 00:11:00,480  
for today getting other tools and

236  
00:11:03,430 --> 00:11:02,560  
tethers in place you can see affixed to

237  
00:11:22,550 --> 00:11:03,440  
the

238  
00:11:24,389 --> 00:11:22,560

frequently to actually affix that

239

00:11:26,550 --> 00:11:24,399

structure to the mast canister getting a

240

00:11:29,910 --> 00:11:26,560

little wave from kate rubins

241

00:11:31,350 --> 00:11:29,920

who's getting situated her uh

242

00:11:33,350 --> 00:11:31,360

on the back of her suit that's where all

243

00:11:34,870 --> 00:11:33,360

of her consumables and power and the

244

00:11:36,310 --> 00:11:34,880

lithium-ion battery that's going to be

245

00:11:38,550 --> 00:11:36,320

providing

246

00:11:40,310 --> 00:11:38,560

energy and consumables to her throughout

247

00:11:46,710 --> 00:11:40,320

the duration of our plan six and a half

248

00:11:52,470 --> 00:11:49,590

unique to today's spacewalk you can see

249

00:11:54,470 --> 00:11:52,480

much better now that kate is facing

250

00:11:55,750 --> 00:11:54,480

towards the camera on the very left side

251  
00:11:58,310 --> 00:11:55,760  
you can see

252  
00:12:02,470 --> 00:11:58,320  
something new affixed to the top of her

253  
00:12:05,829 --> 00:12:04,150  
this is the configuration as it was

254  
00:12:08,389 --> 00:12:05,839  
tested in the lab what you're seeing on

255  
00:12:11,190 --> 00:12:08,399  
the left there is a new high definition

256  
00:12:14,389 --> 00:12:11,200  
camera that will be providing wide angle

257  
00:12:17,910 --> 00:12:14,399  
high definition views downlinked for us

258  
00:12:20,629 --> 00:12:17,920  
to view during the space walk today

259  
00:12:22,790 --> 00:12:20,639  
of course we'll still have some of the

260  
00:12:26,310 --> 00:12:22,800  
standard definition

261  
00:12:28,470 --> 00:12:26,320  
views on the other end of the suit

262  
00:12:30,629 --> 00:12:28,480  
but this heka camera the high definition

263  
00:12:31,910 --> 00:12:30,639

camera was affixed a couple weeks ago

264

00:12:34,150 --> 00:12:31,920

tested out making sure that the

265

00:12:35,670 --> 00:12:34,160

connection was good was drawing power

266

00:12:37,910 --> 00:12:35,680

and the

267

00:12:40,069 --> 00:12:37,920

heka cameras themselves are are looking

268

00:12:41,430 --> 00:12:40,079

good for their first run during today's

269

00:12:44,550 --> 00:12:41,440

spacewalk we should be getting some

270

00:12:46,710 --> 00:12:44,560

unique views uh here's some b-roll of of

271

00:12:48,629 --> 00:12:46,720

kate rubins herself fixing that heka

272

00:12:50,710 --> 00:12:48,639

camera

273

00:12:53,030 --> 00:12:50,720

the configuration itself is is quite

274

00:12:54,870 --> 00:12:53,040

simple the at the very top is the high

275

00:12:57,990 --> 00:12:54,880

definition camera

276

00:13:00,310 --> 00:12:58,000

once it is completely installed uh and

277

00:13:03,110 --> 00:13:00,320

drawing power there will be a green led

278

00:13:05,030 --> 00:13:03,120

light that just shows that it is uh that

279

00:13:07,509 --> 00:13:05,040

that power is flowing through that

280

00:13:09,509 --> 00:13:07,519

system and at the bottom there you can

281

00:13:13,269 --> 00:13:09,519

sort of see that silver knob that's just

282

00:13:15,110 --> 00:13:13,279

a simple toggle switch power switch

283

00:13:17,030 --> 00:13:15,120

if you're familiar with spacewalks you

284

00:13:21,030 --> 00:13:17,040

know that sometimes they have to power

285

00:13:23,030 --> 00:13:21,040

cycle their wvs or wireless video system

286

00:13:25,190 --> 00:13:23,040

essentially resetting it and and

287

00:13:27,590 --> 00:13:25,200

establish re-establishing the connection

288

00:13:29,750 --> 00:13:27,600

needed to provide views from the

289

00:13:31,430 --> 00:13:29,760

international space station from their

290

00:13:33,590 --> 00:13:31,440

suits themselves and that's just a

291

00:13:37,509 --> 00:13:33,600

simple power switch to to power cycle

292

00:13:41,990 --> 00:13:39,990

the current wireless capability for heka

293

00:13:44,470 --> 00:13:42,000

will allow us to see some of those high

294

00:13:46,150 --> 00:13:44,480

definition views mostly on the way to

295

00:13:50,150 --> 00:13:46,160

and from today's work site out at the

296

00:13:52,470 --> 00:13:50,160

far end of the p6 truss port 6 truss

297

00:13:53,910 --> 00:13:52,480

coverage at the port 6 truss is a little

298

00:13:55,750 --> 00:13:53,920

bit spotty when it comes to the high

299

00:13:57,269 --> 00:13:55,760

definition camera so we may have to rely

300

00:13:58,150 --> 00:13:57,279

on some of those standard definition

301  
00:14:00,069 --> 00:13:58,160  
views

302  
00:14:00,949 --> 00:14:00,079  
more so but we'll still see if we can

303  
00:14:03,350 --> 00:14:00,959  
get

304  
00:14:05,110 --> 00:14:03,360  
some of those high definition views

305  
00:14:07,590 --> 00:14:05,120  
kate rubens for her spacewalking

306  
00:14:09,110 --> 00:14:07,600  
procedures today will be on at the top

307  
00:14:11,670 --> 00:14:09,120  
of a

308  
00:14:15,030 --> 00:14:11,680  
foot restraint to get her the proper

309  
00:14:16,389 --> 00:14:15,040  
angle to affix the mounting bracket to

310  
00:14:19,110 --> 00:14:16,399  
the mast canister

311  
00:14:21,269 --> 00:14:19,120  
that gives her a good angle at first

312  
00:14:22,949 --> 00:14:21,279  
installing a center piece and then

313  
00:14:24,310 --> 00:14:22,959

some of the struts on the side of the

314

00:14:25,590 --> 00:14:24,320

mast canister

315

00:14:37,269 --> 00:14:25,600

hopefully we'll be getting some good

316

00:14:41,590 --> 00:14:38,790

there's plenty of time on the timeline

317

00:14:44,870 --> 00:14:41,600

today as naguchi and hopkins both

318

00:14:46,150 --> 00:14:44,880

unsuited in the equipment lock right now

319

00:14:47,670 --> 00:14:46,160

continue to

320

00:14:49,269 --> 00:14:47,680

work with the two space walking

321

00:15:58,830 --> 00:14:49,279

astronauts helping them to get set up

322

00:15:58,840 --> 00:17:08,630

[Applause]

323

00:17:12,150 --> 00:17:10,150

for those just tuning in you're getting

324

00:17:14,789 --> 00:17:12,160

a live look at the international space

325

00:17:16,789 --> 00:17:14,799

station inside the quest airlock

326

00:17:20,069 --> 00:17:16,799

currently uh positioned in the equipment

327

00:17:23,189 --> 00:17:20,079

lock two astronauts uh are in

328

00:17:28,470 --> 00:17:23,199

the emu spacesuits 11

329

00:17:37,110 --> 00:17:29,430

copy

330

00:17:37,120 --> 00:17:48,470

back on at this time

331

00:18:07,669 --> 00:17:51,270

have a chargeball closed and locked even

332

00:18:07,679 --> 00:18:16,549

abstract is depressed

333

00:18:16,559 --> 00:18:38,870

want to press trades

334

00:18:38,880 --> 00:18:53,190

ecm purge open and lock id

335

00:18:53,200 --> 00:18:58,150

we started the 2-minute first before

336

00:18:58,160 --> 00:19:19,590

happy

337

00:19:22,630 --> 00:19:21,029

this is mission control houston again

338

00:19:24,310 --> 00:19:22,640

you're getting a live look at the

339

00:19:25,270 --> 00:19:24,320

international space station's quest

340

00:19:27,029 --> 00:19:25,280

airlock

341

00:19:29,270 --> 00:19:27,039

these are some live views as two

342

00:19:31,990 --> 00:19:29,280

astronauts uh victor glover on the left

343

00:19:35,270 --> 00:19:32,000

and kate rubins on the right are getting

344

00:19:37,350 --> 00:19:35,280

situated and suited up

345

00:19:39,430 --> 00:19:37,360

and configured ready for today's

346

00:19:42,470 --> 00:19:39,440

spacewalk scheduled to go out the hatch

347

00:19:44,870 --> 00:19:42,480

in a little more than an hour from now

348

00:19:47,350 --> 00:19:44,880

right now they are being pressurized

349

00:19:49,350 --> 00:19:47,360

with oxygen

350

00:19:51,110 --> 00:19:49,360

as part of a test some of the procedures

351  
00:19:52,390 --> 00:19:51,120  
to get them configured and ready for

352  
00:19:53,830 --> 00:19:52,400  
today's spacewalk

353  
00:19:55,510 --> 00:19:53,840  
you can see they're already outfitted

354  
00:20:01,190 --> 00:19:55,520  
with many of the tethers and tools

355  
00:20:01,200 --> 00:20:13,990  
on the left you can see victor glover

356  
00:20:19,029 --> 00:20:16,789  
zero one two zero one eight i'll now see

357  
00:20:20,710 --> 00:20:19,039  
episode inside the quick unlock i

358  
00:20:25,270 --> 00:20:20,720  
understand that we'll be stored for

359  
00:20:25,280 --> 00:21:13,990  
good numbers and good plan

360  
00:21:24,710 --> 00:21:16,950  
the houston station on one step 21 the

361  
00:21:24,720 --> 00:21:42,950  
copy

362  
00:21:48,870 --> 00:21:45,270  
and the houston stations at 21

363  
00:21:51,909 --> 00:21:48,880

percent is closed 9 51. and we're going

364

00:23:15,110 --> 00:21:51,919

to continue with the league

365

00:23:18,789 --> 00:23:16,710

this is mission control houston again

366

00:23:20,950 --> 00:23:18,799

you're getting live views from inside

367

00:23:22,470 --> 00:23:20,960

the quest airlock the two astronauts are

368

00:23:24,230 --> 00:23:22,480

undergoing a pressure check right now

369

00:23:27,430 --> 00:23:24,240

some of the procedures

370

00:23:29,990 --> 00:23:27,440

just counting down to starting today's

371

00:23:31,590 --> 00:23:30,000

spacewalk

372

00:23:34,549 --> 00:23:31,600

at this point we are right on the

373

00:23:37,909 --> 00:23:36,470

a little less than 40 minutes we should

374

00:23:39,990 --> 00:23:37,919

uh expect

375

00:23:42,310 --> 00:23:40,000

the two astronauts to be configured in

376

00:23:44,470 --> 00:23:42,320

the crew lock which is positioned behind

377

00:23:47,909 --> 00:23:44,480

mike hopkins which you see at the back

378

00:23:53,110 --> 00:23:50,070

with the hatches closed and and the go

379

00:23:54,870 --> 00:23:53,120

for depressurization

380

00:23:56,950 --> 00:23:54,880

we're right on the timeline to begin uh

381

00:23:59,510 --> 00:23:56,960

today's spacewalk which is originally

382

00:24:01,669 --> 00:23:59,520

scheduled for 5 a.m central time 6 a.m

383

00:24:04,149 --> 00:24:01,679

eastern

384

00:24:05,830 --> 00:24:04,159

the spacewalk will officially begin when

385

00:24:08,029 --> 00:24:05,840

the suits themselves are switched to

386

00:24:12,710 --> 00:24:08,039

battery power this will be after uh

387

00:24:17,990 --> 00:24:16,070

station specimen one uh both superpassed

388

00:24:20,950 --> 00:24:18,000

the leak check go back to the original

389

00:24:27,110 --> 00:24:23,190

great news returning to procedure one

390

00:24:31,830 --> 00:24:27,120

decimal two two five step 16 and your go

391

00:24:37,909 --> 00:24:31,840

for depressed time no earlier than 10 30

392

00:24:43,510 --> 00:24:40,549

okay one zero three zero so uh we'll

393

00:24:46,470 --> 00:24:43,520

stop picking up the step 16 and the

394

00:25:17,990 --> 00:24:46,480

start of the save for dawning

395

00:25:22,710 --> 00:25:20,470

what you just heard was the capcom from

396

00:25:28,230 --> 00:25:22,720

the orbit one team

397

00:25:31,510 --> 00:25:30,710

here is the uh the

398

00:25:33,510 --> 00:25:31,520

uh

399

00:25:35,590 --> 00:25:33,520

configuration for what will be worked on

400

00:25:37,590 --> 00:25:35,600

today what you're seeing is the

401  
00:25:40,149 --> 00:25:37,600  
modification kit this is the bracket

402  
00:25:42,710 --> 00:25:40,159  
that both uh rubens and glover will take

403  
00:25:44,549 --> 00:25:42,720  
out to the mast canisters which are the

404  
00:25:47,029 --> 00:25:44,559  
soda can looking fixtures you see on the

405  
00:25:48,390 --> 00:25:47,039  
right there that sort of support the

406  
00:25:50,390 --> 00:25:48,400  
solar array is what they're going to be

407  
00:25:53,269 --> 00:25:50,400  
doing is installing this bracket in

408  
00:25:55,110 --> 00:25:53,279  
preparation for some future space walks

409  
00:25:57,909 --> 00:25:55,120  
now the brackets themselves are kind of

410  
00:25:58,950 --> 00:25:57,919  
long and shoved into a bag

411  
00:25:59,669 --> 00:25:58,960  
they will

412  
00:26:02,230 --> 00:25:59,679  
be

413  
00:26:05,029 --> 00:26:02,240

essentially a little bit larger than the

414

00:26:06,710 --> 00:26:05,039

astronauts themselves in terms of length

415

00:26:08,230 --> 00:26:06,720

when configured you see all the

416

00:26:10,390 --> 00:26:08,240

different struts that are pointing on

417

00:26:12,390 --> 00:26:10,400

the modification kit here

418

00:26:13,269 --> 00:26:12,400

they're configured in a bag and stowed

419

00:26:15,669 --> 00:26:13,279

away

420

00:26:18,310 --> 00:26:15,679

both of the astronauts will take out one

421

00:26:20,390 --> 00:26:18,320

bag each uh each meant for two different

422

00:26:21,269 --> 00:26:20,400

uh masked canisters on the port six

423

00:26:23,190 --> 00:26:21,279

truss

424

00:26:24,789 --> 00:26:23,200

one on the four b power channel on the

425

00:26:26,710 --> 00:26:24,799

other on the 2b power channel this is

426  
00:26:29,269 --> 00:26:26,720  
the power channels on the earth-facing

427  
00:26:32,310 --> 00:26:29,279  
and space-facing side of the far end of

428  
00:26:34,230 --> 00:26:32,320  
the international space station

429  
00:26:36,230 --> 00:26:34,240  
essentially this is their work for today

430  
00:26:38,870 --> 00:26:36,240  
the first task will be installing this

431  
00:26:40,950 --> 00:26:38,880  
configuration on the 2b power channel

432  
00:26:42,870 --> 00:26:40,960  
this is the power channel that's on uh

433  
00:26:44,789 --> 00:26:42,880  
the earth-facing side you can see sort

434  
00:26:47,350 --> 00:26:44,799  
of on the on the right and then towards

435  
00:26:50,070 --> 00:26:47,360  
the earth there uh that is their primary

436  
00:26:52,390 --> 00:26:50,080  
task for today uh the remainder of their

437  
00:26:55,190 --> 00:26:52,400  
time will be uh setting up the 4b

438  
00:26:57,590 --> 00:26:55,200

channel and they'll be setting up that

439

00:26:59,750 --> 00:26:57,600

mounting bracket and getting as far into

440

00:27:01,510 --> 00:26:59,760

the procedures as they can

441

00:27:02,870 --> 00:27:01,520

it is expected that through the course

442

00:27:04,870 --> 00:27:02,880

of the six and a half hours that they

443

00:27:06,630 --> 00:27:04,880

will not complete those activities just

444

00:27:09,110 --> 00:27:06,640

by design the way

445

00:27:10,630 --> 00:27:09,120

that the procedures are laid out

446

00:27:12,870 --> 00:27:10,640

but that is okay we have another

447

00:27:16,149 --> 00:27:12,880

spacewalk coming up next friday march

448

00:27:17,990 --> 00:27:16,159

5th and the first task on that spacewalk

449

00:27:37,190 --> 00:27:18,000

is to complete the work of installing

450

00:27:40,470 --> 00:27:38,870

so far we're staying right on the

451

00:27:42,389 --> 00:27:40,480

timeline for today's activities

452

00:27:45,350 --> 00:27:42,399

preparing for our two space walking

453

00:27:46,710 --> 00:27:45,360

astronauts to head out the hatch

454

00:27:48,470 --> 00:27:46,720

they're scheduled to switch to battery

455

00:27:51,750 --> 00:27:48,480

power and officially begin today's

456

00:27:54,230 --> 00:27:51,760

spacewalk about an hour from now

457

00:27:56,310 --> 00:27:54,240

what you're seeing now is soichi naguchi

458

00:27:58,630 --> 00:27:56,320

on the left and mike hopkins on the

459

00:28:02,310 --> 00:27:58,640

right preparing what's called a safer

460

00:28:04,789 --> 00:28:02,320

this is a simplified aid for eva rescue

461

00:28:06,950 --> 00:28:04,799

this is one of the final steps before

462

00:28:11,430 --> 00:28:06,960

the astronauts themselves are situated

463

00:28:15,430 --> 00:28:13,669

what's in the crew lock now is this bag

464

00:28:17,669 --> 00:28:15,440

this is called a modification kit bag

465

00:28:19,590 --> 00:28:17,679

and what you saw was the uh the

466

00:28:21,029 --> 00:28:19,600

modification kit once it is fully

467

00:28:23,750 --> 00:28:21,039

installed this is what it looks like

468

00:28:26,310 --> 00:28:23,760

stowed in the bag all components fit

469

00:28:27,350 --> 00:28:26,320

inside the bag except for the mounting

470

00:28:29,510 --> 00:28:27,360

bracket

471

00:28:32,149 --> 00:28:29,520

which will be affixed to the outside of

472

00:28:35,190 --> 00:28:34,230

again the length of those bags will

473

00:28:36,630 --> 00:28:35,200

extend

474

00:28:38,310 --> 00:28:36,640

even a little bit more than the length

475

00:28:41,190 --> 00:28:38,320

of the astronauts themselves they're

476  
00:28:47,029 --> 00:28:43,750  
but each of the astronauts will have one

477  
00:28:49,350 --> 00:28:47,039  
of these modification kit bags in tow as

478  
00:28:51,590 --> 00:28:49,360  
they make their way out to the very far

479  
00:28:54,630 --> 00:28:51,600  
end of the international space station's

480  
00:28:57,510 --> 00:28:55,909  
once they're out there you can see the

481  
00:28:59,750 --> 00:28:57,520  
configuration this is the configuration

482  
00:29:02,070 --> 00:28:59,760  
with the mounting brackets that you can

483  
00:29:03,110 --> 00:29:02,080  
see on the left and once they are on the

484  
00:29:05,510 --> 00:29:03,120  
right there this is what the

485  
00:29:07,669 --> 00:29:05,520  
configuration will look like once the uh

486  
00:29:09,029 --> 00:29:07,679  
the new solar arrays themselves are

487  
00:29:11,029 --> 00:29:09,039  
deployed

488  
00:29:12,549 --> 00:29:11,039

again the solar arrays are have not yet

489

00:29:14,070 --> 00:29:12,559

been delivered to the international

490

00:29:16,310 --> 00:29:14,080

space station what you're seeing now is

491

00:29:17,990 --> 00:29:16,320

the preparation work uh to make sure

492

00:29:20,070 --> 00:29:18,000

that once they are delivered that they

493

00:29:21,830 --> 00:29:20,080

can be hooked up and ready to go

494

00:29:23,669 --> 00:29:21,840

the work today is just installing that

495

00:29:25,190 --> 00:29:23,679

mounting bracket you're not

496

00:29:27,430 --> 00:29:25,200

wiring anything

497

00:29:36,470 --> 00:29:27,440

to get ready for drawing power from

498

00:29:41,590 --> 00:29:39,190

once each new ray is installed it'll be

499

00:29:52,070 --> 00:29:41,600

drawing in more than 20 kilowatt watts

500

00:29:55,909 --> 00:29:53,909

back to the quest airlock uh you're

501  
00:29:58,789 --> 00:29:55,919  
again looking at the simplified aid for

502  
00:30:00,710 --> 00:29:58,799  
eva rescue the safer unit that will be

503  
00:30:03,269 --> 00:30:00,720  
affixed to the uh

504  
00:30:07,590 --> 00:30:03,279  
bottom portion of their of the back of

505  
00:30:15,909 --> 00:30:09,510  
this is one of the final steps before

506  
00:30:19,990 --> 00:30:17,830  
the simplified aid for eva rescue

507  
00:30:21,990 --> 00:30:20,000  
provides propulsion

508  
00:30:23,830 --> 00:30:22,000  
should the space walkers become

509  
00:30:25,830 --> 00:30:23,840  
untethered at any point during today's

510  
00:30:28,230 --> 00:30:25,840  
spacewalk

511  
00:30:30,310 --> 00:30:28,240  
highly unlikely but it is that

512  
00:30:32,310 --> 00:30:30,320  
fault tolerance that provides the safety

513  
00:32:27,669 --> 00:30:32,320

needed for our spacewalking astronauts

514

00:32:31,110 --> 00:32:29,269

as we lose some of the video and audio

515

00:32:32,549 --> 00:32:31,120

feeds from the international space

516

00:32:34,470 --> 00:32:32,559

station what you're looking at is the

517

00:32:36,549 --> 00:32:34,480

white flight control room this is one of

518

00:32:38,870 --> 00:32:36,559

the rooms supporting today's spacewalk

519

00:32:41,190 --> 00:32:38,880

this team orbit one has been supporting

520

00:32:43,430 --> 00:32:41,200

uh astronauts kate rubins and victor

521

00:32:46,389 --> 00:32:43,440

glover that are suited up and of course

522

00:32:48,389 --> 00:32:46,399

suici naguchi and mike hopkins who are

523

00:32:51,029 --> 00:32:48,399

helping them get prepared for today's

524

00:32:53,110 --> 00:32:51,039

spacewalk this is the orbit one team uh

525

00:32:55,750 --> 00:32:53,120

they are nearing the end of their shift

526  
00:32:57,830 --> 00:32:55,760  
as the new shift orbit two plans to come

527  
00:33:07,509 --> 00:32:57,840  
in who would be leading our spacewalkers

528  
00:33:12,070 --> 00:33:09,990  
now as both of our astronauts continue

529  
00:33:13,269 --> 00:33:12,080  
to get situated and prepared for today's

530  
00:33:16,149 --> 00:33:13,279  
spacewalk

531  
00:33:18,149 --> 00:33:16,159  
scheduled to go out the door and start

532  
00:33:20,710 --> 00:33:18,159  
today's spacewalk in just about an hour

533  
00:33:22,310 --> 00:33:20,720  
from now let's take a moment to look at

534  
00:33:26,149 --> 00:33:22,320  
some of the procedures that they will be

535  
00:33:32,870 --> 00:33:30,149  
for us eva 71 ev1 will egress the joint

536  
00:33:36,149 --> 00:33:32,880  
airlock first you'll see ev1 has the red

537  
00:33:38,710 --> 00:33:36,159  
stripes and ev2 the white suit eb2 will

538  
00:33:41,830 --> 00:33:38,720

pass out the two strut bags containing

539

00:33:45,190 --> 00:33:41,840

structure to support new solar arrays

540

00:33:47,750 --> 00:33:45,200

ev2 will head out to p1

541

00:33:50,070 --> 00:33:47,760

where he will install the anchor hooks

542

00:33:51,909 --> 00:33:50,080

for the cruise safety tether now this is

543

00:33:54,549 --> 00:33:51,919

what we call a slingshot and we'll give

544

00:33:57,909 --> 00:33:54,559

them 170 feet of length that they need

545

00:33:59,750 --> 00:33:57,919

to get all the way out to p6

546

00:34:02,470 --> 00:33:59,760

at that point both crew members will

547

00:34:05,669 --> 00:34:02,480

translate to p6 and install their

548

00:34:07,190 --> 00:34:05,679

respective bags on the four bravo and

549

00:34:10,629 --> 00:34:07,200

two bravo

550

00:34:17,270 --> 00:34:13,829

ev-1 will translate back in board

551  
00:34:20,310 --> 00:34:17,280  
and retrieve a portable foot restraint

552  
00:34:23,669 --> 00:34:20,320  
with a extension

553  
00:34:24,950 --> 00:34:23,679  
and head back to join ev2 at the 2 bravo

554  
00:34:26,790 --> 00:34:24,960  
worksite

555  
00:34:29,909 --> 00:34:26,800  
ev1 will set up this portable foot

556  
00:34:31,030 --> 00:34:29,919  
restraint for access to the mod kit

557  
00:34:34,389 --> 00:34:31,040  
install

558  
00:34:36,069 --> 00:34:34,399  
and then translate over to the bag where

559  
00:34:38,550 --> 00:34:36,079  
both crew members will begin building

560  
00:34:41,030 --> 00:34:38,560  
what we call the upper triangle which

561  
00:34:43,990 --> 00:34:41,040  
includes the mounting bracket

562  
00:34:45,990 --> 00:34:44,000  
a left strut and a right strut

563  
00:34:48,470 --> 00:34:46,000

they'll use their pistol grip tool to

564

00:34:51,190 --> 00:34:48,480

assemble that triangle once it's

565

00:34:53,669 --> 00:34:51,200

complete ev1 will be on the portable

566

00:34:55,589 --> 00:34:53,679

foot restraint and ev2 will hand it off

567

00:34:58,069 --> 00:34:55,599

to ev1

568

00:34:59,670 --> 00:34:58,079

here you see ev1 installing this on the

569

00:35:01,589 --> 00:34:59,680

mass canister

570

00:35:03,589 --> 00:35:01,599

there's a strong soft dock feature that

571

00:35:05,750 --> 00:35:03,599

will hold it in place

572

00:35:07,670 --> 00:35:05,760

once it's positioned in place eb1 will

573

00:35:10,230 --> 00:35:07,680

use the pistol grip tool to drive four

574

00:35:15,349 --> 00:35:11,990

v1 will then reposition the foot

575

00:35:19,190 --> 00:35:15,359

restraint for access to the left side of

576  
00:35:23,589 --> 00:35:21,670  
here you see the mid strut on eb1's body

577  
00:35:25,349 --> 00:35:23,599  
restraint tether

578  
00:35:28,310 --> 00:35:25,359  
maybe one will hold the lower strut

579  
00:35:29,910 --> 00:35:28,320  
while eb2 gets into position

580  
00:35:32,710 --> 00:35:29,920  
they'll work together to install the

581  
00:35:34,950 --> 00:35:32,720  
left lower strut bb2 will start off by

582  
00:35:35,910 --> 00:35:34,960  
driving the bolt with his pistol grip

583  
00:35:37,829 --> 00:35:35,920  
tool

584  
00:35:40,230 --> 00:35:37,839  
and one will

585  
00:35:42,630 --> 00:35:40,240  
drive the upper bolt that connects it to

586  
00:35:44,550 --> 00:35:42,640  
the mounting bracket

587  
00:35:47,210 --> 00:35:44,560  
they'll then work together to install

588  
00:35:49,829 --> 00:35:47,220

the mid strut on the left side

589

00:35:52,390 --> 00:35:49,839

[Music]

590

00:35:54,230 --> 00:35:52,400

here you can see ev2 driving four bolts

591

00:35:55,910 --> 00:35:54,240

that hold it to the mast canister

592

00:35:57,589 --> 00:35:55,920

similar to the h fixtures that were

593

00:35:59,990 --> 00:35:57,599

recently removed

594

00:36:04,310 --> 00:36:00,000

and ev1 will drive the bolt to secure it

595

00:36:09,990 --> 00:36:08,310

maybe one will then reposition the apfr

596

00:36:13,270 --> 00:36:10,000

and get back in

597

00:36:15,109 --> 00:36:13,280

after getting the mid-strut on her brt

598

00:36:21,270 --> 00:36:15,119

ert is standing for body restraint

599

00:36:25,030 --> 00:36:22,870

she'll get back into the portable foot

600

00:36:29,430 --> 00:36:25,040

restraint

601  
00:36:31,270 --> 00:36:29,440  
receive the right lower strut

602  
00:36:33,990 --> 00:36:31,280  
and then ev2 will translate around the

603  
00:36:35,829 --> 00:36:34,000  
mass canister for access

604  
00:36:37,510 --> 00:36:35,839  
to the installation point for the right

605  
00:36:39,510 --> 00:36:37,520  
lower strut

606  
00:36:41,109 --> 00:36:39,520  
again just like the left side they'll be

607  
00:36:43,109 --> 00:36:41,119  
working together to drive their

608  
00:36:45,620 --> 00:36:43,119  
respective bolts with their pistol grip

609  
00:36:51,589 --> 00:36:49,030  
[Music]

610  
00:36:53,760 --> 00:36:51,599  
db2 will translate up for

611  
00:36:55,750 --> 00:36:53,770  
the mid-strut install

612  
00:36:58,470 --> 00:36:55,760  
[Music]

613  
00:37:00,790 --> 00:36:58,480

or the heel drive four bolts ev-1 will

614

00:37:02,710 --> 00:37:00,800

have a single bolt

615

00:37:05,109 --> 00:37:02,720

and then ev2 will tighten the clamp

616

00:37:07,510 --> 00:37:05,119

bolts on both sides the mid-struts are

617

00:37:09,190 --> 00:37:07,520

telescoping and this clamp bolt prevents

618

00:37:13,270 --> 00:37:09,200

it from telescoping any further once

619

00:37:16,870 --> 00:37:14,710

the crew will then work together to

620

00:37:18,470 --> 00:37:16,880

secure the thermal blankets

621

00:37:20,550 --> 00:37:18,480

over all of the struts and make sure

622

00:37:23,349 --> 00:37:20,560

they're in place as well as verifying

623

00:37:25,430 --> 00:37:23,359

that the pit pins that provide grounding

624

00:37:27,990 --> 00:37:25,440

paths for the structure are also in

625

00:37:32,069 --> 00:37:30,069

they'll then grab the necessary tools

626  
00:37:33,910 --> 00:37:32,079  
and head over to the four bravo work

627  
00:37:35,750 --> 00:37:33,920  
site

628  
00:37:38,470 --> 00:37:35,760  
very similar kind of a mirror image to

629  
00:37:41,270 --> 00:37:38,480  
what they were working on previously

630  
00:37:44,550 --> 00:37:41,280  
ev1 will install the apfr or the

631  
00:37:48,550 --> 00:37:46,630  
and they'll work together again to build

632  
00:37:51,670 --> 00:37:48,560  
the upper triangle

633  
00:37:52,970 --> 00:37:51,680  
consisting of two upper struts and the

634  
00:37:56,230 --> 00:37:52,980  
mounting bracket

635  
00:37:58,470 --> 00:37:56,240  
[Music]

636  
00:38:00,630 --> 00:37:58,480  
maybe one in the in the portable foot

637  
00:38:04,550 --> 00:38:00,640  
restraint will receive the upper

638  
00:38:07,030 --> 00:38:04,560

triangle install that in place

639

00:38:09,589 --> 00:38:07,040

and then they'll get set up to install

640

00:38:12,390 --> 00:38:09,599

the final piece to get to what we call

641

00:38:15,190 --> 00:38:12,400

the minimum configuration by installing

642

00:38:16,829 --> 00:38:15,200

this right lower strut

643

00:38:19,030 --> 00:38:16,839

the system is now in a good

644

00:38:21,270 --> 00:38:19,040

configuration to leave it out and

645

00:38:23,349 --> 00:38:21,280

operate space station nominally

646

00:38:25,030 --> 00:38:23,359

if we didn't have this installed then we

647

00:38:26,710 --> 00:38:25,040

would need to perform a tie down to make

648

00:38:29,829 --> 00:38:26,720

sure that everything was structurally

649

00:38:31,990 --> 00:38:29,839

sound before heading back in

650

00:38:34,950 --> 00:38:32,000

if there is extra time we'll continue to

651  
00:38:35,990 --> 00:38:34,960  
build the four bravo mod kit on this eba

652  
00:38:38,390 --> 00:38:36,000  
if not

653  
00:38:39,349 --> 00:38:38,400  
we have plans to perform the rest of the

654  
00:38:41,430 --> 00:38:39,359  
install

655  
00:38:43,510 --> 00:38:41,440  
on the next eba

656  
00:38:45,190 --> 00:38:43,520  
the crew will then pack the empty bag

657  
00:38:47,109 --> 00:38:45,200  
with the tools that they plan to bring

658  
00:38:50,470 --> 00:38:47,119  
inside

659  
00:38:52,790 --> 00:38:50,480  
eb2 will carry that back to the airlock

660  
00:38:57,190 --> 00:38:52,800  
both crew members will translate back to

661  
00:39:02,150 --> 00:39:00,470  
they'll leave the slingshots out meaning

662  
00:39:03,430 --> 00:39:02,160  
that the tethers will be strung out to

663  
00:39:05,109 --> 00:39:03,440

p1

664

00:39:06,069 --> 00:39:05,119

because we'll use them again on a future

665

00:39:08,630 --> 00:39:06,079

eva

666

00:39:11,430 --> 00:39:08,640

eb2 will put the bag in the airlock and

667

00:39:13,650 --> 00:39:11,440

ingress followed by ev1 we will then

668

00:39:25,430 --> 00:39:13,660

close the hatch

669

00:39:29,670 --> 00:39:27,589

what you just saw was an animation uh

670

00:39:31,910 --> 00:39:29,680

that will be following the procedures

671

00:39:34,390 --> 00:39:31,920

scheduled for today now what you just

672

00:39:37,270 --> 00:39:34,400

saw was our two space walking astronauts

673

00:39:39,589 --> 00:39:37,280

uh completing the uh mounting bracket

674

00:39:41,190 --> 00:39:39,599

installation on the 2b power channel

675

00:39:44,150 --> 00:39:41,200

this is the power channel that faces the

676

00:39:46,710 --> 00:39:44,160

earth and the schedule as as it is

677

00:39:48,710 --> 00:39:46,720

written now is for them to start the

678

00:39:50,550 --> 00:39:48,720

procedures on the 4b channel which is

679

00:39:53,190 --> 00:39:50,560

the space-facing side

680

00:39:55,670 --> 00:39:53,200

but the plan is that they may run out of

681

00:39:59,030 --> 00:39:55,680

time they may exhaust the total allotted

682

00:40:01,670 --> 00:39:59,040

six and a half hours that they have

683

00:40:03,990 --> 00:40:01,680

before they need to go ahead and head

684

00:40:06,230 --> 00:40:04,000

back inside and

685

00:40:08,069 --> 00:40:06,240

complete today's spacewalk but

686

00:40:10,870 --> 00:40:08,079

that is okay they are scheduled to

687

00:40:12,390 --> 00:40:10,880

complete that work next friday march 5th

688

00:40:13,829 --> 00:40:12,400

rubens will head out once again this

689

00:40:15,829 --> 00:40:13,839

time with uh

690

00:40:16,710 --> 00:40:15,839

jack's astronaut suici naguchi who you

691

00:40:18,390 --> 00:40:16,720

see

692

00:40:20,630 --> 00:40:18,400

as a suit iv helping our two

693

00:40:22,309 --> 00:40:20,640

spacewalking astronauts get set up he's

694

00:40:23,349 --> 00:40:22,319

positioned on the left there wearing the

695

00:40:25,430 --> 00:40:23,359

jaxa

696

00:40:27,750 --> 00:40:25,440

t-shirt

697

00:40:30,309 --> 00:40:27,760

nasa astronaut kate rubins is already

698

00:40:32,069 --> 00:40:30,319

inside the uh crew lock she's got her

699

00:40:33,190 --> 00:40:32,079

safer unit which is currently being

700

00:40:35,349 --> 00:40:33,200

affixed

701

00:40:37,270 --> 00:40:35,359

to victor glover

702

00:40:39,510 --> 00:40:37,280

that you see suici naguchi on the left

703

00:40:42,390 --> 00:40:39,520

and mike hopkins helping him out

704

00:40:44,230 --> 00:40:42,400

get that safer unit affixed to his suit

705

00:40:47,109 --> 00:40:44,240

that is the simplified aid for eva

706

00:40:49,670 --> 00:40:47,119

rescue and provides propulsion uh so in

707

00:40:51,190 --> 00:40:49,680

the unlikely event that that glover were

708

00:40:53,510 --> 00:40:51,200

to become untethered during today's

709

00:40:55,670 --> 00:40:53,520

spacewalk he can propel himself back to

710

00:40:57,750 --> 00:40:55,680

the international space station uh just

711

00:41:01,910 --> 00:40:57,760

one of those fail-safes that helps them

712

00:41:06,870 --> 00:41:04,630

this is the final step before

713

00:41:10,710 --> 00:41:06,880

glover will be situated inside the crew

714

00:41:15,510 --> 00:41:13,670

rubens is uh situated on the nadir side

715

00:41:17,589 --> 00:41:15,520

or towards the bottom of the airlock

716

00:41:20,550 --> 00:41:17,599

glover it will be positioned towards the

717

00:41:22,230 --> 00:41:20,560

top of the crew lock in the back there

718

00:41:23,670 --> 00:41:22,240

so it will be rubens that'll be out the

719

00:41:25,349 --> 00:41:23,680

door first

720

00:41:28,550 --> 00:41:25,359

she'll be wearing the suits with the red

721

00:41:31,190 --> 00:41:28,560

stripes for today and glover will is as

722

00:41:36,790 --> 00:41:31,200

you see now is wearing the suit with no

723

00:41:40,550 --> 00:41:38,309

once our astronauts head outside they'll

724

00:41:42,790 --> 00:41:40,560

turn on their wireless video system and

725

00:41:44,710 --> 00:41:42,800

for kate rubin she has a high definition

726

00:41:46,829 --> 00:41:44,720

camera that will be test running for

727

00:41:50,230 --> 00:41:46,839

today's spacewalk for the first

728

00:41:53,510 --> 00:41:50,240

time cameras that you can expect to see

729

00:41:55,750 --> 00:41:53,520

on the screen uh k rubens will have a

730

00:41:57,670 --> 00:41:55,760

translucent number 20 at the bottom of

731

00:42:04,630 --> 00:41:57,680

the screen and victor glover will be

732

00:42:11,829 --> 00:42:06,390

uh

733

00:42:14,870 --> 00:42:11,839

victor glover will wear the suit with

734

00:44:05,109 --> 00:42:14,880

number 20 and rubens will be the one

735

00:44:08,309 --> 00:44:06,950

this is mission control houston again

736

00:44:09,750 --> 00:44:08,319

you are getting you are getting live

737

00:44:12,550 --> 00:44:09,760

views from the international space

738

00:44:13,750 --> 00:44:12,560

station victor glover is currently being

739

00:44:17,829 --> 00:44:13,760

uh

740

00:44:20,470 --> 00:44:17,839

positioned inside the crew lock today

741

00:44:23,829 --> 00:44:20,480

his setup procedures are complete leak

742

00:44:25,750 --> 00:44:23,839

checks are good uh tethers and tools are

743

00:44:28,309 --> 00:44:25,760

configured and ready to go

744

00:44:31,430 --> 00:44:28,319

now hopkins is inside the crew lock with

745

00:44:33,589 --> 00:44:31,440

him and uh suici naguchi giving him one

746

00:44:39,990 --> 00:44:33,599

final push to get him positioned and and

747

00:44:43,990 --> 00:44:41,829

on the ground in the international space

748

00:44:47,190 --> 00:44:44,000

station flight control room there is uh

749

00:44:49,910 --> 00:44:47,200

currently doing a handover today

750

00:44:51,750 --> 00:44:49,920

flight director marcos flores is leading

751

00:44:54,470 --> 00:44:51,760

the room he'll be uh the flight director

752

00:44:56,710 --> 00:44:54,480

for today's spacewalk and leading our

753

00:44:59,030 --> 00:44:56,720

crews and the teams on the ground here

754

00:45:01,990 --> 00:44:59,040

through uh their procedures

755

00:45:05,030 --> 00:45:02,000

frank rubio will be the ground iv

756

00:45:08,390 --> 00:45:05,040

he was uh one of the astronauts hired in

757

00:45:10,230 --> 00:45:08,400

uh for the 2017 class and took his two

758

00:45:12,230 --> 00:45:10,240

years of training and is now officially

759

00:45:13,829 --> 00:45:12,240

a nasa astronaut

760

00:45:16,069 --> 00:45:13,839

it'll be his voice that you hear from

761

00:45:17,910 --> 00:45:16,079

here in mission control houston to our

762

00:45:24,069 --> 00:45:17,920

two space walking astronauts once they

763

00:45:27,990 --> 00:45:26,230

the space walking officer today is art

764

00:45:29,990 --> 00:45:28,000

thomason

765

00:45:32,710 --> 00:45:30,000

who walked us through some of the

766

00:45:34,150 --> 00:45:32,720

procedures for the briefing a few days

767

00:45:37,349 --> 00:45:34,160

ago

768

00:45:39,030 --> 00:45:37,359

it is his job to know the procedures

769

00:45:40,309 --> 00:45:39,040

forwards and backwards

770

00:45:48,390 --> 00:45:40,319

and work with his team that is

771

00:45:52,790 --> 00:45:50,230

the mission once again today is to

772

00:45:54,950 --> 00:45:52,800

install some mounting brackets on the

773

00:45:57,349 --> 00:45:54,960

mast canisters of the current solar rays

774

00:46:25,430 --> 00:45:57,359

on the port six truss the very far port

775

00:46:31,030 --> 00:46:28,630

you see jack's astronauts naguchi with a

776

00:46:32,630 --> 00:46:31,040

communications handheld

777

00:46:34,470 --> 00:46:32,640

next to him

778

00:46:36,390 --> 00:46:34,480

he has a direct line to the two space

779

00:46:38,309 --> 00:46:36,400

walking astronauts today kate rubins and

780

00:46:39,829 --> 00:46:38,319

victor glover victor glover

781

00:46:42,230 --> 00:46:39,839

positioned with his head towards the

782

00:46:44,150 --> 00:46:42,240

camera

783

00:46:45,670 --> 00:46:44,160

kate rubin is just out of frame situated

784

00:46:47,910 --> 00:46:45,680

with her head towards the hat she'll be

785

00:46:58,870 --> 00:46:47,920

the one to open that up and be the first

786

00:47:02,630 --> 00:47:00,710

from this view position to the right of

787

00:47:06,069 --> 00:47:02,640

victor glover you see two

788

00:47:07,430 --> 00:47:06,079

very long bags inside are the struts for

789

00:47:09,510 --> 00:47:07,440

the mounting bracket that will be

790

00:47:11,190 --> 00:47:09,520

installed today they're quite long and

791

00:47:11,990 --> 00:47:11,200

you see they do take up quite a lot of

792

00:47:13,990 --> 00:47:12,000

room

793

00:47:16,790 --> 00:47:14,000

in the airlock today once they're

794

00:47:19,109 --> 00:47:16,800

situated outside of the airlock both

795

00:47:23,349 --> 00:47:19,119

reubens and glover they'll pass out

796

00:47:24,790 --> 00:47:23,359

those strut bags containing all the

797

00:47:26,549 --> 00:47:24,800

all the equipment that they'll need for

798

00:47:28,790 --> 00:47:26,559

today's activities of course the pistol

799

00:47:33,430 --> 00:47:28,800

grip tool they already have uh affixed

800

00:47:38,230 --> 00:47:35,670

but the strut bag will be uh

801  
00:47:39,910 --> 00:47:38,240  
maneuvered outside of the airlock the

802  
00:47:41,190 --> 00:47:39,920  
strut bags themselves are quite long

803  
00:47:42,309 --> 00:47:41,200  
even longer than the astronauts

804  
00:47:43,910 --> 00:47:42,319  
themselves

805  
00:47:46,630 --> 00:47:43,920  
and the first task will be to carry

806  
00:47:49,190 --> 00:47:46,640  
those back over to the work site

807  
00:47:51,510 --> 00:47:49,200  
and temporarily temporarily stow them in

808  
00:47:54,790 --> 00:47:51,520  
positions uh where they can start to

809  
00:47:58,950 --> 00:47:54,800  
work and uh connect all of the necessary

810  
00:48:03,109 --> 00:48:00,950  
all the struts are positioned inside of

811  
00:48:05,349 --> 00:48:03,119  
the bag except for the mounting bracket

812  
00:48:08,069 --> 00:48:05,359  
which is uh affixed to the outside of

813  
00:48:12,390 --> 00:48:10,069

it'll be a journey out to the port 6

814

00:48:14,790 --> 00:48:12,400

work site today and along the way kate

815

00:48:16,710 --> 00:48:14,800

rubins will make one stop to pick up a

816

00:48:17,829 --> 00:48:16,720

portable foot restraint that she'll need

817

00:48:20,390 --> 00:48:17,839

to position

818

00:48:23,430 --> 00:48:20,400

and get into the right configuration to

819

00:48:25,510 --> 00:48:23,440

mount the center piece of the of the

820

00:48:29,510 --> 00:48:25,520

modification kit

821

00:48:33,190 --> 00:48:31,270

it'll just allow her to get that

822

00:48:37,510 --> 00:48:33,200

necessary reach to

823

00:48:40,069 --> 00:48:39,349

reubens will take the primary spot on

824

00:48:48,230 --> 00:48:40,079

the

825

00:48:49,510 --> 00:48:48,240

necessary tools and struts that she

826

00:48:50,870 --> 00:48:49,520

needs to connect

827

00:49:17,190 --> 00:48:50,880

to the various parts of the mass

828

00:49:21,109 --> 00:49:19,589

you see naguchi has again a direct line

829

00:49:23,030 --> 00:49:21,119

to the two space walking astronauts

830

00:49:24,470 --> 00:49:23,040

today kate rubins and victor glover just

831

00:49:26,470 --> 00:49:24,480

walking them through the final steps

832

00:49:29,109 --> 00:49:26,480

making sure they're all set uh before

833

00:49:31,109 --> 00:49:29,119

they go ahead and close the hatch

834

00:49:32,950 --> 00:49:31,119

once the hatch is closed naguchi and

835

00:49:34,069 --> 00:49:32,960

hopkins will work on the equipment lock

836

00:49:36,630 --> 00:49:34,079

side

837

00:49:38,069 --> 00:49:36,640

gucci taking the primary suit iv roll

838

00:49:40,309 --> 00:49:38,079

and walking the astronauts through the

839

00:49:42,150 --> 00:49:40,319

first set of procedures to go ahead and

840

00:49:43,990 --> 00:49:42,160

close the hatch and depressurize the

841

00:49:45,670 --> 00:49:44,000

crew lock

842

00:49:53,670 --> 00:49:45,680

where the astronauts and the strut bags

843

00:49:56,870 --> 00:49:54,950

we'll be able to hear a lot of those

844

00:50:01,829 --> 00:49:56,880

communications as they work their way to

845

00:50:05,190 --> 00:50:03,829

it'll be naguchi walking ground iv today

846

00:50:07,270 --> 00:50:05,200

here in mission control houston it could

847

00:50:08,950 --> 00:50:07,280

be his voice that you hear up to the

848

00:50:10,870 --> 00:50:08,960

space walking astronauts to carry them

849

00:50:13,270 --> 00:50:10,880

through the next set of procedures which

850

00:50:14,710 --> 00:50:13,280

is to switch the suits over to battery

851  
00:50:16,630 --> 00:50:14,720  
power officially beginning today

852  
00:50:18,870 --> 00:50:16,640  
spacewalk open up the hatch take the

853  
00:50:21,430 --> 00:50:18,880  
strut bags out of the crew lock and go

854  
00:52:14,230 --> 00:50:21,440  
ahead and translate or move over to the

855  
00:52:17,829 --> 00:52:15,829  
this is mission control houston our two

856  
00:52:20,309 --> 00:52:17,839  
space walking astronauts kate rubins and

857  
00:52:22,069 --> 00:52:20,319  
victor glover are situated in the crew

858  
00:52:23,829 --> 00:52:22,079  
lock today

859  
00:52:26,309 --> 00:52:23,839  
they have all their tools tethers and

860  
00:52:29,190 --> 00:52:26,319  
struts needed in the bags you see to the

861  
00:52:32,870 --> 00:52:29,200  
right of what is in this view victor

862  
00:52:36,390 --> 00:52:34,630  
suit iv suicinaguchi saying final

863  
00:52:38,470 --> 00:52:36,400

goodbyes before he works on the next set

864

00:52:40,630 --> 00:52:38,480

of procedures closing the hatch uh go

865

00:52:42,750 --> 00:52:40,640

ahead and locking it and then walking

866

00:52:51,030 --> 00:52:42,760

through the next steps to go ahead and

867

00:52:56,630 --> 00:52:53,270

all needed before we officially begin

868

00:52:59,349 --> 00:52:56,640

today's spacewalk scheduled to begin

869

00:53:01,510 --> 00:52:59,359

in a little less than 40 minutes from

870

00:53:03,750 --> 00:53:01,520

now

871

00:53:06,309 --> 00:53:03,760

that'll be when the crew lock itself is

872

00:54:54,870 --> 00:53:06,319

depressurized and the suits are switched

873

00:54:57,349 --> 00:54:56,470

station switch one

874

00:55:01,990 --> 00:54:57,359

one

875

00:55:06,390 --> 00:55:02,000

for the emu previous step 72 and the 73

876

00:55:06,400 --> 00:55:18,390

happy suicide 72 and 73 complete

877

00:55:27,910 --> 00:55:21,109

and now i understand that 10 30 is the

878

00:55:27,920 --> 00:57:02,950

concur

879

00:57:15,109 --> 00:57:05,190

using station on one while waiting we're

880

00:57:15,119 --> 00:58:17,109

happy sweetie you're go for that

881

00:58:22,710 --> 00:58:19,750

houston station on one the step uh

882

00:58:27,270 --> 00:58:22,720

81.6 number is up zero zero two zero

883

00:58:27,280 --> 00:58:56,150

copy suicide numbers

884

00:59:00,069 --> 00:58:57,510

this is mission control houston you're

885

00:59:02,390 --> 00:59:00,079

getting once again a live view from the

886

00:59:05,270 --> 00:59:02,400

international space station you see

887

00:59:07,270 --> 00:59:05,280

jaxa astronaut suicinaguchi on the left

888

00:59:08,390 --> 00:59:07,280

and nasa astronaut mike hopkins on the

889

00:59:09,430 --> 00:59:08,400

right

890

00:59:11,750 --> 00:59:09,440

they're walking through some of the

891

00:59:14,630 --> 00:59:11,760

final steps to get our two space walking

892

00:59:17,510 --> 00:59:14,640

astronauts uh kate rubins and victor

893

00:59:19,109 --> 00:59:17,520

glover ready for their spacewalk

894

00:59:21,750 --> 00:59:19,119

scheduled to start in just about a half

895

00:59:24,549 --> 00:59:21,760

an hour from now

896

00:59:26,390 --> 00:59:24,559

at this time the orbit 2 teams on the

897

00:59:28,549 --> 00:59:26,400

ground here in the international space

898

00:59:31,190 --> 00:59:28,559

station flight control room

899

00:59:33,349 --> 00:59:31,200

are going through a final go no-go poll

900

00:59:35,510 --> 00:59:33,359

to make sure they are ready

901  
00:59:41,430 --> 00:59:35,520  
to go out the hatch depressurize and

902  
00:59:45,430 --> 00:59:42,950  
flight director you see on the right

903  
00:59:47,910 --> 00:59:45,440  
there is marcos flores

904  
00:59:50,069 --> 00:59:47,920  
to the left frank rubio the ground iv

905  
00:59:52,150 --> 00:59:50,079  
it'll be his voice that you hear uh

906  
01:00:10,390 --> 00:59:52,160  
walking our two space walking astronauts

907  
01:00:14,549 --> 01:00:11,829  
in the back right you see spacewalk

908  
01:00:16,069 --> 01:00:14,559  
officer art thomason it's his job to

909  
01:00:17,750 --> 01:00:16,079  
know the procedures forwards and

910  
01:00:19,510 --> 01:00:17,760  
backwards for today

911  
01:00:21,589 --> 01:00:19,520  
he has a supporting team in his back

912  
01:00:25,510 --> 01:00:21,599  
rooms that will be helping throughout

913  
01:00:29,829 --> 01:00:27,190

you see one of the next steps that they

914

01:00:33,270 --> 01:00:29,839

are hearing right now is to go ahead and

915

01:00:35,109 --> 01:00:33,280

hot mic the two astronauts

916

01:00:36,549 --> 01:00:35,119

testing their communications so to make

917

01:00:38,390 --> 01:00:36,559

sure we can hear them

918

01:01:20,470 --> 01:00:38,400

uh once they go outside the

919

01:01:25,270 --> 01:01:23,349

this is mission control houston the

920

01:01:26,870 --> 01:01:25,280

flight director marcos flores here has

921

01:02:07,589 --> 01:01:26,880

pulled the room

922

01:02:11,270 --> 01:02:08,950

this is mission control houston for

923

01:02:13,510 --> 01:02:11,280

those just tuning in on the other side

924

01:02:15,670 --> 01:02:13,520

of the hatch uh nasa astronaut kate

925

01:02:17,670 --> 01:02:15,680

rubins and nasa astronaut victor glover

926  
01:02:20,309 --> 01:02:17,680  
are positioned in the crew lock the

927  
01:02:22,950 --> 01:02:20,319  
hatches are closed and they are ready

928  
01:02:26,230 --> 01:02:22,960  
to begin the next series of steps to

929  
01:02:27,910 --> 01:02:26,240  
depressurize the crew lock and uh turn

930  
01:02:29,750 --> 01:02:27,920  
on their suits to battery power

931  
01:02:31,829 --> 01:02:29,760  
officially beginning the eva the

932  
01:02:32,710 --> 01:02:31,839  
spacewalk today and heading out the

933  
01:02:34,710 --> 01:02:32,720  
hatch

934  
01:02:36,950 --> 01:02:34,720  
in the equipment lock uh help that will

935  
01:02:39,990 --> 01:02:36,960  
be the person that will be helping them

936  
01:02:44,870 --> 01:02:40,000  
through these next series of steps jaxa

937  
01:02:49,109 --> 01:02:47,029  
the suits themselves have been hot miked

938  
01:02:51,589 --> 01:02:49,119

so we'll be able to hear rubens and

939

01:02:52,470 --> 01:02:51,599

glover from the other side of the crew

940

01:02:55,270 --> 01:02:52,480

lock

941

01:02:56,870 --> 01:02:55,280

it'll be naguchi's job coming up here to

942

01:02:58,710 --> 01:02:56,880

walk them through the first series of

943

01:03:01,750 --> 01:02:58,720

steps

944

01:03:09,029 --> 01:03:01,760

upon your completion of 78 and 79 we can

945

01:03:28,710 --> 01:03:09,910

and

946

01:03:30,870 --> 01:03:28,720

eb2 from iv

947

01:03:33,990 --> 01:03:30,880

on the uia check

948

01:03:39,270 --> 01:03:34,000

switch depressed pump power is off and

949

01:03:45,109 --> 01:03:43,349

okay it is off and enable is lit

950

01:03:47,109 --> 01:03:45,119

thank you

951  
01:03:49,109 --> 01:03:47,119  
and the houston station i don't want to

952  
01:03:52,069 --> 01:03:49,119  
understand that we have a goal to uh

953  
01:03:55,670 --> 01:03:52,079  
proceed to the cool depressed reverse

954  
01:03:55,680 --> 01:04:04,470  
that's affirmative sweetie

955  
01:04:09,910 --> 01:04:06,549  
and eb2

956  
01:04:19,750 --> 01:04:09,920  
iv we're starting the cool of different

957  
01:04:31,190 --> 01:04:21,750  
you press pump power

958  
01:04:35,349 --> 01:04:33,430  
that's ten seconds step two

959  
01:04:39,910 --> 01:04:35,359  
uh eb2 difference

960  
01:04:43,829 --> 01:04:39,920  
math iso open eb members expect our toes

961  
01:04:43,839 --> 01:04:47,510  
open

962  
01:04:53,190 --> 01:04:50,789  
and if you need to monitor super gauge

963  
01:04:55,510 --> 01:04:53,200

less than 5 05

964

01:05:31,990 --> 01:04:55,520

if greater than 5.5 you will stop

965

01:05:35,910 --> 01:05:34,230

popping into frame on the left side

966

01:05:39,270 --> 01:05:35,920

there you see space station commander

967

01:05:40,870 --> 01:05:39,280

and rus cosmos cosmonaut sergey rzhikov

968

01:05:43,910 --> 01:05:40,880

at this time in the crew lock

969

01:05:47,670 --> 01:05:43,920

depressurization has begun we're down

970

01:05:49,430 --> 01:05:47,680

from about sea level 14 what was 14.1

971

01:06:26,470 --> 01:05:49,440

psi we're now

972

01:06:26,480 --> 01:06:56,069

uh

973

01:07:03,910 --> 01:06:58,230

now popping into the equipment lock

974

01:07:07,750 --> 01:07:05,270

on the other side of the hatch the crew

975

01:07:12,870 --> 01:07:07,760

lock is uh now just a little less than

976

01:07:16,870 --> 01:07:14,950

the uh crew lock will not be pre

977

01:07:19,829 --> 01:07:16,880

depressurized all the way to vacuum

978

01:07:23,190 --> 01:07:19,839

quite quite yet there is a check at the

979

01:07:25,109 --> 01:07:23,200

5 psi mark that's expected in about 7

980

01:07:28,789 --> 01:07:25,119

minutes from now

981

01:07:30,950 --> 01:07:28,799

the crew lock will hold at 5 psi to do

982

01:07:32,870 --> 01:07:30,960

perform a check making sure that there

983

01:07:34,950 --> 01:07:32,880

is no leaks that everything is good

984

01:07:36,789 --> 01:07:34,960

before they go ahead and proceed down to

985

01:07:39,270 --> 01:07:36,799

vacuum

986

01:07:41,430 --> 01:07:39,280

the spacewalk will officially begin once

987

01:07:49,750 --> 01:07:41,440

the suits themselves are transitioned to

988

01:07:54,470 --> 01:07:51,510

and the ev crew members

989

01:07:56,789 --> 01:07:54,480

when they flew out at the 6.0 you expect

990

01:08:00,150 --> 01:07:56,799

the left account and the next section

991

01:08:02,789 --> 01:08:00,160

for ev2 is when the cooldown is at 5.0

992

01:09:58,229 --> 01:08:02,799

you will close the manual

993

01:09:58,239 --> 01:10:19,910

uh

994

01:10:19,920 --> 01:10:42,390

hmm

995

01:10:46,229 --> 01:10:44,470

an international coalition of astronauts

996

01:10:50,870 --> 01:10:46,239

gathered in the equipment lock of the

997

01:10:55,830 --> 01:10:53,030

patiently awaiting depressurization down

998

01:10:58,950 --> 01:10:55,840

to five pounds per square inch currently

999

01:11:03,110 --> 01:10:58,960

at about seven psi only a few more

1000

01:11:04,390 --> 01:11:03,120

minutes until the 5 psi hold

1001

01:11:07,110 --> 01:11:04,400

that hold will

1002

01:11:09,350 --> 01:11:07,120

remain at 5 psi for just a few minutes

1003

01:11:43,030 --> 01:11:09,360

making sure everything is ok before

1004

01:12:32,630 --> 01:12:04,470

uh

1005

01:12:32,640 --> 01:12:41,669

6 psi eb2

1006

01:12:41,679 --> 01:12:51,030

copy the honor

1007

01:12:54,870 --> 01:12:53,430

ev1 and ev2 that's kate rubins and

1008

01:12:57,350 --> 01:12:54,880

victor glover both on the other side of

1009

01:12:59,830 --> 01:12:57,360

the hash confirming the crew lock is uh

1010

01:13:02,149 --> 01:12:59,840

passing less than six pounds per square

1011

01:13:08,070 --> 01:13:05,430

we're nearing that uh five psr mark

1012

01:13:14,390 --> 01:13:08,080

psi mark uh estimated in about a minute

1013

01:13:17,830 --> 01:13:17,030

so ev2 your next

1014

01:13:55,430 --> 01:13:17,840

manual i option

1015

01:13:55,440 --> 01:14:15,669

huh

1016

01:14:15,679 --> 01:14:21,990

there's 5.0 man right the valve closed

1017

01:14:28,149 --> 01:14:25,110

copy 5.0 and the verify you close the

1018

01:14:42,550 --> 01:14:28,159

manual iso

1019

01:14:46,790 --> 01:14:44,709

now entering a short handover of video

1020

01:14:48,229 --> 01:14:46,800

and audio from the international space

1021

01:14:49,510 --> 01:14:48,239

station what you're looking at is the

1022

01:14:52,149 --> 01:14:49,520

international space station flight

1023

01:14:54,229 --> 01:14:52,159

control room orbit two is in position

1024

01:14:55,990 --> 01:14:54,239

ready to support today's spacewalk

1025

01:14:58,149 --> 01:14:56,000

flight director for today is marcos

1026

01:15:02,950 --> 01:14:58,159

flores uh currently standing on the

1027

01:15:07,030 --> 01:15:05,430

naguchi will continue to walk our two uh

1028

01:15:09,910 --> 01:15:07,040

spacewalking astronauts through these

1029

01:15:12,070 --> 01:15:09,920

steps uh for a little bit once they pass

1030

01:15:14,390 --> 01:15:12,080

five psi and begin switching their o2

1031

01:15:20,470 --> 01:15:14,400

actuators and gets situated to go ahead

1032

01:15:25,990 --> 01:15:22,470

it'll be frank rubio who you see to the

1033

01:15:28,149 --> 01:15:26,000

right of flight director flores

1034

01:15:30,229 --> 01:15:28,159

2017 astronaut it'll be his voice you

1035

01:15:36,070 --> 01:15:30,239

hear guiding rubens and glover through

1036

01:15:36,080 --> 01:15:40,550

the capcom for today

1037

01:15:44,390 --> 01:15:42,390

who you may hear uh

1038

01:15:46,229 --> 01:15:44,400

voicing some of the commands as the

1039

01:15:48,070 --> 01:15:46,239

astronauts are inside the international

1040

01:15:49,750 --> 01:15:48,080

space station is nasa astronaut

1041

01:16:12,070 --> 01:15:49,760

christina cook you see at the far end of

1042

01:16:17,430 --> 01:16:16,310

easy one put your actuator eva db2 eva

1043

01:16:21,030 --> 01:16:17,440

thank you

1044

01:16:37,430 --> 01:16:21,040

next ev2 different smart final iso

1045

01:16:44,630 --> 01:16:40,870

and uh iv just opened divergence to m to

1046

01:17:17,030 --> 01:16:44,640

open ebr db2 monitor super gauge less

1047

01:17:21,590 --> 01:17:19,910

as we wait to regain the feeds

1048

01:17:23,669 --> 01:17:21,600

from the international space station

1049

01:17:25,910 --> 01:17:23,679

from the from the inside views

1050

01:17:29,669 --> 01:17:25,920

we're continuing to take a look at

1051

01:17:32,229 --> 01:17:29,679

the supporting teams here on the ground

1052

01:17:34,550 --> 01:17:32,239

we had a good uh pressure check at five

1053

01:17:35,350 --> 01:17:34,560

pounds per square inch and are resuming

1054

01:17:37,590 --> 01:17:35,360

our

1055

01:17:40,149 --> 01:17:37,600

decrease in pressure down to vacuum now

1056

01:18:02,790 --> 01:17:40,159

uh passing four psi

1057

01:18:07,270 --> 01:18:05,270

the sequence is scheduled to take a

1058

01:18:09,669 --> 01:18:07,280

little less than four minutes to get

1059

01:18:11,189 --> 01:18:09,679

down to vacuum

1060

01:18:12,950 --> 01:18:11,199

the official start time of today's

1061

01:18:14,630 --> 01:18:12,960

spacewalk will be when the astronauts

1062

01:18:17,510 --> 01:18:14,640

inside the crew lock that's kate rubins

1063

01:18:19,110 --> 01:18:17,520

and victor glover switch their suits to

1064

01:18:20,310 --> 01:18:19,120

battery power

1065

01:19:30,390 --> 01:18:20,320

and we'll give you that official time

1066

01:19:57,830 --> 01:19:34,229

next option is cool of 2.0 you close the

1067

01:20:03,189 --> 01:19:59,830

everything looking good so far as we

1068

01:20:04,870 --> 01:20:03,199

proceed down to vacuum about 2.4 pounds

1069

01:20:07,189 --> 01:20:04,880

per square inch inside the crew lock

1070

01:20:09,110 --> 01:20:07,199

right now

1071

01:20:10,870 --> 01:20:09,120

you're getting some views on the outside

1072

01:20:13,189 --> 01:20:10,880

of the international space station as we

1073

01:20:15,510 --> 01:20:13,199

eagerly await those hatches to open and

1074

01:20:17,110 --> 01:20:15,520

the astronauts to begin their spacewalk

1075

01:20:41,550 --> 01:20:17,120

again that'll begin once the suits

1076

01:20:45,830 --> 01:20:42,790

[Music]

1077

01:20:53,830 --> 01:20:45,840

this is a good point to switch so uh

1078

01:20:58,310 --> 01:20:55,350

good morning kate hike how you guys

1079

01:21:03,270 --> 01:21:00,709

thanks great to talk to you

1080

01:21:05,189 --> 01:21:03,280

good work frankly for it

1081

01:21:07,189 --> 01:21:05,199

we're uh teams ready and we're looking

1082

01:21:11,110 --> 01:21:07,199

forward to a good eva all right i will

1083

01:21:16,229 --> 01:21:13,189

all right sounds good starting at the

1084

01:21:18,870 --> 01:21:16,239

mass steering extender i have

1085

01:21:20,149 --> 01:21:18,880

a closed slider lock black on black for

1086

01:21:22,790 --> 01:21:20,159

a waist tether

1087

01:21:25,270 --> 01:21:22,800

that's going to a second waist tether

1088

01:21:26,629 --> 01:21:25,280

gate closed slider lock black on black

1089

01:21:29,189 --> 01:21:26,639

on the first one

1090

01:21:31,430 --> 01:21:29,199

secondly feather hook eight closed

1091

01:21:33,830 --> 01:21:31,440

lighter locked black on black

1092

01:21:36,070 --> 01:21:33,840

that's going to my d-ring extender

1093

01:21:38,870 --> 01:21:36,080

feet closed lighter locked black on

1094

01:21:41,830 --> 01:21:38,880

black that's my lefty ring extender

1095

01:21:43,750 --> 01:21:41,840

also on that d-ring center is my red 50

1096

01:21:49,830 --> 01:21:43,760

feather hook eight closed center locks

1097

01:21:49,840 --> 01:21:53,510

this is my yellow hook

1098

01:22:00,070 --> 01:21:56,550

stay closed slider locked black on black

1099

01:22:02,229 --> 01:22:00,080

green hook is deep closed not locked

1100

01:22:05,030 --> 01:22:02,239

anchor hook

1101  
01:22:07,510 --> 01:22:05,040  
a closed slider locked black on black

1102  
01:22:09,270 --> 01:22:07,520  
it's going to ice

1103  
01:22:11,590 --> 01:22:09,280  
place feather

1104  
01:22:17,270 --> 01:22:11,600  
get closed slider lock black on black

1105  
01:22:26,470 --> 01:22:18,709  
all right can you let that voice tether

1106  
01:22:30,229 --> 01:22:28,310  
i'm afraid i've got my

1107  
01:22:33,669 --> 01:22:30,239  
save each other anchor hook

1108  
01:22:38,950 --> 01:22:35,910  
that is uh my green reel

1109  
01:22:42,070 --> 01:22:38,960  
that green reel is unlocked has a green

1110  
01:22:43,990 --> 01:22:42,080  
hook to my red reel unlocked

1111  
01:22:45,430 --> 01:22:44,000  
the red reel yellow hook

1112  
01:22:47,910 --> 01:22:45,440  
this is mission control houston what

1113  
01:22:50,310 --> 01:22:47,920

you're hearing now is both kate rubins

1114

01:22:52,470 --> 01:22:50,320

and victor glover inside the crew lock

1115

01:22:54,310 --> 01:22:52,480

uh

1116

01:22:56,550 --> 01:22:54,320

reporting their tether configuration

1117

01:22:58,790 --> 01:22:56,560

making sure all their tethers are ready

1118

01:23:01,030 --> 01:22:58,800

before they actually head out the door

1119

01:23:03,189 --> 01:23:01,040

the communications has been handed over

1120

01:23:05,030 --> 01:23:03,199

from sucinaguchi in the equipment lock

1121

01:23:07,110 --> 01:23:05,040

to frank rubio here on the ground he's

1122

01:23:08,790 --> 01:23:07,120

the ground iv it'll be his voice you

1123

01:23:11,189 --> 01:23:08,800

hear from mission control houston up to

1124

01:23:12,229 --> 01:23:11,199

our two space balking astronauts again

1125

01:23:14,550 --> 01:23:12,239

they're reporting their tether

1126  
01:23:16,310 --> 01:23:14,560  
configuration uh one of the final steps

1127  
01:23:17,750 --> 01:23:16,320  
after that is to switch the suits to

1128  
01:23:32,070 --> 01:23:17,760  
battery power and officially begin

1129  
01:23:36,229 --> 01:23:34,550  
all right guys i copy uh both okay can

1130  
01:23:40,790 --> 01:23:36,239  
you verify both of your reels are

1131  
01:23:55,590 --> 01:23:42,950  
if i guess closer to you or you can

1132  
01:23:55,600 --> 01:24:12,790  
hey

1133  
01:24:18,229 --> 01:24:14,950  
all right guys we copy for both and that

1134  
01:24:20,310 --> 01:24:18,239  
is a good teleconfig for both of you

1135  
01:24:22,950 --> 01:24:20,320  
all right when the crewlock

1136  
01:24:25,990 --> 01:24:22,960  
dt is approximately zero both can expect

1137  
01:24:26,000 --> 01:25:06,070  
d1 copies db2

1138  
01:25:09,990 --> 01:25:07,669

this is mission control houston kate

1139

01:25:12,709 --> 01:25:10,000

rubins and victor glover both reporting

1140

01:25:14,629 --> 01:25:12,719

a good tether configuration

1141

01:25:17,030 --> 01:25:14,639

the crew lock itself is continuing to

1142

01:25:18,550 --> 01:25:17,040

vent pressure very very slowly

1143

01:25:21,430 --> 01:25:18,560

closer to vacuum they can expect an

1144

01:25:23,030 --> 01:25:21,440

alert tone on the way down

1145

01:25:24,629 --> 01:25:23,040

again we still have not switched over to

1146

01:25:26,390 --> 01:25:24,639

battery power to officially begin the

1147

01:25:39,189 --> 01:25:26,400

spacewalk we'll report that once that

1148

01:25:42,550 --> 01:25:41,110

in the meantime you're getting live

1149

01:25:44,950 --> 01:25:42,560

views from the outside of the

1150

01:25:49,669 --> 01:25:44,960

international space station this camera

1151

01:25:55,430 --> 01:25:51,590

we can expect the thermal cover to be

1152

01:25:59,590 --> 01:25:57,030

before we actually see the astronauts

1153

01:26:01,149 --> 01:25:59,600

themselves head out

1154

01:26:04,310 --> 01:26:01,159

space station is currently

1155

01:26:06,790 --> 01:26:04,320

263 statute miles over the eastern coast

1156

01:26:09,030 --> 01:26:06,800

of canada heading into an orbital

1157

01:26:11,510 --> 01:26:09,040

daytime though you can start to see

1158

01:26:13,510 --> 01:26:11,520

the sun now glistening off of the

1159

01:26:15,590 --> 01:26:13,520

outside the metallic structure of the

1160

01:26:17,669 --> 01:26:15,600

international space station as the

1161

01:26:32,550 --> 01:26:17,679

international space station heads right

1162

01:26:36,070 --> 01:26:34,470

we should be getting good daytime views

1163

01:26:37,669 --> 01:26:36,080

as the astronauts themselves make their

1164

01:26:39,590 --> 01:26:37,679

way out the hatch to begin today's

1165

01:26:41,669 --> 01:26:39,600

spacewalk let me know if you need to

1166

01:26:44,149 --> 01:26:41,679

move some more okay probably i'll just

1167

01:26:47,669 --> 01:26:44,159

uh you're right over there you've been a

1168

01:28:24,629 --> 01:26:48,950

yeah and

1169

01:28:28,870 --> 01:28:26,550

everything looking good so far the crew

1170

01:28:32,390 --> 01:28:28,880

lock continuing to very slowly vent

1171

01:28:32,400 --> 01:28:36,390

heading towards vacuum

1172

01:28:39,910 --> 01:28:37,990

our two space walking astronauts kate

1173

01:28:42,390 --> 01:28:39,920

rubins and victor glover patiently

1174

01:28:44,310 --> 01:28:42,400

awaiting those next steps

1175

01:28:46,550 --> 01:28:44,320

to switch their suits to battery power

1176

01:28:48,310 --> 01:28:46,560

officially begin the spacewalk open up

1177

01:28:50,149 --> 01:28:48,320

the hatch and head out

1178

01:28:53,669 --> 01:28:50,159

their first task will be to carry out

1179

01:28:55,669 --> 01:28:53,679

two uh very large strut bags and they'll

1180

01:28:56,950 --> 01:28:55,679

tow that all the way to the very far end

1181

01:28:58,709 --> 01:28:56,960

of the port

1182

01:29:01,590 --> 01:28:58,719

side of the international space station

1183

01:29:03,990 --> 01:29:01,600

the p6 truss

1184

01:31:03,669 --> 01:29:04,000

now regaining some of those views of the

1185

01:31:06,790 --> 01:31:05,030

this is mission control houston

1186

01:31:08,950 --> 01:31:06,800

everything's still looking good so far

1187

01:31:11,430 --> 01:31:08,960

that crew lock continuing to very slowly

1188

01:31:12,870 --> 01:31:11,440

vent pressure the milestone we are

1189

01:31:15,669 --> 01:31:12,880

waiting for here in mission control

1190

01:31:18,950 --> 01:31:15,679

houston is about a half a pound of per

1191

01:31:20,790 --> 01:31:18,960

square inch 0.5 psi

1192

01:31:21,830 --> 01:31:20,800

for the uh they give the crew the go

1193

01:31:23,830 --> 01:31:21,840

ahead to

1194

01:31:25,510 --> 01:31:23,840

open up the hatch we might see that

1195

01:31:26,550 --> 01:31:25,520

first before they switch to battery

1196

01:31:28,629 --> 01:31:26,560

power

1197

01:31:43,270 --> 01:31:28,639

or just standing by as that crew lock

1198

01:33:51,750 --> 01:31:45,189

complicate and we see

1199

01:33:55,350 --> 01:33:53,189

this is mission control houston we're

1200

01:33:58,310 --> 01:33:55,360

still continuing to watch the outside of

1201  
01:34:02,870 --> 01:33:58,320  
the quest airlock hoping to see that uh

1202  
01:34:05,189 --> 01:34:02,880  
thermal hatch cover open very soon

1203  
01:34:07,350 --> 01:34:05,199  
everything is still uh looking good as

1204  
01:34:09,430 --> 01:34:07,360  
the crew lock itself continues to very

1205  
01:34:12,070 --> 01:34:09,440  
slowly vent pressure

1206  
01:34:13,510 --> 01:34:12,080  
or just a little bit more than 0.5 psi

1207  
01:34:14,709 --> 01:34:13,520  
now just waiting for that call that

1208  
01:34:55,910 --> 01:34:14,719  
everything's looking good for the crew

1209  
01:34:55,920 --> 01:35:19,750  
hmm

1210  
01:35:24,790 --> 01:35:21,830  
okay okay we show

1211  
01:35:39,430 --> 01:35:24,800  
zero decimal four nine you have a go to

1212  
01:35:43,430 --> 01:35:41,669  
would that go from mission control

1213  
01:35:44,950 --> 01:35:43,440

you'll see the thermal cover at the

1214

01:35:48,709 --> 01:35:44,960

center you can already see it start to

1215

01:36:50,629 --> 01:35:48,719

fly open that's the thermal cover of the

1216

01:36:50,639 --> 01:37:04,709

can you

1217

01:37:09,189 --> 01:37:07,189

okay we see the hatch thermal cover open

1218

01:37:13,430 --> 01:37:09,199

so soichi

1219

01:37:13,440 --> 01:37:29,830

they're open

1220

01:37:29,840 --> 01:37:52,470

i need to come more towards you

1221

01:37:55,430 --> 01:37:53,990

yeah i will need to make more of a hole

1222

01:38:07,750 --> 01:37:55,440

here

1223

01:38:12,790 --> 01:38:09,669

okay well this thing behind you is the

1224

01:38:12,800 --> 01:38:28,950

you want to try going

1225

01:38:31,210 --> 01:38:30,149

and i can let me know when you're ready

1226

01:38:34,470 --> 01:38:31,220

for a protein

1227

01:38:34,480 --> 01:38:46,470

thank you

1228

01:38:50,390 --> 01:38:48,709

sort of a tight squeeze in the crew lock

1229

01:38:51,830 --> 01:38:50,400

today there's two space walking

1230

01:38:53,590 --> 01:38:51,840

astronauts fully suited up and

1231

01:38:55,669 --> 01:38:53,600

pressurized kate rubins and victor

1232

01:39:02,709 --> 01:38:55,679

glover in addition there are two very

1233

01:39:05,830 --> 01:39:04,550

so rubens and glover are working hand in

1234

01:39:11,350 --> 01:39:05,840

hand and making sure that they're in a

1235

01:39:14,550 --> 01:39:13,270

out of the steps yeah and i have to come

1236

01:39:16,470 --> 01:39:14,560

back towards you a little bit yep that's

1237

01:39:19,910 --> 01:39:16,480

okay okay

1238

01:39:19,920 --> 01:39:25,560

i think forward

1239

01:39:25,570 --> 01:39:32,550

[Music]

1240

01:39:56,709 --> 01:39:34,149

okay i can get out of your way but i

1241

01:40:01,350 --> 01:39:59,510

the handrail forward

1242

01:40:08,709 --> 01:40:01,360

use that one to pull yourself

1243

01:40:08,719 --> 01:40:24,149

um

1244

01:40:24,159 --> 01:40:40,709

so

1245

01:40:50,709 --> 01:40:42,149

yeah i can get the hatch open i just

1246

01:41:06,310 --> 01:40:52,229

i have to

1247

01:41:06,320 --> 01:41:10,310

all right

1248

01:41:10,320 --> 01:41:16,070

nice job

1249

01:41:16,080 --> 01:41:36,390

yeah that hands are awkward

1250

01:41:36,400 --> 01:41:39,830

all right frank ready for you next

1251  
01:41:42,629 --> 01:41:41,510  
all right guys nice job working through

1252  
01:41:45,030 --> 01:41:42,639  
that we know it's super tight in there

1253  
01:41:47,030 --> 01:41:45,040  
so it's wrong

1254  
01:41:48,950 --> 01:41:47,040  
okay for both switch

1255  
01:41:50,709 --> 01:41:48,960  
power to bat

1256  
01:42:03,510 --> 01:41:50,719  
remember to stagger your switch nose and

1257  
01:42:09,750 --> 01:42:06,310  
for both check display switch

1258  
01:42:09,760 --> 01:42:16,709  
ev1 functionality

1259  
01:42:25,830 --> 01:42:19,910  
hike for you switch power ev1 and 2 two

1260  
01:42:25,840 --> 01:42:35,270  
v1 power off led is out

1261  
01:42:40,790 --> 01:42:36,629  
v2

1262  
01:42:47,270 --> 01:42:44,149  
copy off and leds off for both

1263  
01:42:49,189 --> 01:42:47,280

disconnect scus from dcm

1264

01:43:06,709 --> 01:42:49,199

then you will install the dcm cover and

1265

01:43:10,629 --> 01:43:08,470

and with that the astronauts have

1266

01:43:13,910 --> 01:43:10,639

switched their suits to battery power

1267

01:43:15,590 --> 01:43:13,920

officially beginning today's spacewalk

1268

01:43:35,669 --> 01:43:15,600

the official start time of today's

1269

01:43:40,790 --> 01:43:37,270

again the official start time for

1270

01:43:43,430 --> 01:43:40,800

today's spacewalk 5 12 a.m central time

1271

01:43:45,750 --> 01:43:43,440

at the time of the spacewalk start the

1272

01:43:47,590 --> 01:43:45,760

international space station and kate

1273

01:43:50,790 --> 01:43:47,600

rubins and victor glover about to head

1274

01:43:53,189 --> 01:43:50,800

out the hatch were flying 260 statute

1275

01:43:57,190 --> 01:43:53,199

miles over the country of niger in

1276

01:43:57,200 --> 01:44:03,510

[Music]

1277

01:44:09,109 --> 01:44:05,830

if you want to use the

1278

01:44:10,310 --> 01:44:09,119

v2 is to you in the coach

1279

01:44:11,189 --> 01:44:10,320

copy though

1280

01:44:16,550 --> 01:44:11,199

hike

1281

01:44:16,560 --> 01:44:20,470

it's closed

1282

01:44:46,830 --> 01:44:23,030

for both on your dtms temp control valve

1283

01:44:46,840 --> 01:44:53,510

myself for both switch water on

1284

01:44:53,520 --> 01:44:58,870

pb1

1285

01:45:05,430 --> 01:45:03,590

check dcm blank bite off

1286

01:45:09,350 --> 01:45:05,440

you want to do 10 points

1287

01:45:09,360 --> 01:45:23,270

temp control valve as desired for both

1288

01:45:28,149 --> 01:45:26,350

copy 5 and 3. check suit pressure gauge

1289

01:45:33,109 --> 01:45:28,159

4.2 to

1290

01:45:44,629 --> 01:45:36,950

tv one four four four no did you get

1291

01:45:49,030 --> 01:45:47,030

we copy and those are good numbers and

1292

01:46:02,629 --> 01:45:49,040

we are about halfway through a day pass

1293

01:46:02,639 --> 01:46:09,510

everyone good sizes

1294

01:46:09,520 --> 01:46:21,270

you two awful nights

1295

01:46:24,629 --> 01:46:22,870

all right guys

1296

01:46:26,550 --> 01:46:24,639

we have a go to eagle so okay you can

1297

01:46:28,310 --> 01:46:26,560

egress the airlock and verify on your

1298

01:46:31,750 --> 01:46:28,320

way out that the forward hatch pit pin

1299

01:46:35,430 --> 01:46:33,350

in the airlock i'll get the fit in when

1300

01:46:38,550 --> 01:46:35,440

i get out and i think i'm just gonna go

1301  
01:46:38,560 --> 01:46:47,030  
if you can

1302  
01:46:50,870 --> 01:46:48,870  
inside the crew airlock right now kate

1303  
01:46:52,310 --> 01:46:50,880  
rubins and victor glover completing the

1304  
01:46:54,470 --> 01:46:52,320  
steps to make sure that they are

1305  
01:46:56,149 --> 01:46:54,480  
operating on battery power now with that

1306  
01:47:01,930 --> 01:46:56,159  
we're seeing kate rubins the first out

1307  
01:47:01,940 --> 01:47:13,109  
[Music]

1308  
01:47:19,189 --> 01:47:16,149  
all right second the airlock forward

1309  
01:47:22,310 --> 01:47:19,199  
patch 15

1310  
01:47:25,270 --> 01:47:22,320  
is engaged

1311  
01:47:26,709 --> 01:47:25,280  
okay we copy engaged good config and ike

1312  
01:47:28,709 --> 01:47:26,719  
the first thing you'll be transferring

1313  
01:47:37,030 --> 01:47:28,719

out is strut bag two

1314

01:47:41,189 --> 01:47:38,629

okay rubens will be wearing the suit

1315

01:47:44,070 --> 01:47:41,199

with red stripes today uh

1316

01:47:46,390 --> 01:47:44,080

victor glover the suit with no stripes

1317

01:47:48,229 --> 01:47:46,400

glover is still inside the crew lock he

1318

01:47:50,149 --> 01:47:48,239

will be passing out these strut bags

1319

01:47:51,590 --> 01:47:50,159

these are very large bags containing the

1320

01:47:53,590 --> 01:47:51,600

tools and equipment that they need to

1321

01:48:02,870 --> 01:47:53,600

install in the mass canisters the main

1322

01:48:02,880 --> 01:48:06,470

okay

1323

01:48:06,480 --> 01:48:44,870

when you're ready

1324

01:48:47,990 --> 01:48:46,390

hey can you see the bottom of strip bag

1325

01:48:50,709 --> 01:48:48,000

too i can't

1326

01:48:52,950 --> 01:48:50,719

it's like hitting the hatch

1327

01:48:54,709 --> 01:48:52,960

oh it's hitting their grip yeah okay all

1328

01:48:56,870 --> 01:48:54,719

right let's try to angle it

1329

01:49:10,229 --> 01:48:56,880

yeah if you can send it at all i'm gonna

1330

01:49:27,510 --> 01:49:12,149

getting closer

1331

01:49:34,550 --> 01:49:29,270

still got the airlock red to it so

1332

01:49:40,070 --> 01:49:36,470

and here comes the first strut bag out

1333

01:49:40,080 --> 01:49:43,270

okay you'll be

1334

01:49:43,280 --> 01:49:47,510

on the forward airlock circular handle

1335

01:49:52,629 --> 01:49:50,229

i'm just going to put it off right now

1336

01:49:53,920 --> 01:49:52,639

and then i'll just like

1337

01:50:09,109 --> 01:49:53,930

get the air lock

1338

01:50:47,830 --> 01:50:11,430

it is on the deep ring there like there

1339

01:50:56,950 --> 01:50:50,070

okay i got a handle

1340

01:50:56,960 --> 01:51:05,270

pause one second

1341

01:51:09,189 --> 01:51:06,709

all right let's yeah

1342

01:51:11,669 --> 01:51:09,199

give me a second to get my brd rating

1343

01:51:13,830 --> 01:51:11,679

so all the seconds you need

1344

01:51:16,149 --> 01:51:13,840

and kate as a reminder as you

1345

01:51:29,350 --> 01:51:16,159

put uh strut bag one on your brt that

1346

01:51:33,669 --> 01:51:31,910

kate rubin's on the outside of the quest

1347

01:51:34,709 --> 01:51:33,679

airlock she's in the suit with red

1348

01:51:37,589 --> 01:51:34,719

stripes

1349

01:51:39,510 --> 01:51:37,599

taking hold of both of the strut bags

1350

01:51:44,149 --> 01:51:39,520

being passed out from the inside of the

1351  
01:51:48,149 --> 01:51:46,550  
he'll next come out and take a hold of

1352  
01:51:49,990 --> 01:51:48,159  
one of the strut bags and together

1353  
01:51:52,550 --> 01:51:50,000  
they'll make their way out to the work

1354  
01:51:54,229 --> 01:51:52,560  
site the p6 worksite inside the strut

1355  
01:51:55,830 --> 01:51:54,239  
bags are the struts and brackets needed

1356  
01:51:59,350 --> 01:51:55,840  
for installation today that'll be the

1357  
01:52:01,350 --> 01:51:59,360  
primary objective of today's spacewalk

1358  
01:52:03,109 --> 01:52:01,360  
it's currently uh

1359  
01:52:05,589 --> 01:52:03,119  
between you and your feathers the values

1360  
01:52:20,629 --> 01:52:05,599  
between you and the tethers

1361  
01:52:20,639 --> 01:52:52,870  
i have my brt wrap on it

1362  
01:52:58,229 --> 01:52:55,030  
and this

1363  
01:53:15,270 --> 01:52:58,239

hook is also to the airlock hearing aids

1364

01:53:15,280 --> 01:53:19,189

and as long as you're okay to egress

1365

01:53:19,199 --> 01:53:24,830

i am

1366

01:53:24,840 --> 01:53:32,310

clear all right

1367

01:53:32,320 --> 01:53:41,109

one second and i'll be heading

1368

01:53:45,750 --> 01:53:43,910

again nasa astronaut victor glover still

1369

01:53:48,229 --> 01:53:45,760

inside of the quest airlock he'll be

1370

01:53:52,950 --> 01:53:48,239

heading out shortly taking hold of one

1371

01:53:57,750 --> 01:53:55,030

going past bags i'm keeping everything

1372

01:53:59,990 --> 01:53:57,760

out okay all right and come on

1373

01:54:04,229 --> 01:54:00,000

your other back fast as well

1374

01:54:08,390 --> 01:54:06,149

guys we have a minute a little short

1375

01:54:10,390 --> 01:54:08,400

hand over so i as you egress you will

1376

01:54:12,390 --> 01:54:10,400

put strut bag two

1377

01:54:13,750 --> 01:54:12,400

with the tape towards your feet and then

1378

01:54:24,310 --> 01:54:13,760

we'll do buddy checks on the other side

1379

01:54:24,320 --> 01:54:39,030

okay

1380

01:54:39,040 --> 01:54:42,550

all right

1381

01:55:14,550 --> 01:54:45,350

that's mine there okay okay

1382

01:55:17,990 --> 01:55:16,310

now entering into a short handover of

1383

01:55:21,830 --> 01:55:18,000

video and audio we should be regaining

1384

01:55:26,070 --> 01:55:23,589

at this time kate rubins has already

1385

01:55:28,470 --> 01:55:26,080

made her way out of the quest airlock

1386

01:55:30,070 --> 01:55:28,480

she has a hold of both of the strut bags

1387

01:55:32,229 --> 01:55:30,080

containing the struts and brackets

1388

01:55:33,830 --> 01:55:32,239

needed for today's activities they'll be

1389

01:55:36,470 --> 01:55:33,840

installing a modification kit on the

1390

01:55:38,149 --> 01:55:36,480

mast canisters in the far poor six port

1391

01:55:40,310 --> 01:55:38,159

six trust

1392

01:55:41,830 --> 01:55:40,320

victor glover has just made his way out

1393

01:55:45,109 --> 01:55:41,840

of the quest airlock they'll be handing

1394

01:55:46,550 --> 01:55:45,119

over one of the strut bags from kate to

1395

01:55:48,470 --> 01:55:46,560

victor glover

1396

01:55:52,470 --> 01:55:48,480

both of them in tow we'll take those

1397

01:55:57,430 --> 01:55:54,709

during translation we could be seeing

1398

01:56:00,629 --> 01:55:57,440

some high definition camera views

1399

01:56:03,589 --> 01:56:00,639

from one of the helmet cameras likely uh

1400

01:56:05,030 --> 01:56:03,599

kate rubin's helmet camera

1401  
01:56:07,189 --> 01:56:05,040  
we might get some of those views for the

1402  
01:56:11,510 --> 01:56:07,199  
first time high definition views from a

1403  
01:56:14,550 --> 01:56:13,589  
and k nike we are back with you

1404  
01:56:34,149 --> 01:56:14,560  
let me know when you guys are ready for

1405  
01:56:34,159 --> 01:56:50,790  
bye

1406  
01:56:50,800 --> 01:56:53,669  
all right

1407  
01:56:58,950 --> 01:56:55,510  
i've got my brt i'm just tightening it

1408  
01:57:13,910 --> 01:57:00,950  
that's gonna do what it's gonna do

1409  
01:57:24,709 --> 01:57:16,470  
my face toward my feet

1410  
01:57:28,229 --> 01:57:26,390  
once both rubens and glover are in a

1411  
01:57:30,390 --> 01:57:28,239  
good configuration they'll perform some

1412  
01:57:31,350 --> 01:57:30,400  
buddy checks just making sure that both

1413  
01:57:33,030 --> 01:57:31,360

of them

1414

01:57:34,950 --> 01:57:33,040

with a good view of each other looks

1415

01:57:37,430 --> 01:57:34,960

like they're configured properly all the

1416

01:57:39,189 --> 01:57:37,440

tethers and tools and the configurations

1417

01:57:40,870 --> 01:57:39,199

of the suits themselves all look good

1418

01:57:42,390 --> 01:57:40,880

before they go ahead and make their way

1419

01:57:53,910 --> 01:57:42,400

out to the work site on the far end of

1420

01:57:59,830 --> 01:57:55,350

okay

1421

01:58:04,390 --> 01:58:01,830

on the lws seven

1422

01:58:05,350 --> 01:58:04,400

we should get back out of the way

1423

01:58:09,430 --> 01:58:05,360

all right

1424

01:58:13,750 --> 01:58:11,270

and turn a little bit towards me there

1425

01:58:17,109 --> 01:58:13,760

we go the two safer handles down

1426

01:58:26,390 --> 01:58:17,119

wbs light is not on

1427

01:58:26,400 --> 01:58:30,470

airbrt looks good

1428

01:58:34,310 --> 01:58:33,109

another shorthand over in video downlink

1429

01:58:38,149 --> 01:58:34,320

from the space station should be

1430

01:58:41,589 --> 01:58:39,830

in the meantime rubens and glover

1431

01:58:43,109 --> 01:58:41,599

performing a buddy check making sure

1432

01:58:45,030 --> 01:58:43,119

that they each look good before heading

1433

01:58:46,870 --> 01:58:45,040

out to the work site the team here in

1434

01:58:49,189 --> 01:58:46,880

mission control houston orbit two led by

1435

01:58:50,310 --> 01:58:49,199

flight director marcos flores uh leading

1436

01:58:51,990 --> 01:58:50,320

the teams here through today's

1437

01:58:54,310 --> 01:58:52,000

activities onboard the international

1438

01:58:55,589 --> 01:58:54,320

space station

1439

01:58:56,950 --> 01:58:55,599

can you

1440

01:58:58,950 --> 01:58:56,960

toward me some more so i can make sure

1441

01:59:00,310 --> 01:58:58,960

your hand control module the door is

1442

01:59:01,350 --> 01:59:00,320

closed

1443

01:59:04,310 --> 01:59:01,360

you've got

1444

01:59:06,070 --> 01:59:04,320

any workspaces two tabs brt

1445

01:59:09,350 --> 01:59:06,080

where is that brt third time you got

1446

01:59:13,430 --> 01:59:11,510

cool marcos flores lead flight director

1447

01:59:16,550 --> 01:59:13,440

taking the center of the screen there to

1448

01:59:18,790 --> 01:59:16,560

his right our left is frank rubio nasa

1449

01:59:21,109 --> 01:59:18,800

astronaut and the ground iv for today

1450

01:59:22,790 --> 01:59:21,119

it'll be his voice from here in mission

1451  
01:59:24,390 --> 01:59:22,800  
control houston that you'll be hearing

1452  
01:59:25,669 --> 01:59:24,400  
to our two space walking astronauts

1453  
01:59:27,270 --> 01:59:25,679  
today

1454  
01:59:28,870 --> 01:59:27,280  
behind floor is his art thomas and

1455  
01:59:30,629 --> 01:59:28,880  
spacewalk officer

1456  
01:59:31,990 --> 01:59:30,639  
working with his teams in the back room

1457  
01:59:34,070 --> 01:59:32,000  
knowing the procedures forwards and

1458  
01:59:35,830 --> 01:59:34,080  
backwards and he'll be walking the teams

1459  
01:59:38,149 --> 01:59:35,840  
through the intricate details of the

1460  
01:59:40,470 --> 01:59:38,159  
procedures today installing the

1461  
01:59:43,589 --> 01:59:40,480  
modification kit the brackets to the

1462  
01:59:45,510 --> 01:59:43,599  
mass canisters of the far port six truss

1463  
01:59:47,030 --> 01:59:45,520

rubens and glover still performing those

1464

01:59:48,390 --> 01:59:47,040

buddy checks before heading out to the

1465

01:59:50,550 --> 01:59:48,400

work site

1466

01:59:53,350 --> 01:59:50,560

okay we copy both good buddy checks for

1467

01:59:55,189 --> 01:59:53,360

both and dry hats kate also want to let

1468

02:00:02,149 --> 01:59:55,199

you know uh heca is coming through and

1469

02:00:05,910 --> 02:00:04,470

that's awesome congrats to the team it's

1470

02:00:08,709 --> 02:00:05,920

been a long work you guys are really

1471

02:00:11,990 --> 02:00:10,550

all right guys as we prepare for our

1472

02:00:13,990 --> 02:00:12,000

first translation i need to read you

1473

02:00:15,109 --> 02:00:14,000

this caution keep translation rates

1474

02:00:17,030 --> 02:00:15,119

below

1475

02:00:19,510 --> 02:00:17,040

zero decimal seven feet per second with

1476

02:00:21,350 --> 02:00:19,520

the strut bag on your brt and avoid

1477

02:00:29,270 --> 02:00:21,360

inadvertent contact with deployed tough

1478

02:00:33,350 --> 02:00:31,910

okay so ike you'll be translating first

1479

02:00:39,990 --> 02:00:33,360

heading out towards

1480

02:00:40,000 --> 02:00:57,350

all right kate i'll see you t6 all right

1481

02:00:57,360 --> 02:01:09,750

uh

1482

02:01:13,430 --> 02:01:11,189

this is mission control houston again

1483

02:01:15,990 --> 02:01:13,440

you are looking at a live view from the

1484

02:01:28,709 --> 02:01:16,000

mission control center uh international

1485

02:01:32,870 --> 02:01:31,589

uh the ground iv frank rubio you just

1486

02:01:35,350 --> 02:01:32,880

heard uh

1487

02:01:37,189 --> 02:01:35,360

giving the translation path to our

1488

02:01:39,189 --> 02:01:37,199

astronauts right now

1489

02:01:41,430 --> 02:01:39,199

they did their buddy checks uh on the

1490

02:01:42,550 --> 02:01:41,440

outside of the quest airlock everything

1491

02:01:45,189 --> 02:01:42,560

looked good their helmets were

1492

02:01:47,350 --> 02:01:45,199

configured the video systems turned on

1493

02:01:49,189 --> 02:01:47,360

and all their tools and the strut bags

1494

02:01:51,350 --> 02:01:49,199

are in tow now they have a

1495

02:01:54,229 --> 02:01:51,360

pre-designated translation path which

1496

02:01:56,310 --> 02:01:54,239

means they know uh the route to get to

1497

02:01:58,390 --> 02:01:56,320

their work site

1498

02:02:00,629 --> 02:01:58,400

they have to take a very specific path

1499

02:02:02,709 --> 02:02:00,639

through taking specific handrails to get

1500

02:02:05,669 --> 02:02:02,719

there along the way kate rubin's is

1501  
02:02:07,270 --> 02:02:05,679  
scheduled to pick up a portable foot

1502  
02:02:08,390 --> 02:02:07,280  
restraint to get her in position for

1503  
02:02:09,750 --> 02:02:08,400  
some of the work that she'll be

1504  
02:02:11,669 --> 02:02:09,760  
performing

1505  
02:02:12,950 --> 02:02:11,679  
also along the way once we regain some

1506  
02:02:15,109 --> 02:02:12,960  
of those views from the international

1507  
02:02:17,510 --> 02:02:15,119  
space station already have a spoiler

1508  
02:02:21,270 --> 02:02:17,520  
alert the the high definition camera

1509  
02:02:23,109 --> 02:02:21,280  
views from the uh helmet camera of kate

1510  
02:02:24,790 --> 02:02:23,119  
rubins are already coming in and looking

1511  
02:02:31,030 --> 02:02:24,800  
good so we'll be able to show those off

1512  
02:02:31,040 --> 02:03:05,669  
i don't want to views things like

1513  
02:03:05,679 --> 02:03:19,350

foreign

1514

02:03:23,109 --> 02:03:20,790

this is mission control houston again

1515

02:03:25,270 --> 02:03:23,119

this is one of the lengthier gaps that

1516

02:03:27,109 --> 02:03:25,280

we'll have from video downlink from the

1517

02:03:30,629 --> 02:03:27,119

international space station scheduled

1518

02:03:33,750 --> 02:03:32,149

still getting good audio from our

1519

02:03:37,030 --> 02:03:33,760

spacewalking astronauts who are making

1520

02:03:38,709 --> 02:03:37,040

their way out to the work site

1521

02:03:40,149 --> 02:03:38,719

it's on the far port truss of the

1522

02:03:42,229 --> 02:03:40,159

international space station they'll be

1523

02:03:43,350 --> 02:03:42,239

working on both of the mast canisters

1524

02:03:45,430 --> 02:03:43,360

out on

1525

02:03:47,669 --> 02:03:45,440

that work site the mast canisters are

1526

02:03:50,149 --> 02:03:47,679

the soda can looking fixtures that

1527

02:03:52,470 --> 02:03:50,159

originally deployed the solar arrays

1528

02:03:54,950 --> 02:03:52,480

that are out on the p6 now they'll be

1529

02:03:56,709 --> 02:03:54,960

installing a modification kit

1530

02:03:59,270 --> 02:03:56,719

a bracket if you will

1531

02:04:01,030 --> 02:03:59,280

that will hold a future set of solar

1532

02:04:03,350 --> 02:04:01,040

arrays that will augment the power on

1533

02:04:05,510 --> 02:04:03,360

the port 6 truss there are two power

1534

02:04:08,149 --> 02:04:05,520

channels out on the port 6 truss the 4b

1535

02:04:10,149 --> 02:04:08,159

and the 2b power channels the solar rays

1536

02:04:13,109 --> 02:04:10,159

will augment augment both of those

1537

02:04:13,119 --> 02:04:17,990

sounds good

1538

02:04:22,709 --> 02:04:20,870

again rubens and uh and glover both in

1539

02:04:55,750 --> 02:04:22,719

toe with the strut bags making their way

1540

02:05:00,229 --> 02:04:58,709

and our hand rules

1541

02:05:02,629 --> 02:05:00,239

okay all right you will be looking for

1542

02:05:32,870 --> 02:05:02,639

handrail 3651

1543

02:05:32,880 --> 02:05:38,870

foreign

1544

02:05:38,880 --> 02:05:58,709

so

1545

02:06:03,109 --> 02:06:00,790

let's confirm ev2's hook is going on

1546

02:06:05,270 --> 02:06:03,119

three 365 more

1547

02:06:07,910 --> 02:06:05,280

affirmative ev2 anchor hook on handrail

1548

02:06:12,229 --> 02:06:07,920

3651 that'll be the handrail that's more

1549

02:06:17,350 --> 02:06:16,149

okay 3651 eb2 anchor hook locked get

1550

02:06:19,350 --> 02:06:17,360

closed

1551

02:06:23,589 --> 02:06:19,360

it's all black good full test real

1552

02:06:27,510 --> 02:06:25,669

my lowly leading strap hook is locked to

1553

02:06:30,310 --> 02:06:27,520

my right earring extend drive okay take

1554

02:06:31,910 --> 02:06:30,320

each other chain

1555

02:06:35,910 --> 02:06:31,920

i'm going to rip the cape silicon then

1556

02:06:41,270 --> 02:06:38,229

likely copy all that's a good config for

1557

02:06:42,310 --> 02:06:41,280

your anchor hook and affirmative 3652

1558

02:06:50,069 --> 02:06:42,320

for

1559

02:06:53,830 --> 02:06:51,990

again rubens and glover making their way

1560

02:06:55,990 --> 02:06:53,840

out to the work site along the way they

1561

02:06:57,750 --> 02:06:56,000

are tethered as they make their way out

1562

02:06:59,189 --> 02:06:57,760

to the work site making sure they're

1563

02:07:00,790 --> 02:06:59,199

connected to the international space

1564

02:07:02,470 --> 02:07:00,800

station at all times

1565

02:07:03,990 --> 02:07:02,480

glover just confirming that he has one

1566

02:07:06,709 --> 02:07:04,000

of his safety tethers along his

1567

02:07:08,870 --> 02:07:06,719

pre-identified route into connected and

1568

02:07:10,470 --> 02:07:08,880

it looks good so he's uh he's got that

1569

02:07:13,350 --> 02:07:10,480

all set up and he's going to continue

1570

02:07:15,669 --> 02:07:13,360

over to the work site again p6 trust one

1571

02:07:21,750 --> 02:07:15,679

of the one of the uh

1572

02:07:38,709 --> 02:07:24,310

is removed

1573

02:07:42,310 --> 02:07:40,709

and that is a good config for kate's

1574

02:07:44,229 --> 02:07:42,320

anchor hook

1575

02:07:45,669 --> 02:07:44,239

okay you can release your race tether

1576

02:07:48,069 --> 02:07:45,679

from the airlock

1577

02:08:12,550 --> 02:07:48,079

race tether and close the hatch thermal

1578

02:08:16,310 --> 02:08:14,390

again both astronauts are mainly working

1579

02:08:18,390 --> 02:08:16,320

on tether configuration now and

1580

02:08:20,629 --> 02:08:18,400

identifying their translation paths

1581

02:08:22,310 --> 02:08:20,639

from a handover

1582

02:08:24,950 --> 02:08:22,320

spike you will be translating out

1583

02:08:27,669 --> 02:08:24,960

towards p6 and ku will be translating

1584

02:08:30,629 --> 02:08:27,679

towards p5

1585

02:08:32,310 --> 02:08:30,639

a quick warning both t4 pgas are

1586

02:08:38,980 --> 02:08:32,320

rotating so avoid contact with the

1587

02:08:38,990 --> 02:08:45,910

[Music]

1588

02:08:50,149 --> 02:08:48,069

and just before the 20-second handover

1589

02:08:51,990 --> 02:08:50,159

period uh reuben's confirming that the

1590

02:08:53,830 --> 02:08:52,000

thermal cover is closed before she

1591

02:08:56,870 --> 02:08:53,840

begins her translation path just making

1592

02:08:58,229 --> 02:08:56,880

sure the quest airlock is all sealed up

1593

02:09:00,550 --> 02:08:58,239

and the thermal cover is over to

1594

02:09:02,629 --> 02:09:00,560

maintain the temperature inside of the

1595

02:09:04,629 --> 02:09:02,639

crew lock

1596

02:09:07,109 --> 02:09:04,639

glover uh making his way through the

1597

02:09:08,950 --> 02:09:07,119

translation path pre-identified and and

1598

02:09:11,030 --> 02:09:08,960

hooking up his safety tethers along the

1599

02:09:13,830 --> 02:09:11,040

way

1600

02:09:15,750 --> 02:09:13,840

kate rubins will follow soon uh

1601  
02:09:21,990 --> 02:09:15,760  
after and again she's scheduled to pick

1602  
02:09:26,149 --> 02:09:24,470  
we should be regaining video and audio

1603  
02:09:42,390 --> 02:09:26,159  
communication from the space station

1604  
02:09:46,950 --> 02:09:45,030  
and with that we're getting views of uh

1605  
02:09:49,189 --> 02:09:46,960  
from station once again this is kate

1606  
02:09:50,470 --> 02:09:49,199  
rubins who just configured

1607  
02:09:52,550 --> 02:09:50,480  
the uh

1608  
02:09:54,709 --> 02:09:52,560  
station's airlock and is now heading

1609  
02:09:57,270 --> 02:09:54,719  
over to her work site right here you're

1610  
02:09:59,510 --> 02:09:57,280  
looking at the view from the heka camera

1611  
02:10:01,910 --> 02:09:59,520  
the high definition view on the helmet

1612  
02:10:03,990 --> 02:10:01,920  
camera of kate rubins the first

1613  
02:10:05,350 --> 02:10:04,000

high definition wide angle view from the

1614

02:10:07,669 --> 02:10:05,360

spacesuit

1615

02:10:14,470 --> 02:10:07,679

live streamed uh for

1616

02:10:18,390 --> 02:10:16,149

i am at the sarge

1617

02:10:39,109 --> 02:10:18,400

my gauntlets are in place

1618

02:10:42,870 --> 02:10:40,870

yeah okay crossing the start that

1619

02:10:44,229 --> 02:10:42,880

structure outboard there's a thinner

1620

02:10:45,350 --> 02:10:44,239

diameter

1621

02:10:47,030 --> 02:10:45,360

uh

1622

02:10:49,990 --> 02:10:47,040

phrase that i think is the easiest one

1623

02:10:52,870 --> 02:10:50,000

to translate it forward

1624

02:10:57,270 --> 02:10:52,880

it's obviously the smallest one

1625

02:11:00,310 --> 02:10:58,629

and like as you prepare to go outboard

1626  
02:11:02,709 --> 02:11:00,320  
of the serge uh verify your gauntlets

1627  
02:11:05,750 --> 02:11:02,719  
are in place

1628  
02:11:06,709 --> 02:11:05,760  
my doll is working please

1629  
02:11:08,870 --> 02:11:06,719  
copy

1630  
02:11:11,510 --> 02:11:08,880  
and you will continue on the inator path

1631  
02:11:15,990 --> 02:11:11,520  
on phase one like you're looking for

1632  
02:11:16,000 --> 02:11:25,589  
three zero nine

1633  
02:11:29,910 --> 02:11:27,350  
some fantastic views from the high

1634  
02:11:33,910 --> 02:11:29,920  
definition view of kate rubin's helmet

1635  
02:11:35,750 --> 02:11:33,920  
camera still in an orbital day pass

1636  
02:11:37,189 --> 02:11:35,760  
over the south indian ocean right now

1637  
02:11:39,270 --> 02:11:37,199  
we're about to head into an orbital

1638  
02:11:41,189 --> 02:11:39,280

night time both the astronauts making

1639

02:11:44,149 --> 02:11:41,199

their way out to the work site with the

1640

02:11:46,950 --> 02:11:44,159

strut bags in tow you can see they're

1641

02:11:51,109 --> 02:11:46,960

quite large held by the body receipt

1642

02:11:55,189 --> 02:11:53,030

this is a view from one of the external

1643

02:11:56,870 --> 02:11:55,199

high definition cameras towards kate

1644

02:11:59,990 --> 02:11:56,880

rubins again she's wearing the suit with

1645

02:12:01,990 --> 02:12:00,000

the red stripes

1646

02:12:04,550 --> 02:12:02,000

glover is a bit ahead of her got a head

1647

02:12:06,390 --> 02:12:04,560

start on his way to the work site once

1648

02:12:08,069 --> 02:12:06,400

he's there uh

1649

02:12:10,550 --> 02:12:08,079

checking his safety tethers along the

1650

02:12:13,510 --> 02:12:10,560

way uh one of his first tasks is to go

1651  
02:12:15,430 --> 02:12:13,520  
ahead and stow that large strut bag each

1652  
02:12:16,870 --> 02:12:15,440  
of them has a strut bag in tow for the

1653  
02:12:18,390 --> 02:12:16,880  
two mast canisters that they'll be

1654  
02:12:21,350 --> 02:12:18,400  
working on the 2b

1655  
02:12:23,189 --> 02:12:21,360  
and the 4b on the nader and um and

1656  
02:12:26,390 --> 02:12:23,199  
zenith facing side earth facing and

1657  
02:12:28,790 --> 02:12:26,400  
space facing uh each of them has a has a

1658  
02:12:31,109 --> 02:12:28,800  
modification kit for each of the mast

1659  
02:12:33,030 --> 02:12:31,119  
canisters out there there are two

1660  
02:13:06,629 --> 02:12:33,040  
the first work on the 2b channel which

1661  
02:13:06,639 --> 02:13:31,430  
happy

1662  
02:13:36,149 --> 02:13:32,870  
all right thank them at my green hook

1663  
02:13:51,589 --> 02:13:36,159

location five three zero nine

1664

02:13:51,599 --> 02:13:57,990

all right you have to see the card

1665

02:13:58,000 --> 02:14:06,229

i see your feet

1666

02:14:13,030 --> 02:14:08,310

okay my green hooks let me start with

1667

02:14:17,030 --> 02:14:14,790

copyright you'll continue to translate

1668

02:14:19,109 --> 02:14:17,040

to the two bravo iea

1669

02:14:21,910 --> 02:14:19,119

remember the warning about the

1670

02:14:32,229 --> 02:14:21,920

sharp edge hazard on the ticker sticker

1671

02:14:37,669 --> 02:14:34,790

what you're seeing now is uh the helmet

1672

02:14:40,390 --> 02:14:37,679

camera views both standard definition

1673

02:14:42,310 --> 02:14:40,400

and high definition from the helmet

1674

02:14:44,310 --> 02:14:42,320

camera of kate rubins you can see the

1675

02:14:47,430 --> 02:14:44,320

high definition views on the right and

1676

02:14:48,950 --> 02:14:47,440

the standard definition on the left

1677

02:14:50,950 --> 02:14:48,960

we'll get some great coverage of the

1678

02:14:52,629 --> 02:14:50,960

high definition views the wireless

1679

02:14:55,430 --> 02:14:52,639

interface connecting

1680

02:14:57,189 --> 02:14:55,440

along the translation path to the work

1681

02:14:58,950 --> 02:14:57,199

site once we get out to the work site

1682

02:15:00,629 --> 02:14:58,960

and might be a little spotty so we might

1683

02:15:02,950 --> 02:15:00,639

have to rely on the standard definition

1684

02:15:04,390 --> 02:15:02,960

views but you can see quite a start

1685

02:15:07,510 --> 02:15:04,400

stark difference between the high

1686

02:15:09,830 --> 02:15:07,520

definition and standard definition

1687

02:15:17,830 --> 02:15:09,840

rubens made her way to the portable foot

1688

02:15:28,870 --> 02:15:19,030

and guys you've probably seen we're

1689

02:15:34,069 --> 02:15:31,990

okay you'll be heading out to where i am

1690

02:15:35,669 --> 02:15:34,079

green hook is and that's the trunnion

1691

02:15:38,470 --> 02:15:35,679

where you'll head

1692

02:15:45,189 --> 02:15:41,510

happy and i am

1693

02:15:45,199 --> 02:15:52,790

thank you

1694

02:15:55,830 --> 02:15:54,550

yeah kate there's no mile markers out

1695

02:15:58,310 --> 02:15:55,840

there um

1696

02:16:00,790 --> 02:15:58,320

you should be able to see ike's green

1697

02:16:07,510 --> 02:16:03,270

and the trunnion uh structure that's

1698

02:16:07,520 --> 02:16:09,990

thank you

1699

02:16:10,000 --> 02:16:13,510

so much

1700

02:16:17,030 --> 02:16:14,950

okay right you'll be looking for

1701

02:16:19,189 --> 02:16:17,040

handrails 5305

1702

02:16:20,950 --> 02:16:19,199

through five three zero seven to stow

1703

02:16:23,030 --> 02:16:20,960

the strut bag

1704

02:16:24,870 --> 02:16:23,040

remember that you want the tape towards

1705

02:16:26,069 --> 02:16:24,880

ice

1706

02:16:27,350 --> 02:16:26,079

you want the tape towards the mass

1707

02:16:30,229 --> 02:16:27,360

canister and the hand rail towards the

1708

02:16:38,309 --> 02:16:33,270

and work on the fight 305 this

1709

02:16:42,469 --> 02:16:40,469

as astronaut mike uh

1710

02:16:45,030 --> 02:16:42,479

victor glover out at the work site

1711

02:16:48,709 --> 02:16:45,040

already he's got one of these strut bags

1712

02:16:51,110 --> 02:16:48,719

in tow so it's his job to stow the strut

1713

02:16:53,509 --> 02:16:51,120

bag at the work site where rubens and

1714

02:16:54,629 --> 02:16:53,519

glover will work together first so he is

1715

02:16:56,389 --> 02:16:54,639

stowing it

1716

02:16:58,070 --> 02:16:56,399

you can see on the

1717

02:17:00,469 --> 02:16:58,080

integrated electronics assembly where

1718

02:17:02,709 --> 02:17:00,479

the lithium ion batteries are positioned

1719

02:17:04,389 --> 02:17:02,719

on the 2b power channel

1720

02:17:07,830 --> 02:17:04,399

that'll be the temporary stow position

1721

02:17:09,910 --> 02:17:07,840

to allow rubens and glover both to start

1722

02:17:12,389 --> 02:17:09,920

putting these struts together and

1723

02:17:13,429 --> 02:17:12,399

eventually construct the modification

1724

02:17:15,509 --> 02:17:13,439

kit

1725

02:17:17,990 --> 02:17:15,519

in the meantime rubens is on her way to

1726

02:17:19,429 --> 02:17:18,000

the zenith side the 4b side she's going

1727

02:17:21,910 --> 02:17:19,439

to stow her

1728

02:17:23,750 --> 02:17:21,920

strut bag first put that in place and

1729

02:17:25,190 --> 02:17:23,760

that will be the next mass canister that

1730

02:17:26,709 --> 02:17:25,200

they'll be working on

1731

02:17:28,549 --> 02:17:26,719

she'll stow that in place and then go

1732

02:17:31,509 --> 02:17:28,559

ahead and sweep back along her

1733

02:17:33,750 --> 02:17:31,519

translation path and grab the portable

1734

02:17:36,070 --> 02:17:33,760

foot restraint she'll need that for some

1735

02:17:39,110 --> 02:17:36,080

of the upcoming tasks to get a good

1736

02:17:40,389 --> 02:17:39,120

angle on some of the installation tasks

1737

02:17:42,469 --> 02:17:40,399

that she has

1738

02:17:47,270 --> 02:17:42,479

for installing that mod kit to the mod

1739

02:17:47,280 --> 02:17:53,270

okay

1740

02:18:19,990 --> 02:17:55,270

copy and that's affirmative case 5311

1741

02:18:24,549 --> 02:18:22,549

you can see the views from the high

1742

02:18:27,110 --> 02:18:24,559

definition camera view

1743

02:18:29,669 --> 02:18:27,120

of kate rubin start to get a little bit

1744

02:18:31,589 --> 02:18:29,679

dimmer you see off on the horizon there

1745

02:18:34,309 --> 02:18:31,599

an orbital sunset the international

1746

02:18:35,429 --> 02:18:34,319

space station is currently 270 statute

1747

02:18:37,270 --> 02:18:35,439

miles

1748

02:18:38,389 --> 02:18:37,280

just south of australia on a

1749

02:18:43,030 --> 02:18:38,399

northeastern

1750

02:18:49,270 --> 02:18:44,790

we complicate and you'll continue

1751  
02:18:53,669 --> 02:18:51,830  
if you and the fog teller needs to go

1752  
02:19:05,429 --> 02:18:53,679  
underwrite

1753  
02:19:09,509 --> 02:19:07,509  
like after you secure the bag you'll

1754  
02:20:01,910 --> 02:19:09,519  
open and secure the lid using the

1755  
02:20:06,389 --> 02:20:03,830  
this is the helmet camera view from

1756  
02:20:07,270 --> 02:20:06,399  
victor glover who is securing the strut

1757  
02:20:10,469 --> 02:20:07,280  
bag

1758  
02:20:12,710 --> 02:20:10,479  
modification kit inside of it just

1759  
02:20:15,670 --> 02:20:12,720  
making sure it's in a good configuration

1760  
02:20:16,710 --> 02:20:15,680  
nice stowed tight and ready to open up

1761  
02:20:21,030 --> 02:20:16,720  
and start working with some of the

1762  
02:20:21,040 --> 02:20:26,630  
here

1763  
02:20:30,389 --> 02:20:28,870

and kate you'll also have the tape

1764

02:20:44,230 --> 02:20:30,399

towards the mass canister and the

1765

02:20:48,950 --> 02:20:46,469

rubens has arrived at her stowing

1766

02:20:50,950 --> 02:20:48,960

position she's on the other side of the

1767

02:20:52,870 --> 02:20:50,960

port six truss on the zenith side this

1768

02:20:54,870 --> 02:20:52,880

faces towards space that'll be the

1769

02:20:56,870 --> 02:20:54,880

second work site for today she's got the

1770

02:20:59,270 --> 02:20:56,880

strut bag in tow and she'll be doing

1771

02:21:02,309 --> 02:20:59,280

exactly what we see uh glover doing now

1772

02:21:06,150 --> 02:21:02,319

just uh stowing the strut bag in place

1773

02:21:11,910 --> 02:21:09,349

this secures it to the truss itself from

1774

02:21:14,309 --> 02:21:11,920

there glover can open up the bag and

1775

02:21:16,710 --> 02:21:14,319

start constructing some of the pieces in

1776

02:21:18,630 --> 02:21:16,720

the meantime rubens is on the other side

1777

02:21:21,349 --> 02:21:18,640

she'll be temporarily stowing her strut

1778

02:21:25,349 --> 02:21:23,349

yep you'll want to have the tape towards

1779

02:21:35,030 --> 02:21:25,359

the mass canister and the handrail

1780

02:21:38,389 --> 02:21:36,630

and same

1781

02:22:04,389 --> 02:21:38,399

or well the tape is toward the mass

1782

02:22:04,399 --> 02:22:27,030

uh

1783

02:23:12,870 --> 02:22:51,670

um

1784

02:23:16,950 --> 02:23:14,950

glover already opening up the strut bag

1785

02:23:18,870 --> 02:23:16,960

that bag specially designed to hold

1786

02:23:20,870 --> 02:23:18,880

those struts all the struts themselves

1787

02:23:23,590 --> 02:23:20,880

are secured in place

1788

02:23:32,230 --> 02:23:23,600

to allow glover and rubens to work on

1789

02:23:37,750 --> 02:23:35,429

after rubin's uh it stows her bag on the

1790

02:23:39,190 --> 02:23:37,760

other side of the port 6 truss she's

1791

02:23:41,190 --> 02:23:39,200

going to go ahead and grab one of the

1792

02:23:43,190 --> 02:23:41,200

foot restraints

1793

02:23:47,270 --> 02:23:43,200

at 53.50

1794

02:23:52,790 --> 02:23:49,590

okay uh we copy kate and you'll be

1795

02:23:56,550 --> 02:23:52,800

heading back towards the port cedar cart

1796

02:23:58,950 --> 02:23:56,560

to pick up the uh webfx and apfr

1797

02:24:04,150 --> 02:23:58,960

oh okay got it

1798

02:24:07,030 --> 02:24:05,590

reuben's still uh wrapping up her

1799

02:24:11,830 --> 02:24:07,040

stowing procedures making sure that

1800

02:24:11,840 --> 02:24:36,790

before you start the assembly

1801  
02:24:39,910 --> 02:24:38,550  
you'll hear that task quite a bit

1802  
02:24:41,910 --> 02:24:39,920  
throughout today's spacewalk it's called

1803  
02:24:45,030 --> 02:24:41,920  
the glove and hap check just making sure

1804  
02:24:45,750 --> 02:24:45,040  
that there are no scrapes or scars on

1805  
02:24:46,550 --> 02:24:45,760  
the

1806  
02:24:47,910 --> 02:24:46,560  
uh

1807  
02:24:49,349 --> 02:24:47,920  
on the gloves that they'll be working

1808  
02:24:51,030 --> 02:24:49,359  
with mostly working with their hands

1809  
02:24:53,110 --> 02:24:51,040  
today constructing the struts and using

1810  
02:24:54,950 --> 02:24:53,120  
the pistol grip tool and the ham is a

1811  
02:24:56,389 --> 02:24:54,960  
helmet absorption pad just making sure

1812  
02:24:58,070 --> 02:24:56,399  
that that's dry

1813  
02:24:59,910 --> 02:24:58,080

that's what they're wearing on their on

1814

02:25:02,070 --> 02:24:59,920

their head right now

1815

02:25:03,590 --> 02:25:02,080

they'll perform those periodic checks

1816

02:25:05,270 --> 02:25:03,600

throughout today's spacewalk make sure

1817

02:25:13,590 --> 02:25:05,280

everything is okay before they continue

1818

02:26:00,230 --> 02:25:44,790

okay

1819

02:26:00,240 --> 02:26:15,429

time

1820

02:26:18,950 --> 02:26:17,110

the view you're getting now is helmet

1821

02:26:22,230 --> 02:26:18,960

camera 20 anytime you see that

1822

02:26:23,670 --> 02:26:22,240

translucent number on the bottom right

1823

02:26:34,389 --> 02:26:23,680

that is the helmet camera of victor

1824

02:26:39,349 --> 02:26:36,710

like uh that should be okay if

1825

02:26:59,270 --> 02:26:39,359

you feel that's a good place to uh

1826  
02:26:59,280 --> 02:28:02,469  
this

1827  
02:28:05,830 --> 02:28:03,510  
okay

1828  
02:28:07,910 --> 02:28:05,840  
the bag is in place

1829  
02:28:15,590 --> 02:28:07,920  
my hat is

1830  
02:28:15,600 --> 02:28:34,710  
copy happened

1831  
02:28:34,720 --> 02:28:50,070  
my gloves are still like new no changes

1832  
02:28:50,080 --> 02:29:05,110  
that's a good glove and hap check

1833  
02:29:10,150 --> 02:29:08,150  
okay those are good checks for you right

1834  
02:29:11,510 --> 02:29:10,160  
uh kate you doing okay before we start

1835  
02:29:14,230 --> 02:29:11,520  
the

1836  
02:29:15,270 --> 02:29:14,240  
bracket assembly

1837  
02:29:19,590 --> 02:29:15,280  
i am

1838  
02:29:25,190 --> 02:29:23,110

okay we have the road

1839

02:29:27,429 --> 02:29:25,200

tape towards the nest genister

1840

02:29:29,670 --> 02:29:27,439

and rail is uh

1841

02:29:31,349 --> 02:29:29,680

really pointing a little bit more nader

1842

02:29:35,510 --> 02:29:31,359

but also asked

1843

02:29:39,429 --> 02:29:37,270

okay uh

1844

02:29:42,070 --> 02:29:39,439

copykate so we will go pick up the apfr

1845

02:29:44,230 --> 02:29:42,080

and wifex you're gonna head

1846

02:29:45,429 --> 02:29:44,240

nader on the same front instructor that

1847

02:29:47,030 --> 02:29:45,439

you came up on

1848

02:29:55,110 --> 02:29:47,040

and just take care not to loop your

1849

02:30:03,990 --> 02:29:55,910

mike

1850

02:30:07,910 --> 02:30:05,910

okay you'll first want to retrieve the

1851  
02:30:09,910 --> 02:30:07,920  
mounting bracket

1852  
02:30:12,469 --> 02:30:09,920  
and we'll be attaching the right upper

1853  
02:30:15,590 --> 02:30:12,479  
strut which should be uh straps one and

1854  
02:30:20,309 --> 02:30:16,870  
feet back for you while i'm thinking

1855  
02:30:22,070 --> 02:30:20,319  
about it our plan to minimize red swaps

1856  
02:30:24,150 --> 02:30:22,080  
wants to take the mounting bracket away

1857  
02:30:25,830 --> 02:30:24,160  
from me so since the red is stretched

1858  
02:30:27,750 --> 02:30:25,840  
out and it's you know pulling to the

1859  
02:30:30,070 --> 02:30:27,760  
left it wants to take the mounting

1860  
02:30:31,110 --> 02:30:30,080  
bracket to the outward edge of the high

1861  
02:30:33,429 --> 02:30:31,120  
ear

1862  
02:30:35,510 --> 02:30:33,439  
which uh that's not a huge deal but i

1863  
02:30:37,110 --> 02:30:35,520

think i'd almost rather do the red swap

1864

02:30:39,190 --> 02:30:37,120

so i can have a test stable while i'm

1865

02:30:43,190 --> 02:30:39,200

doing the uh work i'm gonna lock that

1866

02:30:51,110 --> 02:30:45,030

okay we caught the hike and it sounds

1867

02:30:55,030 --> 02:30:52,309

i think

1868

02:30:56,550 --> 02:30:55,040

that's the mounting bracket

1869

02:30:57,670 --> 02:30:56,560

okay next you'll retrieve the right

1870

02:31:01,590 --> 02:30:57,680

upper strut

1871

02:31:06,550 --> 02:31:03,910

bath bombs open

1872

02:31:06,560 --> 02:31:12,309

the right of wish drill

1873

02:31:17,429 --> 02:31:13,590

what you're seeing now is the helmet

1874

02:31:20,230 --> 02:31:17,439

camera view from victor glover he's uh

1875

02:31:22,950 --> 02:31:20,240

inside the strut bag now and uh while

1876  
02:31:24,870 --> 02:31:22,960  
kate rubins is going to grab a portable

1877  
02:31:26,950 --> 02:31:24,880  
foot restraint so she gets a good angle

1878  
02:31:29,110 --> 02:31:26,960  
on some of the work that both glover and

1879  
02:31:30,870 --> 02:31:29,120  
rubens have ahead of them glover's going

1880  
02:31:33,990 --> 02:31:30,880  
to go ahead and get a head start he's

1881  
02:31:35,110 --> 02:31:34,000  
already starting to construct the part

1882  
02:31:36,550 --> 02:31:35,120  
one part

1883  
02:31:39,510 --> 02:31:36,560  
it's called the triangle it's on the

1884  
02:31:41,429 --> 02:31:39,520  
very top portion of the configuration of

1885  
02:31:42,790 --> 02:31:41,439  
the modification kit so he's going to

1886  
02:31:45,349 --> 02:31:42,800  
get a head start and start putting that

1887  
02:31:51,910 --> 02:31:45,359  
together while kate rubins goes and

1888  
02:31:51,920 --> 02:31:56,630

upper right to the bracket first

1889

02:32:02,550 --> 02:32:01,030

that's affirmative hike and uh i have

1890

02:32:06,389 --> 02:32:02,560

pgc settings for you when you're ready

1891

02:32:06,399 --> 02:32:17,830

yep

1892

02:32:20,469 --> 02:32:18,870

and friends

1893

02:32:35,830 --> 02:32:20,479

do you want me to go inboard of the

1894

02:32:39,750 --> 02:32:37,190

you may want to go outboard of the

1895

02:32:50,950 --> 02:32:39,760

trunnion and just follow your tether

1896

02:32:54,790 --> 02:32:53,190

and kate uh inboard or outboard doesn't

1897

02:32:56,630 --> 02:32:54,800

really matter whatever it works easier

1898

02:33:09,910 --> 02:32:56,640

for you as long as your safety tether

1899

02:33:13,750 --> 02:33:11,910

translating the translation path for the

1900

02:33:15,270 --> 02:33:13,760

astronauts is critical making sure that

1901

02:33:19,110 --> 02:33:15,280

they're following their safety tethers

1902

02:33:21,510 --> 02:33:19,120

along the way and avoiding any uh

1903

02:33:22,950 --> 02:33:21,520

and avoiding any specific areas of the

1904

02:33:24,790 --> 02:33:22,960

station's truss

1905

02:33:26,389 --> 02:33:24,800

again rubens is on her way to grab a

1906

02:33:28,230 --> 02:33:26,399

foot restraint what you're seeing now is

1907

02:33:30,790 --> 02:33:28,240

the helmet camera view

1908

02:33:32,710 --> 02:33:30,800

of victor glover who's already starting

1909

02:33:38,870 --> 02:33:32,720

on putting together some of the pieces

1910

02:33:43,110 --> 02:33:41,190

okay frank i started in 13 and 14 by

1911

02:33:48,150 --> 02:33:43,120

hand i got two turns

1912

02:33:53,270 --> 02:33:50,630

uh we copy good job on that ike so your

1913

02:33:57,590 --> 02:33:53,280

pgt settings on the short pgt will be

1914

02:34:12,550 --> 02:33:57,600

bravo three clockwise two

1915

02:34:15,830 --> 02:34:14,309

they call the past

1916

02:34:17,830 --> 02:34:15,840

you

1917

02:34:20,070 --> 02:34:17,840

and bravo threes

1918

02:34:21,429 --> 02:34:20,080

clockwise two that's it

1919

02:34:23,830 --> 02:34:21,439

affirmative those are good settings

1920

02:34:25,429 --> 02:34:23,840

bravo three clockwise two and you'll be

1921

02:34:30,870 --> 02:34:25,439

looking for two additional turns for a

1922

02:34:44,469 --> 02:34:34,150

four turns total to additional

1923

02:34:58,790 --> 02:34:46,230

okay you'll be looking for cedar part

1924

02:35:06,150 --> 02:35:00,469

okay there are four total turns two

1925

02:35:06,160 --> 02:35:11,270

four turns total on fourteen as well

1926

02:35:11,280 --> 02:35:16,309

okay we copy that ike next we'll be

1927

02:35:19,830 --> 02:35:17,990

adding the left upper strut to the

1928

02:35:31,190 --> 02:35:19,840

center pad so you'll retrieve the left

1929

02:35:35,110 --> 02:35:33,270

lover making good progress on uh

1930

02:35:37,910 --> 02:35:35,120

constructing the first parts of the

1931

02:35:39,750 --> 02:35:37,920

modification kit he's constructing a

1932

02:35:42,790 --> 02:35:39,760

triangle that will make up the top

1933

02:35:45,510 --> 02:35:42,800

portion of the bracket

1934

02:35:47,670 --> 02:35:45,520

all the components and struts in the bag

1935

02:35:49,510 --> 02:35:47,680

were are specially tied down the bag

1936

02:35:51,910 --> 02:35:49,520

itself specially designed to carry all

1937

02:35:54,070 --> 02:35:51,920

of the different struts

1938

02:35:56,070 --> 02:35:54,080

rubio franco rubio here on the ground

1939

02:35:59,190 --> 02:35:56,080

the ground iv he's the voice you're

1940

02:36:01,270 --> 02:35:59,200

hearing from here in mission control uh

1941

02:36:03,110 --> 02:36:01,280

just noting all the different locations

1942

02:36:04,870 --> 02:36:03,120

uh where he can find the various struts

1943

02:36:06,230 --> 02:36:04,880

to assemble the correct

1944

02:36:08,389 --> 02:36:06,240

components

1945

02:36:10,070 --> 02:36:08,399

preparing for when rubens returns with

1946

02:36:12,790 --> 02:36:10,080

the portable foot restraint to begin

1947

02:36:37,910 --> 02:36:12,800

some of the first steps of installing

1948

02:36:44,469 --> 02:36:39,750

all right frank i'm not the cedar crew i

1949

02:36:49,030 --> 02:36:46,790

copy kate we see you at the cedar cart

1950

02:36:51,510 --> 02:36:49,040

uh kate real quick we've lost your hecka

1951

02:36:52,309 --> 02:36:51,520

if you're able to cycle the button for

1952

02:36:55,670 --> 02:36:52,319

us

1953

02:37:10,870 --> 02:36:58,630

okay

1954

02:37:21,190 --> 02:37:13,190

um i'll set it when i'm out there

1955

02:37:29,030 --> 02:37:22,309

unless you guys recommend for

1956

02:37:32,790 --> 02:37:30,630

yeah kate it's your preference whether

1957

02:37:42,550 --> 02:37:32,800

you want to set it here or set it out

1958

02:37:50,630 --> 02:37:44,830

what do you think i've got two turns on

1959

02:37:54,150 --> 02:37:52,070

okay copying

1960

02:37:56,230 --> 02:37:54,160

again you'll be using your short pgt

1961

02:38:02,389 --> 02:37:56,240

your settings now are bravo one

1962

02:38:02,399 --> 02:38:07,830

for over one this time

1963

02:38:12,950 --> 02:38:10,710

and you'll be driving mic 17 to torque

1964

02:38:16,630 --> 02:38:12,960

we're expecting about 15 turns so it

1965

02:38:25,990 --> 02:38:18,389

i'll be about 15 additional turns to

1966

02:38:30,070 --> 02:38:27,830

i'm going to try and embrace the tool

1967

02:38:32,309 --> 02:38:30,080

against the structure so that way

1968

02:38:33,910 --> 02:38:32,319

i can react to my pvp but the bracket

1969

02:38:36,389 --> 02:38:33,920

will still move so i'm going to use the

1970

02:38:40,230 --> 02:38:36,399

tool to stabilize my pct and that way

1971

02:38:47,270 --> 02:38:42,309

okay we copy and uh we're good with that

1972

02:38:50,550 --> 02:38:49,110

glover making good progress on

1973

02:38:52,230 --> 02:38:50,560

constructing what's called the upper

1974

02:38:53,429 --> 02:38:52,240

triangle this is the top portion that

1975

02:38:55,349 --> 02:38:53,439

makes up the

1976

02:38:58,150 --> 02:38:55,359

bracket the modification kit that will

1977

02:39:00,309 --> 02:38:58,160

hold a future set of solar arrays he got

1978

02:39:01,830 --> 02:39:00,319

the bolt's hand started and is now just

1979

02:39:03,910 --> 02:39:01,840

finishing up the job with his pistol

1980

02:39:09,190 --> 02:39:03,920

grip tool the space

1981

02:39:13,750 --> 02:39:10,790

got a black drill that's flush if you

1982

02:39:15,190 --> 02:39:13,760

can see my wbs i can see the bolt head

1983

02:39:17,270 --> 02:39:15,200

with the black line flush in the tip of

1984

02:39:20,230 --> 02:39:17,280

the bolt out the back side

1985

02:39:20,240 --> 02:39:26,950

see that okay we copy it we're checking

1986

02:39:33,110 --> 02:39:28,630

we can see it yep we're just checking

1987

02:39:37,429 --> 02:39:34,710

so i understand you had a total of seven

1988

02:39:37,439 --> 02:39:53,030

correct

1989

02:39:58,630 --> 02:39:54,790

and also for a data point it looks like

1990

02:39:58,640 --> 02:40:22,000

okay we copy

1991

02:40:25,510 --> 02:40:23,190

[Music]

1992

02:40:27,110 --> 02:40:25,520

okay pike we're going to uh continue

1993

02:40:28,469 --> 02:40:27,120

checking on this boat but we're going to

1994

02:40:32,710 --> 02:40:28,479

go ahead and move on so you can release

1995

02:40:37,750 --> 02:40:34,070

i'll do that after i'm done with still

1996

02:40:41,910 --> 02:40:40,309

okay that sounds good uh so we will next

1997

02:40:44,950 --> 02:40:41,920

assemble the leftover structure the

1998

02:40:49,269 --> 02:40:45,910

here

1999

02:40:51,510 --> 02:40:49,279

two turns by hand

2000

02:40:53,429 --> 02:40:51,520

okay great good job so you'll want to

2001

02:40:55,670 --> 02:40:53,439

drive mic 15

2002

02:40:57,190 --> 02:40:55,680

for a total of four turns

2003

02:40:59,429 --> 02:40:57,200

this will be two additional turns and

2004

02:41:03,429 --> 02:40:59,439

your settings are bravo three clockwise

2005

02:41:08,469 --> 02:41:06,550

did you see bravo three clockwise two

2006

02:41:10,790 --> 02:41:08,479

additional turns on

2007

02:41:13,349 --> 02:41:10,800

just one of them

2008

02:41:25,429 --> 02:41:13,359

yep so you'll drive mic 15 for four

2009

02:41:31,750 --> 02:41:27,750

okay we copy and now you will drive mic

2010

02:41:35,190 --> 02:41:31,760

16 to torque we anticipate 24 turns so

2011

02:41:35,200 --> 02:41:47,830

the 22 additional turn 16 the torque

2012

02:41:52,389 --> 02:41:50,870

again glover continuing to assemble that

2013

02:41:54,389 --> 02:41:52,399

upper triangle

2014

02:41:56,070 --> 02:41:54,399

the bracket that will consist the top

2015

02:41:58,230 --> 02:41:56,080

portion of the modification kit for

2016

02:42:00,230 --> 02:41:58,240

future solar rays in the meantime we're

2017

02:42:02,150 --> 02:42:00,240

getting those high definition views from

2018

02:42:03,110 --> 02:42:02,160

the helmet camera of kate rubins looks

2019

02:42:05,510 --> 02:42:03,120

like she

2020

02:42:07,269 --> 02:42:05,520

got the portable foot restraint out of

2021

02:42:09,030 --> 02:42:07,279

its stowed position

2022

02:42:11,030 --> 02:42:09,040

she's going to

2023

02:42:12,790 --> 02:42:11,040

tether it to herself and carry it over

2024

02:42:14,790 --> 02:42:12,800

to the work site

2025

02:42:16,710 --> 02:42:14,800

the first position for the portable foot

2026  
02:42:19,269 --> 02:42:16,720  
restraint will be the center of the mast

2027  
02:42:21,670 --> 02:42:19,279  
canister allowing her to install that

2028  
02:42:26,070 --> 02:42:21,680  
upper triangle that glover is currently

2029  
02:42:26,080 --> 02:42:41,030  
um

2030  
02:42:45,910 --> 02:42:43,510  
14 and a half additional turns green

2031  
02:42:47,990 --> 02:42:45,920  
light 18.2 on the torque

2032  
02:42:50,469 --> 02:42:48,000  
and the black line

2033  
02:42:52,309 --> 02:42:50,479  
is flush

2034  
02:42:55,510 --> 02:42:52,319  
okay we copy

2035  
02:43:00,710 --> 02:42:55,520  
14 and a half additional turns 18.2

2036  
02:43:04,150 --> 02:43:02,630  
okay so i forgot to put the tab

2037  
02:43:05,590 --> 02:43:04,160  
underneath the

2038  
02:43:07,030 --> 02:43:05,600

part that goes from the left upper strut

2039

02:43:11,349 --> 02:43:07,040

to the mounting bracket i just put the

2040

02:43:11,359 --> 02:43:15,510

right there

2041

02:43:18,550 --> 02:43:16,469

okay

2042

02:43:21,030 --> 02:43:18,560

yeah so we'll have to back those

2043

02:43:29,510 --> 02:43:21,040

uh two bolts out to do that so i'll have

2044

02:43:36,389 --> 02:43:31,030

it's like the settings for that will be

2045

02:43:36,399 --> 02:43:41,110

bravo three

2046

02:44:03,590 --> 02:43:43,429

counter clockwise two

2047

02:44:08,070 --> 02:44:05,830

and kate it looks like the apfr is on

2048

02:44:12,469 --> 02:44:08,080

the rfx and uh have you started your

2049

02:44:12,479 --> 02:44:29,510

okay great job on that

2050

02:44:29,520 --> 02:44:55,590

um

2051

02:45:01,269 --> 02:44:59,269

okay frank yes apfr is on the

2052

02:45:05,349 --> 02:45:01,279

it with extra on my ear t

2053

02:45:09,030 --> 02:45:07,590

coffee cake

2054

02:45:14,150 --> 02:45:09,040

and you'll be heading uh back towards

2055

02:45:18,550 --> 02:45:16,309

okay frank 15 and 16 are corrected now

2056

02:45:20,710 --> 02:45:18,560

the bracket tab is in

2057

02:45:24,790 --> 02:45:20,720

both bolts have two turns by hand on

2058

02:45:24,800 --> 02:45:32,870

copy

2059

02:45:35,269 --> 02:45:33,750

and so

2060

02:45:37,030 --> 02:45:35,279

what we're going to do is just redo

2061

02:45:39,190 --> 02:45:37,040

these as before and then we're going to

2062

02:45:41,590 --> 02:45:39,200

go back to mic 17 and try that one again

2063

02:45:43,269 --> 02:45:41,600

so first mic 15

2064

02:45:44,550 --> 02:45:43,279

you want a total of four turns so two

2065

02:45:51,830 --> 02:45:44,560

additional turns

2066

02:45:51,840 --> 02:45:55,590

row three

2067

02:45:59,830 --> 02:45:57,830

a clockwise view of kate rubins as she

2068

02:46:02,710 --> 02:45:59,840

makes her way back to the work site

2069

02:46:04,630 --> 02:46:02,720

she's going to tag up with victor glover

2070

02:46:06,790 --> 02:46:04,640

who's currently assembling the upper

2071

02:46:08,790 --> 02:46:06,800

triangle portion of the bracket that

2072

02:46:10,469 --> 02:46:08,800

consists of the modification kit what

2073

02:46:12,630 --> 02:46:10,479

you're seeing is kate rubins with the

2074

02:46:15,110 --> 02:46:12,640

portable foot restraint in tow she got

2075

02:46:17,830 --> 02:46:15,120

that removed from its stowed position

2076

02:46:19,830 --> 02:46:17,840

has it uh connected to her by way of

2077

02:46:22,230 --> 02:46:19,840

tether and she'll be making her way over

2078

02:46:23,910 --> 02:46:22,240

to the work site her next steps will be

2079

02:46:26,550 --> 02:46:23,920

setting up that foot restraint for the

2080

02:46:28,630 --> 02:46:26,560

next series of steps uh glover already

2081

02:46:30,870 --> 02:46:28,640

ahead on his tasks and constructing the

2082

02:46:32,870 --> 02:46:30,880

upper triangle by himself uh he'll be

2083

02:46:35,269 --> 02:46:32,880

handing that upper triangle over to kate

2084

02:46:38,389 --> 02:46:35,279

rubins which she's uh secured and in

2085

02:46:46,309 --> 02:46:38,399

position with inside of the portable

2086

02:46:50,389 --> 02:46:47,750

okay can you verify your gauntlets are

2087

02:47:14,630 --> 02:46:52,389

a firm

2088

02:47:14,640 --> 02:47:20,150

a prank on 16.

2089

02:47:28,309 --> 02:47:23,510

i hit the button again on accident sir

2090

02:47:30,950 --> 02:47:30,070

would you like me to put the pvp on it

2091

02:47:33,190 --> 02:47:30,960

and

2092

02:47:38,790 --> 02:47:33,200

work it out again i hit the button after

2093

02:47:49,590 --> 02:47:40,630

hey uh affirmative if you could torque

2094

02:47:56,950 --> 02:47:53,269

18.5 actual torch

2095

02:48:00,710 --> 02:47:56,960

probably 18.5 green light 21 additional

2096

02:48:03,190 --> 02:48:00,720

turns and confirmed black line is flush

2097

02:48:08,150 --> 02:48:05,429

okay that makes that a good bolt and now

2098

02:48:10,150 --> 02:48:08,160

we'll go back to mic 15

2099

02:48:11,910 --> 02:48:10,160

and we will uh same settings

2100

02:48:27,510 --> 02:48:11,920

approximately 20

2101  
02:48:32,550 --> 02:48:30,150  
a good view of kate rubin's there on the

2102  
02:48:34,389 --> 02:48:32,560  
right of your screen and victor glover

2103  
02:48:37,429 --> 02:48:34,399  
on the left we're about five minutes

2104  
02:48:39,030 --> 02:48:37,439  
away from a day pass and also

2105  
02:48:45,590 --> 02:48:39,040  
hello us in about five minutes i'll let

2106  
02:48:48,790 --> 02:48:47,349  
so with the day pass we'll start seeing

2107  
02:48:50,469 --> 02:48:48,800  
the views from the outside of the

2108  
02:48:53,510 --> 02:48:50,479  
international space station get a little

2109  
02:48:57,830 --> 02:48:55,269  
glover making good progress on the upper

2110  
02:48:59,750 --> 02:48:57,840  
bracket finishing one of the bolts

2111  
02:49:02,710 --> 02:48:59,760  
needed to secure the upper triangle he's

2112  
02:49:04,070 --> 02:49:02,720  
working on the next bolt

2113  
02:49:06,389 --> 02:49:04,080

now you're getting views from the high

2114

02:49:08,870 --> 02:49:06,399

definition camera of kate rubin's uh

2115

02:49:10,309 --> 02:49:08,880

helmet camera assembly as she makes her

2116

02:49:11,990 --> 02:49:10,319

way to the work site she's going to be

2117

02:49:17,830 --> 02:49:12,000

installing that portable foot restraint

2118

02:49:24,550 --> 02:49:20,630

all right copy 18.6 19 additional turns

2119

02:49:24,560 --> 02:49:37,830

black lines flush

2120

02:49:43,590 --> 02:49:40,550

all right i think that's a good bolt on

2121

02:49:45,110 --> 02:49:43,600

mic 15 and we'll go back to mike 17 and

2122

02:49:50,150 --> 02:49:45,120

try that one again your settings for

2123

02:50:02,950 --> 02:49:52,389

that'd be bravo one

2124

02:50:02,960 --> 02:50:08,070

all right pray firstly with 38.

2125

02:50:12,309 --> 02:50:10,710

roger gate and you'll install the rfx on

2126  
02:50:15,720 --> 02:50:12,319  
38 i'll have those settings when you're

2127  
02:50:15,730 --> 02:50:33,190  
[Music]

2128  
02:50:37,670 --> 02:50:35,429  
kate rubens has arrived at the work site

2129  
02:50:39,429 --> 02:50:37,680  
her next task will be to install that

2130  
02:50:41,990 --> 02:50:39,439  
portable foot restraint on the

2131  
02:50:43,429 --> 02:50:42,000  
designated worksite interface giving her

2132  
02:50:45,990 --> 02:50:43,439  
the proper angle to make some of the

2133  
02:50:48,150 --> 02:50:46,000  
next procedures of installing that

2134  
02:50:50,309 --> 02:50:48,160  
upper triangle that you see victor

2135  
02:50:51,910 --> 02:50:50,319  
glover is currently assembling the

2136  
02:50:54,309 --> 02:50:51,920  
helmet camera view you're seeing number

2137  
02:51:05,110 --> 02:50:54,319  
20 is the helmet camera view from victor

2138  
02:51:09,349 --> 02:51:07,190

again the black line is flush and it's

2139

02:51:10,870 --> 02:51:09,359

symmetric it looks the same there's

2140

02:51:12,950 --> 02:51:10,880

three threads through the bottom into

2141

02:51:15,590 --> 02:51:12,960

the you know uh

2142

02:51:17,190 --> 02:51:15,600

answer pad plenty of portion

2143

02:51:19,110 --> 02:51:17,200

showing out the other side

2144

02:51:23,670 --> 02:51:19,120

identical to these

2145

02:51:23,680 --> 02:51:26,870

copy

2146

02:51:32,230 --> 02:51:28,389

and frank i'll take call names for the

2147

02:51:32,240 --> 02:51:39,510

okay your clocking will be six

2148

02:51:46,550 --> 02:51:43,190

and like that is a good bolt on mic 17.

2149

02:51:47,910 --> 02:51:46,560

so next we'll be driving mike 13 and 14

2150

02:51:50,910 --> 02:51:47,920

that's the right upper strut for

2151  
02:51:50,920 --> 02:51:58,389

[Music]

2152  
02:52:03,510 --> 02:52:01,510  
and which wrist can i take off

2153  
02:52:07,670 --> 02:52:03,520  
you can release the rat from the left

2154  
02:52:07,680 --> 02:52:10,150  
it works

2155  
02:52:15,110 --> 02:52:12,389  
i think i'll take your pitch

2156  
02:52:18,550 --> 02:52:15,120  
and extension on the olympics

2157  
02:52:21,429 --> 02:52:18,560  
okay uh webex settings will be six golf

2158  
02:52:24,150 --> 02:52:21,439  
five so pitcher five extension of our

2159  
02:52:28,389 --> 02:52:24,160  
correct and pitch of golf extension of

2160  
02:52:28,399 --> 02:52:43,510  
extension 5.

2161  
02:52:48,550 --> 02:52:47,190  
and like your settings for your

2162  
02:52:56,150 --> 02:52:48,560  
right upper strut the mounting bracket

2163  
02:52:56,160 --> 02:52:59,190

three clockwise two

2164

02:52:59,200 --> 02:53:03,269

and so what's the expected turns

2165

02:53:10,710 --> 02:53:05,590

and the expected will be 20 on both

2166

02:53:14,150 --> 02:53:12,230

and first i'm going to have to pitch it

2167

02:53:15,110 --> 02:53:14,160

up i do not have a good pulling pistol

2168

02:53:19,269 --> 02:53:15,120

yet

2169

02:53:19,279 --> 02:53:30,710

copycat

2170

02:53:34,469 --> 02:53:32,309

guys we have about 30 seconds till the

2171

02:53:38,070 --> 02:53:34,479

handover so like again you'll be driving

2172

02:54:01,670 --> 02:53:38,080

mike 14 and 13 to fork we anticipate 20

2173

02:54:05,510 --> 02:54:03,750

before we lose this video communication

2174

02:54:08,550 --> 02:54:05,520

from the international space station

2175

02:54:11,030 --> 02:54:08,560

we're entering into an orbital daytime

2176  
02:54:12,630 --> 02:54:11,040  
the views uh from the helmet cameras of

2177  
02:54:13,670 --> 02:54:12,640  
both of the astronauts continuing to get

2178  
02:54:16,630 --> 02:54:13,680  
brighter

2179  
02:54:18,070 --> 02:54:16,640  
before we lose those views temporarily

2180  
02:54:20,070 --> 02:54:18,080  
we're expected to regain them very

2181  
02:54:21,510 --> 02:54:20,080  
shortly

2182  
02:54:23,429 --> 02:54:21,520  
in the meantime

2183  
02:54:25,590 --> 02:54:23,439  
both of the astronauts are making great

2184  
02:54:27,990 --> 02:54:25,600  
progress on some of their first steps to

2185  
02:54:30,710 --> 02:54:28,000  
construct the modification kit needed to

2186  
02:54:32,870 --> 02:54:30,720  
hold a future set of solar arrays and

2187  
02:54:35,269 --> 02:54:32,880  
mount them to the current mast canisters

2188  
02:54:36,950 --> 02:54:35,279

of the solar arrays on the far side of

2189

02:54:38,870 --> 02:54:36,960

the international space station the port

2190

02:54:42,309 --> 02:54:38,880

6 truss

2191

02:54:44,070 --> 02:54:42,319

victor glover is finalizing the assembly

2192

02:54:46,630 --> 02:54:44,080

of what's called the upper triangle that

2193

02:54:49,190 --> 02:54:46,640

makes up the top portion of the

2194

02:54:51,269 --> 02:54:49,200

configuration of the bracket

2195

02:54:53,030 --> 02:54:51,279

and kate rubins is installing the

2196

02:54:55,349 --> 02:54:53,040

portable foot restraint that'll get her

2197

02:54:57,110 --> 02:54:55,359

in a good position to mount that upper

2198

02:55:01,750 --> 02:54:57,120

triangle to the top portion of the mast

2199

02:55:01,760 --> 02:55:19,030

and you can continue with our mic 13.

2200

02:55:21,910 --> 02:55:20,389

here in the room you're getting a live

2201  
02:55:23,670 --> 02:55:21,920  
view from the international space

2202  
02:55:25,269 --> 02:55:23,680  
station flight control room the teams

2203  
02:55:26,950 --> 02:55:25,279  
here led by flight director marcos

2204  
02:55:28,469 --> 02:55:26,960  
flores

2205  
02:55:30,309 --> 02:55:28,479  
the voice you're hearing from here in

2206  
02:55:33,910 --> 02:55:30,319  
mission control is the ground iv that's

2207  
02:55:37,349 --> 02:55:33,920  
frank rubio a nasa astronaut uh hired in

2208  
02:55:38,790 --> 02:55:37,359  
to the 2017 astronaut class

2209  
02:55:41,750 --> 02:55:38,800  
the spacewalk procedures are being

2210  
02:55:45,110 --> 02:55:41,760  
relayed to frank robio by uh spacewalk

2211  
02:55:47,030 --> 02:55:45,120  
officer art thomason

2212  
02:55:49,190 --> 02:55:47,040  
he's working with him his teams in the

2213  
02:55:51,429 --> 02:55:49,200

back room uh going over the intricate

2214

02:55:53,349 --> 02:55:51,439

procedures uh understanding them

2215

02:55:56,630 --> 02:55:53,359

forwards and backwards as they really

2216

02:55:58,870 --> 02:55:56,640

relay them uh to frank rubio and uh

2217

02:56:00,309 --> 02:55:58,880

to back over to kate rubins and victor

2218

02:56:02,469 --> 02:56:00,319

glover on the international space

2219

02:56:05,030 --> 02:56:02,479

station now regaining those views and

2220

02:56:06,950 --> 02:56:05,040

getting some views of the far port side

2221

02:56:09,910 --> 02:56:06,960

of the international space station you

2222

02:56:14,070 --> 02:56:09,920

see rubens on the right and uh and

2223

02:56:18,790 --> 02:56:15,830

you can see the construction of the

2224

02:56:22,070 --> 02:56:18,800

upper triangle that uh darker silver

2225

02:56:25,510 --> 02:56:22,080

portion is the mounting bracket that is

2226

02:56:26,950 --> 02:56:25,520

what will eventually hold the uh irosa

2227

02:56:29,110 --> 02:56:26,960

solar arrays that will be delivered

2228

02:56:32,630 --> 02:56:29,120

later this year at least the first two

2229

02:56:36,790 --> 02:56:34,389

also regaining those high definition

2230

02:56:40,790 --> 02:56:36,800

views from the helmet camera of kate

2231

02:56:44,950 --> 02:56:43,750

and ike on mike 13 and 14. those uh

2232

02:56:47,190 --> 02:56:44,960

torques were slightly lower than

2233

02:56:49,269 --> 02:56:47,200

expected can you verify

2234

02:56:51,910 --> 02:56:49,279

that you have a bravo three setting on

2235

02:56:51,920 --> 02:57:01,110

okay

2236

02:57:05,190 --> 02:57:02,950

you can see rubens on the left there the

2237

02:57:07,349 --> 02:57:05,200

suit with the red stripes configuring

2238

02:57:09,990 --> 02:57:07,359

the portable foot restraint in the

2239

02:57:12,230 --> 02:57:10,000

center of what is the mast canister

2240

02:57:13,990 --> 02:57:12,240

that's the soda can looking structure

2241

02:57:16,150 --> 02:57:14,000

off to the left that's going to give her

2242

02:57:17,510 --> 02:57:16,160

a good position to reach towards the top

2243

02:57:20,150 --> 02:57:17,520

of that

2244

02:57:22,309 --> 02:57:20,160

where she will install the

2245

02:57:23,429 --> 02:57:22,319

upper triangle that glover has been

2246

02:57:25,110 --> 02:57:23,439

putting together there's something

2247

02:57:27,030 --> 02:57:25,120

called a center pad

2248

02:57:31,830 --> 02:57:27,040

that is specifically designed to mount

2249

02:57:35,910 --> 02:57:33,349

they're configuring their settings of

2250

02:57:37,429 --> 02:57:35,920

the pistol grip tool and the portable

2251  
02:57:39,110 --> 02:57:37,439  
foot restraint needed before getting

2252  
02:57:40,950 --> 02:57:39,120  
situated for the

2253  
02:57:43,030 --> 02:57:40,960  
first assembly the uh

2254  
02:57:45,429 --> 02:57:43,040  
first part of these assembling and

2255  
02:57:49,269 --> 02:57:45,439  
installing that modification kit onto

2256  
02:57:53,510 --> 02:57:51,510  
okay copy thank you and ike if you can

2257  
02:57:56,630 --> 02:57:53,520  
uh switch over to bravo three and drive

2258  
02:58:00,870 --> 02:57:58,309  
level three is set

2259  
02:58:02,070 --> 02:58:00,880  
this is thirteen fourteen first

2260  
02:58:53,670 --> 02:58:02,080  
okay okay

2261  
02:58:58,469 --> 02:58:56,070  
this x extension is six

2262  
02:59:03,429 --> 02:58:58,479  
epfr copying is twelve

2263  
02:59:03,439 --> 02:59:08,790

extension should be five

2264

02:59:13,510 --> 02:59:11,269

all right it is five

2265

02:59:16,950 --> 02:59:13,520

okay copy five

2266

02:59:21,910 --> 02:59:16,960

and your apfr settings will be 12 tango

2267

02:59:30,469 --> 02:59:23,110

3012

2268

02:59:34,469 --> 02:59:32,070

hey frank i got a quarter of return on

2269

02:59:38,389 --> 02:59:34,479

each and 18.4

2270

02:59:38,399 --> 02:59:47,110

18.4 over 14 and 18.3 on like fifteen

2271

02:59:47,120 --> 02:59:52,950

we caught the ike and we're checking

2272

02:59:57,670 --> 02:59:55,190

you see glover uh putting down his

2273

03:00:00,870 --> 02:59:57,680

helmet shield the gold visor

2274

03:00:03,429 --> 03:00:00,880

that protects his view from the sun as

2275

03:00:05,750 --> 03:00:03,439

the two astronauts enter into an orbital

2276

03:00:08,150 --> 03:00:05,760

daytime the station is now in that

2277

03:00:10,630 --> 03:00:08,160

orbital daytime over canada

2278

03:00:14,550 --> 03:00:10,640

approaching a south eastern course over

2279

03:00:18,150 --> 03:00:16,550

rubens is configuring the foot restraint

2280

03:00:19,510 --> 03:00:18,160

to make sure it's in the right angle

2281

03:00:21,590 --> 03:00:19,520

giving her the proper position to

2282

03:00:23,830 --> 03:00:21,600

eventually install that upper triangle

2283

03:00:25,110 --> 03:00:23,840

that you see within this view

2284

03:00:27,750 --> 03:00:25,120

that

2285

03:00:29,830 --> 03:00:27,760

glover is finalizing the installation of

2286

03:01:09,429 --> 03:00:29,840

with a driving a couple of those last

2287

03:01:40,070 --> 03:01:22,870

okay

2288

03:01:44,070 --> 03:01:42,389

and like uh we just got word mic 13 and

2289

03:01:46,870 --> 03:01:44,080

14 are good to go

2290

03:01:49,429 --> 03:01:46,880

so next you will move the long pgt the 7

2291

03:01:51,910 --> 03:01:49,439

16 pgt to the right upper

2292

03:01:54,150 --> 03:01:51,920

strut hand rail stanchion near the

2293

03:01:58,070 --> 03:01:54,160

center pad and you can use both the red

2294

03:01:58,080 --> 03:02:03,750

it works

2295

03:02:07,750 --> 03:02:05,990

so with a good configuration on that

2296

03:02:10,309 --> 03:02:07,760

upper triangle that glover has just

2297

03:02:11,190 --> 03:02:10,319

finished putting together his next task

2298

03:02:13,269 --> 03:02:11,200

will be

2299

03:02:15,429 --> 03:02:13,279

stowing the pistol grip tool that space

2300

03:02:17,750 --> 03:02:15,439

drill onto the upper triangle

2301  
03:02:20,150 --> 03:02:17,760  
so when he hands it off to kate rubins

2302  
03:02:21,510 --> 03:02:20,160  
who's going to enter into this foot

2303  
03:02:23,429 --> 03:02:21,520  
restraint that you're seeing from this

2304  
03:02:24,550 --> 03:02:23,439  
view once she gets in a good position

2305  
03:02:27,030 --> 03:02:24,560  
and puts the

2306  
03:02:29,590 --> 03:02:27,040  
upper triangle in place that pistol grip

2307  
03:02:30,870 --> 03:02:29,600  
tool will be right within her reach so

2308  
03:02:32,790 --> 03:02:30,880  
she can start

2309  
03:02:34,230 --> 03:02:32,800  
bolting that center pad

2310  
03:03:01,750 --> 03:02:34,240  
to the upper portion of the mast

2311  
03:03:07,190 --> 03:03:04,790  
all right fox 12 set

2312  
03:03:10,230 --> 03:03:07,200  
okay all right copy and i understand 12

2313  
03:03:15,510 --> 03:03:10,240

tango tango foxtrot 12 are set and k can

2314

03:03:15,520 --> 03:03:24,150

checking

2315

03:03:29,510 --> 03:03:27,190

okay copy those are good settings for

2316

03:03:33,110 --> 03:03:29,520

the wifix and apfr and kate i'll take a

2317

03:03:33,120 --> 03:03:37,110

okay

2318

03:03:37,120 --> 03:03:44,710

let's say pristine have this dragged on

2319

03:03:49,349 --> 03:03:46,469

as well that makes sense

2320

03:03:50,710 --> 03:03:49,359

okay awesome and great job uh to both of

2321

03:04:12,630 --> 03:03:50,720

you

2322

03:04:15,910 --> 03:04:14,630

hey frank the uh

2323

03:04:17,750 --> 03:04:15,920

gt is

2324

03:04:19,590 --> 03:04:17,760

my hand rail

2325

03:04:35,429 --> 03:04:19,600

and the center pad on the right

2326

03:04:39,429 --> 03:04:38,070

and kate as you uh english the apfr do

2327

03:04:42,630 --> 03:04:39,439

you guys need a reminder for the

2328

03:04:44,309 --> 03:04:42,640

movement cautions uh as far as cyclic

2329

03:04:49,030 --> 03:04:44,319

movements

2330

03:04:57,030 --> 03:04:51,030

see structure pounds

2331

03:04:57,040 --> 03:05:10,230

good work

2332

03:05:14,870 --> 03:05:12,469

so you're getting a a great view of both

2333

03:05:16,230 --> 03:05:14,880

astronauts you see uh kate rubin's off

2334

03:05:18,309 --> 03:05:16,240

to the right there she's in the suit

2335

03:05:20,790 --> 03:05:18,319

with the red stripes she's going to

2336

03:05:21,910 --> 03:05:20,800

ingress or enter the portable foot

2337

03:05:23,990 --> 03:05:21,920

restraint

2338

03:05:25,510 --> 03:05:24,000

you see glover off to the left there the

2339

03:05:27,190 --> 03:05:25,520

suit with no stripes he's already

2340

03:05:29,349 --> 03:05:27,200

constructed that upper triangle that's

2341

03:05:30,950 --> 03:05:29,359

the first section of the bracket the

2342

03:05:33,110 --> 03:05:30,960

modification kit for installing the

2343

03:05:35,590 --> 03:05:33,120

future solar rays he's already put that

2344

03:05:37,830 --> 03:05:35,600

together everything's bolted up and he's

2345

03:05:39,990 --> 03:05:37,840

also strapped the pistol grip tool

2346

03:05:41,750 --> 03:05:40,000

already set to the configuration that

2347

03:05:59,349 --> 03:05:41,760

kate rubins will need once he hands it

2348

03:06:03,590 --> 03:06:01,429

and i guess that kate is ingressing if

2349

03:06:08,710 --> 03:06:03,600

you have time to verify that the pit

2350

03:06:21,349 --> 03:06:10,309

on the center pad are properly

2351

03:06:30,230 --> 03:06:22,710

the one for the left stroke is still

2352

03:06:30,240 --> 03:06:47,269

okay we'll take that now

2353

03:06:56,550 --> 03:06:49,830

and uh i'll start with the pick pin into

2354

03:06:56,560 --> 03:07:23,110

good job

2355

03:07:27,590 --> 03:07:24,630

the egg and you'll be transferring the

2356

03:07:29,750 --> 03:07:27,600

upper triangle with pgt to kate

2357

03:07:31,670 --> 03:07:29,760

kate as you receive the assembly you'll

2358

03:07:37,590 --> 03:07:31,680

attach your red to the right mounting

2359

03:07:41,750 --> 03:07:39,429

all right kate rubins is in place in the

2360

03:07:44,710 --> 03:07:41,760

portable foot restraint and uh

2361

03:07:47,510 --> 03:07:44,720

glover has the upper triangle completely

2362

03:07:58,150 --> 03:07:47,520

assembled now he'll hand it off to kate

2363

03:08:01,750 --> 03:08:00,150

they have to make sure the bracket is

2364

03:08:03,030 --> 03:08:01,760

tethered at all points currently

2365

03:08:06,469 --> 03:08:03,040

tethered

2366

03:08:07,750 --> 03:08:06,479

to glover and they'll make a handover to

2367

03:08:10,469 --> 03:08:07,760

switch it to

2368

03:08:11,750 --> 03:08:10,479

kate rubin's tether

2369

03:08:13,910 --> 03:08:11,760

again she doesn't have to worry about

2370

03:08:15,750 --> 03:08:13,920

the pistol grip tool the space drill

2371

03:08:17,349 --> 03:08:15,760

it's already connected to that upper

2372

03:08:36,550 --> 03:08:17,359

triangle ready for her whenever she's

2373

03:08:40,070 --> 03:08:38,070

mike looks like you're doing a great job

2374

03:08:41,830 --> 03:08:40,080

on mli i think they're happy with that

2375

03:08:48,070 --> 03:08:41,840

config and you can pass the triangle up

2376

03:08:48,080 --> 03:09:07,110

works

2377

03:09:07,120 --> 03:09:21,910

um

2378

03:09:21,920 --> 03:09:37,349

what's up

2379

03:09:41,590 --> 03:09:39,590

okay you're attaching to the right

2380

03:09:51,349 --> 03:09:41,600

all right i'll hand you this side first

2381

03:09:51,359 --> 03:10:08,710

and the red one is locked out okay

2382

03:10:11,990 --> 03:10:09,670

let me know when you're ready to take

2383

03:10:13,269 --> 03:10:12,000

control i'm ready to take control and

2384

03:10:15,349 --> 03:10:13,279

you got it

2385

03:10:17,030 --> 03:10:15,359

i got control

2386

03:10:23,510 --> 03:10:17,040

all right glover just handed off the

2387

03:10:29,670 --> 03:10:25,830

okay and ike on kate's go you can

2388

03:10:33,830 --> 03:10:31,429

and i have control i have it ready you

2389

03:10:37,510 --> 03:10:35,990

uh the bag reads you won't be ready to

2390

03:10:41,429 --> 03:10:37,520

go back to the bag or to the mounting

2391

03:10:45,429 --> 03:10:43,750

yeah we want the rat back in the bag

2392

03:10:49,990 --> 03:10:45,439

sorry okay you'll have to release it

2393

03:11:04,790 --> 03:10:51,670

either you can do it you can push it

2394

03:11:08,469 --> 03:11:07,110

again rubens has control of that upper

2395

03:11:10,469 --> 03:11:08,479

bracket they're just making sure that

2396

03:11:12,630 --> 03:11:10,479

the tether configuration is okay before

2397

03:11:14,710 --> 03:11:12,640

she begins the work of installing it to

2398

03:11:16,389 --> 03:11:14,720

the mast canister

2399

03:11:25,800 --> 03:11:16,399

pad to the mass canister with the arrow

2400

03:11:25,810 --> 03:11:35,670

[Music]

2401  
03:11:39,429 --> 03:11:37,590  
and you'll engage the left side first

2402  
03:11:46,710 --> 03:11:39,439  
and then pivot the right side to engage

2403  
03:11:50,389 --> 03:11:48,950  
looks like you'll be working on throwing

2404  
03:11:53,510 --> 03:11:50,399  
your short pgt

2405  
03:11:57,190 --> 03:11:53,520  
on handrail 5372 that's near the

2406  
03:11:57,200 --> 03:12:01,830  
and frank i've got in this software

2407  
03:12:05,990 --> 03:12:03,349  
copy softbox

2408  
03:12:20,070 --> 03:12:08,229  
okay on your long pgt your settings will

2409  
03:12:23,349 --> 03:12:21,590  
great views from the high definition

2410  
03:12:26,550 --> 03:12:23,359  
camera view of uh

2411  
03:12:28,790 --> 03:12:26,560  
kate rubin's helmet camera

2412  
03:12:30,950 --> 03:12:28,800  
alpha two clockwise two she's confirming

2413  
03:12:33,030 --> 03:12:30,960

the pistol grip settings uh

2414

03:12:34,630 --> 03:12:33,040

before she goes ahead and

2415

03:12:37,429 --> 03:12:34,640

starts driving some of the bolts that

2416

03:12:39,670 --> 03:12:37,439

you see on the center pad there that's

2417

03:12:41,830 --> 03:12:39,680

currently soft docked to the mast

2418

03:12:43,590 --> 03:12:41,840

canister uh driving those bolts will

2419

03:12:46,070 --> 03:12:43,600

secure it in place

2420

03:12:49,670 --> 03:12:46,080

through mic eight to torque we

2421

03:12:49,680 --> 03:12:57,030

that'll be eleven

2422

03:13:29,990 --> 03:12:59,030

now the adjustable distance that are

2423

03:13:34,150 --> 03:13:32,389

hey kate uh from the

2424

03:13:36,229 --> 03:13:34,160

hacker camera it looks like that center

2425

03:13:39,830 --> 03:13:36,239

pad is moving more than we expected do

2426

03:13:43,429 --> 03:13:39,840

you mind rechecking the soft dock

2427

03:13:48,870 --> 03:13:44,389

okay

2428

03:13:53,510 --> 03:13:50,950

and did you say counter clockwise two

2429

03:13:55,349 --> 03:13:53,520

first i'm sorry

2430

03:14:03,110 --> 03:13:55,359

yep settings will be alpha two clockwise

2431

03:14:06,710 --> 03:14:04,950

all right rubens has a good soft dock

2432

03:14:12,070 --> 03:14:06,720

position on that center pad driving that

2433

03:14:16,469 --> 03:14:14,070

and ike as you put that short pgt on

2434

03:14:17,590 --> 03:14:16,479

handrail 5372 remember you'll have to

2435

03:14:19,670 --> 03:14:17,600

reach it from the other side so you

2436

03:14:26,469 --> 03:14:19,680

might want to cheat it over

2437

03:14:31,110 --> 03:14:28,150

you'll be starting that short pgt on

2438

03:14:32,309 --> 03:14:31,120

handrail 5372 uh you'll need to reach

2439

03:14:37,990 --> 03:14:32,319

that from the other side so you might

2440

03:14:41,590 --> 03:14:40,389

i've got seven turns i do have good

2441

03:14:43,429 --> 03:14:41,600

torque

2442

03:14:50,710 --> 03:14:43,439

point eight good green light

2443

03:14:50,720 --> 03:14:54,710

okay what was the torque on that

2444

03:14:54,720 --> 03:15:00,790

3.8 axle

2445

03:15:04,870 --> 03:15:02,469

copy 3.8

2446

03:15:07,110 --> 03:15:04,880

and i got disregard last i was one step

2447

03:15:11,030 --> 03:15:07,120

ahead of you you'll need to do you need

2448

03:15:15,670 --> 03:15:12,710

and i can get it from both sides not

2449

03:15:30,229 --> 03:15:15,680

that wide in the middle

2450

03:15:34,150 --> 03:15:32,630

ruben's driving the second of four bolts

2451  
03:15:36,150 --> 03:15:34,160  
to secure the center pad to the mass

2452  
03:15:38,070 --> 03:15:36,160  
canister

2453  
03:15:39,910 --> 03:15:38,080  
in the meantime glover is already a

2454  
03:15:42,469 --> 03:15:39,920  
couple steps ahead getting ready for the

2455  
03:15:44,870 --> 03:15:42,479  
next series of tasks that'll install the

2456  
03:15:46,550 --> 03:15:44,880  
struts on the left side from this view

2457  
03:15:50,550 --> 03:15:46,560  
of

2458  
03:15:50,560 --> 03:15:56,870  
copy seven 3.6 green light on mikey

2459  
03:15:56,880 --> 03:15:59,429  
mike six

2460  
03:15:59,439 --> 03:16:03,830  
okay you have a go for the next

2461  
03:16:06,790 --> 03:16:05,990  
two good bolts out of four on the center

2462  
03:16:17,269 --> 03:16:06,800  
pad

2463  
03:16:17,279 --> 03:16:23,590

3.6 torque 7 turns between light

2464

03:16:23,600 --> 03:16:26,710

copper

2465

03:16:26,720 --> 03:16:33,190

and you have a go for the final bolt

2466

03:16:54,550 --> 03:16:35,269

three good bolts out of four ribbons

2467

03:17:04,389 --> 03:16:57,670

copy for mike 7k and we are checking um

2468

03:17:11,030 --> 03:17:06,229

i have to take a couple passes hopefully

2469

03:17:11,040 --> 03:17:40,630

move your teeth

2470

03:17:40,640 --> 03:18:02,309

okay

2471

03:18:05,910 --> 03:18:04,229

and kate we're still evaluating those

2472

03:18:15,030 --> 03:18:05,920

torques uh we'll have one for you

2473

03:18:19,750 --> 03:18:17,590

okay ruben's successfully drove all four

2474

03:18:21,349 --> 03:18:19,760

bolts on the center pad teams on the

2475

03:18:23,510 --> 03:18:21,359

ground are evaluating making sure

2476  
03:18:25,910 --> 03:18:23,520  
everything is okay before she goes ahead

2477  
03:18:28,469 --> 03:18:25,920  
and leaves her current position the next

2478  
03:18:30,150 --> 03:18:28,479  
set of series of tasks require her to

2479  
03:18:31,910 --> 03:18:30,160  
egress or get out of the portable foot

2480  
03:18:32,790 --> 03:18:31,920  
restraint and reset it to get another

2481  
03:18:34,309 --> 03:18:32,800  
angle

2482  
03:18:36,070 --> 03:18:34,319  
so they can start working on the left

2483  
03:18:38,150 --> 03:18:36,080  
side of the mast canister so they're

2484  
03:18:39,670 --> 03:18:38,160  
just making sure everything is okay

2485  
03:18:42,229 --> 03:18:39,680  
before we go on to the next series of

2486  
03:18:44,150 --> 03:18:42,239  
steps in the meantime glover you see off

2487  
03:18:46,150 --> 03:18:44,160  
to the left from this view is already

2488  
03:18:48,950 --> 03:18:46,160

getting some of those struts ready for

2489

03:18:50,229 --> 03:18:48,960

the next series of

2490

03:18:50,239 --> 03:18:55,429

and just make sure that it's solidly

2491

03:18:58,469 --> 03:18:57,030

it sure is and i don't want to put more

2492

03:19:13,190 --> 03:18:58,479

than 40 pounds

2493

03:19:59,349 --> 03:19:15,190

all right we saw that good job and uh

2494

03:20:03,830 --> 03:20:01,990

all right kate uh that is a good install

2495

03:20:06,710 --> 03:20:03,840

on the center pad so you can store your

2496

03:20:09,670 --> 03:20:06,720

pgt and verify that the pip pins and mli

2497

03:20:14,870 --> 03:20:11,349

okay

2498

03:20:15,750 --> 03:20:14,880

the mli is in place both pit pins are in

2499

03:20:18,150 --> 03:20:15,760

place

2500

03:20:20,309 --> 03:20:18,160

ppt the log ptt stood on the right hand

2501

03:20:23,590 --> 03:20:20,319

rail

2502

03:20:25,190 --> 03:20:23,600

okay copy and you can move uh the ev1

2503

03:20:33,429 --> 03:20:25,200

rep from

2504

03:20:36,710 --> 03:20:35,190

engineers on the ground are happy with

2505

03:20:39,910 --> 03:20:36,720

the four bolts

2506

03:20:41,750 --> 03:20:39,920

driven to secure the center pad in place

2507

03:20:43,190 --> 03:20:41,760

she's going to wrap up her work site

2508

03:20:45,910 --> 03:20:43,200

kate rubinswell

2509

03:20:47,670 --> 03:20:45,920

on the upper part of the mast canister

2510

03:20:49,429 --> 03:20:47,680

installing that center pad she'll have

2511

03:20:51,990 --> 03:20:49,439

to egress or get out of the foot

2512

03:20:53,510 --> 03:20:52,000

restraint and reset it get it in another

2513

03:20:57,670 --> 03:20:53,520

configuration to start working on the

2514

03:20:59,910 --> 03:20:57,680

left side of the mast canister

2515

03:21:01,110 --> 03:20:59,920

astronaut victor glover already a couple

2516

03:21:03,269 --> 03:21:01,120

steps ahead

2517

03:21:05,110 --> 03:21:03,279

getting those struts ready

2518

03:21:07,590 --> 03:21:05,120

to hand off to kate rubins for the

2519

03:21:25,990 --> 03:21:07,600

installation of the struts on the left

2520

03:21:31,110 --> 03:21:28,389

okay and we see that the upper triangle

2521

03:21:33,750 --> 03:21:31,120

is rotated down and so you can retrieve

2522

03:21:35,830 --> 03:21:33,760

the 7 16

2523

03:21:41,269 --> 03:21:35,840

ptt and egress the apfr you'll be

2524

03:21:41,279 --> 03:21:45,670

i think i have it adjustable to me

2525

03:21:45,680 --> 03:21:51,030

okay

2526

03:21:54,309 --> 03:21:52,550

you know actually i don't know if you

2527

03:21:56,469 --> 03:21:54,319

can change the settings and i can hand

2528

03:21:59,269 --> 03:21:56,479

it off to you

2529

03:22:02,950 --> 03:22:01,429

and i'm going to write to it

2530

03:22:07,429 --> 03:22:02,960

is there any

2531

03:22:14,630 --> 03:22:09,030

if you could change the apfr settings i

2532

03:22:37,510 --> 03:22:16,870

okay that's not a good plan let me know

2533

03:22:41,670 --> 03:22:39,910

hey kate uh because there are so many

2534

03:22:44,469 --> 03:22:41,680

settings to change the team thinks that

2535

03:23:23,429 --> 03:22:44,479

it's best if you egress and change the

2536

03:23:28,790 --> 03:23:25,990

and like you'll receive that pgt the

2537

03:23:30,950 --> 03:23:28,800

long pgt and spill on your swing arm

2538

03:23:35,349 --> 03:23:30,960

and you can move the red aet to the bag

2539

03:23:35,359 --> 03:23:38,229

thank you

2540

03:23:38,239 --> 03:23:41,190

and spf

2541

03:23:46,870 --> 03:23:42,150

thank you

2542

03:23:46,880 --> 03:24:09,670

oh no

2543

03:24:14,710 --> 03:24:11,510

reuben's handing off that pistol grip

2544

03:24:14,720 --> 03:24:20,469

victor glover

2545

03:24:24,469 --> 03:24:22,790

he'll hold on to it and

2546

03:24:26,710 --> 03:24:24,479

get set up for the next series of task

2547

03:24:39,429 --> 03:24:26,720

world will be used to install the struts

2548

03:24:44,550 --> 03:24:41,510

okay you can take the red off now

2549

03:24:46,950 --> 03:24:44,560

okay got it

2550

03:24:49,750 --> 03:24:46,960

frank ready for settings

2551  
03:24:51,110 --> 03:24:49,760  
okay uh first the wifix extension will

2552  
03:24:57,030 --> 03:24:51,120  
come to one

2553  
03:25:02,790 --> 03:24:59,830  
can we start at the acsr

2554  
03:25:06,070 --> 03:25:02,800  
uh sure your apfr settings will be 12

2555  
03:25:29,269 --> 03:25:06,080  
papa papa hotel 12. so the pitch goes to

2556  
03:25:33,269 --> 03:25:31,190  
and ike once you have that pgc secure

2557  
03:25:39,269 --> 03:25:33,279  
you can start to retrieve the left mid

2558  
03:25:39,279 --> 03:25:43,510  
here on my on my swingline right

2559  
03:25:48,309 --> 03:25:46,630  
for the pgt affirmative

2560  
03:25:50,070 --> 03:25:48,319  
okay

2561  
03:25:51,510 --> 03:25:50,080  
and he said he wants a lower which

2562  
03:25:54,870 --> 03:25:51,520  
stretch lower left

2563  
03:26:29,030 --> 03:25:54,880

left mid strut left med stroke

2564

03:26:35,349 --> 03:26:30,830

say again please

2565

03:26:35,359 --> 03:26:42,389

uh that should be hotel papa papa hotel

2566

03:26:42,399 --> 03:26:55,030

a hotel

2567

03:26:58,790 --> 03:26:57,510

again ruben's configuring the

2568

03:27:01,349 --> 03:26:58,800

portable foot restraint that you're

2569

03:27:04,309 --> 03:27:01,359

seeing from her high definition helmet

2570

03:27:07,910 --> 03:27:06,309

she'll be working with

2571

03:27:10,309 --> 03:27:07,920

victor glover here shortly they'll be

2572

03:27:12,309 --> 03:27:10,319

trading roles in using a pistol grip

2573

03:27:15,830 --> 03:27:12,319

tool

2574

03:28:18,070 --> 03:27:15,840

to secure the left struts the left side

2575

03:28:18,080 --> 03:29:28,550

okay

2576  
03:29:31,590 --> 03:29:30,630  
yeah we're seeing that kate uh good job

2577  
03:29:47,830 --> 03:29:31,600  
on

2578  
03:29:47,840 --> 03:29:57,590  
and verify pitch knob is popped out

2579  
03:29:57,600 --> 03:30:02,870  
there will be hotel on your row

2580  
03:30:06,229 --> 03:30:04,389  
yeah we did that already

2581  
03:30:07,670 --> 03:30:06,239  
going for one now

2582  
03:30:10,870 --> 03:30:07,680  
okay great

2583  
03:30:15,510 --> 03:30:10,880  
and so you'll receive the left mid strut

2584  
03:30:15,520 --> 03:30:23,670  
she's still adjusting the flakes

2585  
03:30:27,990 --> 03:30:25,269  
all right yeah sorry about that kid i

2586  
03:30:30,469 --> 03:30:28,000  
forgot that uh we had uh done the apfer

2587  
03:30:31,510 --> 03:30:30,479  
so your wife settings will be six golf

2588  
03:30:39,750 --> 03:30:31,520

one

2589

03:30:42,550 --> 03:30:41,269

and just a reminder that you'll have to

2590

03:30:44,150 --> 03:30:42,560

hold out the

2591

03:31:06,389 --> 03:30:44,160

knob so that it doesn't pop back in

2592

03:31:06,399 --> 03:31:19,349

another hand thank you

2593

03:31:22,550 --> 03:31:21,190

all right guys great teamwork and those

2594

03:31:32,630 --> 03:31:22,560

looks like uh

2595

03:31:35,910 --> 03:31:34,630

so okay before you ingress you'll want

2596

03:31:44,229 --> 03:31:35,920

to get the

2597

03:31:44,239 --> 03:32:16,389

it works

2598

03:32:16,399 --> 03:32:19,990

all right

2599

03:32:26,630 --> 03:32:21,590

i'm kind of stressed out if you can call

2600

03:32:29,110 --> 03:32:28,229

that might be our t-rex

2601  
03:32:37,269 --> 03:32:29,120  
okay

2602  
03:32:56,070 --> 03:32:39,750  
all right back to the bag

2603  
03:32:56,080 --> 03:33:10,950  
all right

2604  
03:33:10,960 --> 03:33:15,190  
okay frank what's good is that my brp

2605  
03:33:19,590 --> 03:33:17,349  
okay great kate and now you can ingress

2606  
03:34:22,070 --> 03:33:19,600  
the apfr ike you'll be retrieving the

2607  
03:34:28,150 --> 03:34:24,229  
uh correct this should be left lower we

2608  
03:34:29,349 --> 03:34:28,160  
were showing straps seven and eight

2609  
03:34:39,190 --> 03:34:29,359  
okay

2610  
03:34:39,200 --> 03:34:42,630  
thanks

2611  
03:34:42,640 --> 03:34:48,790  
copycat

2612  
03:34:54,070 --> 03:34:50,630  
reuben's confirming

2613  
03:34:55,590 --> 03:34:54,080

position ready to receive that lower

2614

03:34:58,229 --> 03:34:55,600

strut from her position she'll be able

2615

03:35:00,229 --> 03:34:58,239

to install it on the upper triangle in

2616

03:35:02,389 --> 03:35:00,239

the meantime glover will take the lead

2617

03:35:06,309 --> 03:35:02,399

for using the pistol grip tool to secure

2618

03:35:06,319 --> 03:35:13,269

a primitive

2619

03:35:16,710 --> 03:35:15,429

reuben's confirming her position uh

2620

03:35:19,349 --> 03:35:16,720

again

2621

03:35:22,630 --> 03:35:19,359

glover will be the one to secure the

2622

03:35:24,389 --> 03:35:22,640

lower strut to the mast canister itself

2623

03:35:26,469 --> 03:35:24,399

using the pistol grip tool

2624

03:35:29,910 --> 03:35:26,479

and rubens will also use her pistol grip

2625

03:35:31,670 --> 03:35:29,920

tool to secure it to the upper triangle

2626  
03:35:32,389 --> 03:35:31,680  
keep coming towards me exactly as you

2627  
03:35:34,309 --> 03:35:32,399  
are

2628  
03:35:36,630 --> 03:35:34,319  
okay i have control but i'm not ready

2629  
03:35:40,630 --> 03:35:38,229  
okay you'll want to run to the nearest

2630  
03:35:43,110 --> 03:35:40,640  
hand rail stanchion on the left lower

2631  
03:35:51,030 --> 03:35:45,110  
i'll be left lower strut

2632  
03:35:56,710 --> 03:35:53,670  
affirmative

2633  
03:35:58,469 --> 03:35:56,720  
okay i am ready i have control i

2634  
03:35:59,910 --> 03:35:58,479  
can release your bit or send it to me

2635  
03:36:16,870 --> 03:35:59,920  
and i can release it

2636  
03:36:16,880 --> 03:36:23,349  
control

2637  
03:36:27,190 --> 03:36:25,030  
all right guys nice job on that so ike

2638  
03:36:28,389 --> 03:36:27,200

you'll be translating to the saab launch

2639

03:36:30,070 --> 03:36:28,399

bracket

2640

03:36:37,670 --> 03:36:30,080

at the base of the mass canister left

2641

03:36:43,190 --> 03:36:39,830

and frank i'll be uh

2642

03:36:48,870 --> 03:36:43,200

inserting your l5 here and driving m22

2643

03:36:52,630 --> 03:36:50,550

that's affirmative kate uh although we

2644

03:36:57,830 --> 03:36:52,640

will have ike install his side first all

2645

03:37:01,190 --> 03:36:59,110

guys you're doing great just want to let

2646

03:37:03,510 --> 03:37:01,200

you know about two hours in our living

2647

03:37:05,190 --> 03:37:03,520

consumable is battery for both

2648

03:37:19,030 --> 03:37:05,200

approximately eight hours and we're

2649

03:37:23,830 --> 03:37:21,590

great news both uh rubens and glover

2650

03:37:26,150 --> 03:37:23,840

making their way through the timeline

2651  
03:37:27,830 --> 03:37:26,160  
even faster than expected and the

2652  
03:37:30,309 --> 03:37:27,840  
limiting consumable being battery they

2653  
03:37:33,349 --> 03:37:30,319  
got plenty of margin at the end of their

2654  
03:37:35,349 --> 03:37:33,359  
uh space walk to get uh

2655  
03:37:37,830 --> 03:37:35,359  
at least this uh

2656  
03:37:40,550 --> 03:37:37,840  
modification kit fully installed and

2657  
03:37:42,309 --> 03:37:40,560  
begin the work on the next modification

2658  
03:37:46,229 --> 03:37:42,319  
kit the brackets being installed on the

2659  
03:37:50,710 --> 03:37:48,710  
glover getting into position to install

2660  
03:37:53,190 --> 03:37:50,720  
the lower strut to the mast canister

2661  
03:37:56,630 --> 03:37:53,200  
he'll have to install his side first

2662  
03:38:02,710 --> 03:37:56,640  
before rubens begins work on her side

2663  
03:38:08,150 --> 03:38:05,510

okay i think i'm in a good position

2664

03:38:09,910 --> 03:38:08,160

so give me a second to get my

2665

03:38:11,750 --> 03:38:09,920

problem i'm keeping this straight away

2666

03:38:13,990 --> 03:38:11,760

thank

2667

03:38:16,710 --> 03:38:14,000

and kate also can you verify that the l5

2668

03:38:18,150 --> 03:38:16,720

grounding pit pin

2669

03:38:20,710 --> 03:38:18,160

is released from the

2670

03:38:38,710 --> 03:38:20,720

start location

2671

03:38:47,189 --> 03:38:39,990

like you're ready i'm ready for the

2672

03:38:47,199 --> 03:39:02,229

all right

2673

03:39:02,239 --> 03:39:23,429

oh perfect hold that

2674

03:39:27,030 --> 03:39:25,030

the helmet camera view from victor

2675

03:39:32,070 --> 03:39:27,040

glover installing that lower strut onto

2676

03:39:37,910 --> 03:39:36,150

okay frankie started with two turns

2677

03:39:39,110 --> 03:39:37,920

great job so you'll be using your short

2678

03:40:02,870 --> 03:39:39,120

pgt

2679

03:40:06,710 --> 03:40:04,550

i still have a hand on that maintaining

2680

03:40:08,550 --> 03:40:06,720

loose control uh yeah please please stay

2681

03:40:20,469 --> 03:40:08,560

that way until uh i'm done with this

2682

03:40:24,790 --> 03:40:22,790

clover glover has two turns on the lower

2683

03:40:27,030 --> 03:40:24,800

strut he's going to bolt it a little bit

2684

03:40:29,429 --> 03:40:27,040

more into place giving it about four

2685

03:40:30,710 --> 03:40:29,439

more turns with the pistol grip tool the

2686

03:40:31,750 --> 03:40:30,720

space drill

2687

03:40:34,630 --> 03:40:31,760

before

2688

03:40:38,150 --> 03:40:34,640

kate rubens maneuvers her end

2689

03:40:40,309 --> 03:40:38,160

to secure it to the upper triangle uh

2690

03:40:42,469 --> 03:40:40,319

she'll be able to

2691

03:40:43,750 --> 03:40:42,479

use her pistol grip tool secure hers in

2692

03:40:46,630 --> 03:40:43,760

place and then

2693

03:40:58,269 --> 03:40:46,640

both of them will take turns

2694

03:41:05,429 --> 03:41:02,630

okay alpha one clockwise one

2695

03:41:07,429 --> 03:41:05,439

and you'll be driving mic 21 four turns

2696

03:41:13,670 --> 03:41:07,439

only we have a handover in about one

2697

03:41:17,590 --> 03:41:15,670

and like that's a total of four turns so

2698

03:41:21,030 --> 03:41:17,600

if you already had two turns it's two

2699

03:41:25,590 --> 03:41:22,229

alpha

2700

03:41:25,600 --> 03:41:38,790

likewise one

2701

03:41:38,800 --> 03:41:44,710

one

2702

03:41:44,720 --> 03:41:47,590

additional turns

2703

03:41:52,790 --> 03:41:49,990

okay and again we have a hand over here

2704

03:41:54,309 --> 03:41:52,800

in about 20 seconds kate you can install

2705

03:41:57,429 --> 03:41:54,319

the left lower strut to the mounting

2706

03:41:59,189 --> 03:41:57,439

bracket I5

2707

03:42:03,990 --> 03:41:59,199

your settings will be bravo one

2708

03:42:08,550 --> 03:42:06,389

okay like if you can maintain control

2709

03:42:14,389 --> 03:42:08,560

you need to get my cpt

2710

03:42:18,070 --> 03:42:16,309

now entering into a short handover

2711

03:42:19,990 --> 03:42:18,080

period losing audio and video very

2712

03:42:21,830 --> 03:42:20,000

temporarily from the international space

2713

03:42:23,269 --> 03:42:21,840

station

2714

03:42:25,110 --> 03:42:23,279

this again is a view of the

2715

03:42:26,550 --> 03:42:25,120

international space station flight

2716

03:42:28,630 --> 03:42:26,560

control room

2717

03:42:31,510 --> 03:42:28,640

the teams here in orbit 2 are walking

2718

03:42:33,429 --> 03:42:31,520

through kate rubins and victor glover

2719

03:42:35,750 --> 03:42:33,439

walking them through their steps to

2720

03:42:39,189 --> 03:42:35,760

install a modification kit

2721

03:42:40,950 --> 03:42:39,199

struts and brackets on a mast canister

2722

03:42:43,429 --> 03:42:40,960

on the port 6 trust

2723

03:42:45,750 --> 03:42:43,439

that originally deployed the solar

2724

03:42:48,309 --> 03:42:45,760

arrays out there this modification kit

2725

03:42:50,870 --> 03:42:48,319

will allow a future set of solar arrays

2726  
03:42:53,590 --> 03:42:50,880  
to be installed on each of these mast

2727  
03:42:55,429 --> 03:42:53,600  
canisters there'll be one solar array

2728  
03:43:01,750 --> 03:42:55,439  
installed on the mast canister that

2729  
03:43:04,710 --> 03:43:03,990  
i've got to live in clear and this will

2730  
03:43:07,030 --> 03:43:04,720  
be

2731  
03:43:10,070 --> 03:43:07,040  
bravo one clockwise to the torque 15

2732  
03:43:10,080 --> 03:43:17,269  
that's good

2733  
03:43:21,590 --> 03:43:19,750  
rubens confirming her pistol grip tool

2734  
03:43:23,030 --> 03:43:21,600  
settings before she drives the bolts

2735  
03:43:25,110 --> 03:43:23,040  
necessary to

2736  
03:43:27,110 --> 03:43:25,120  
connect the lower strut

2737  
03:43:29,030 --> 03:43:27,120  
to the mounting bracket part of that

2738  
03:43:30,229 --> 03:43:29,040

upper triangle that she installed very

2739

03:43:31,750 --> 03:43:30,239

recently

2740

03:43:34,150 --> 03:43:31,760

to the upper portion of the mast

2741

03:43:36,150 --> 03:43:34,160

canister

2742

03:43:38,469 --> 03:43:36,160

should be the last maneuver she needs to

2743

03:43:39,590 --> 03:43:38,479

perform with the pistol grip tool to

2744

03:43:44,309 --> 03:43:39,600

secure it

2745

03:43:47,510 --> 03:43:45,510

now uh

2746

03:43:50,389 --> 03:43:47,520

victor glover only has four turns on his

2747

03:43:53,030 --> 03:43:50,399

side so he'll complete the turns on the

2748

03:43:56,389 --> 03:43:53,040

lower side of the mass canister to

2749

03:44:05,269 --> 03:43:56,399

affix that portion of this modification

2750

03:44:05,279 --> 03:44:26,070

coffee

2751  
03:44:26,080 --> 03:44:31,189  
you can do that

2752  
03:44:31,199 --> 03:45:18,229  
um

2753  
03:45:21,750 --> 03:45:19,990  
this is mission control houston we're in

2754  
03:45:24,309 --> 03:45:21,760  
one of the longer

2755  
03:45:27,910 --> 03:45:24,319  
handover periods scheduled for our

2756  
03:45:30,070 --> 03:45:27,920  
coverage of today's spacewalk

2757  
03:45:32,389 --> 03:45:30,080  
again the team's here uh walking through

2758  
03:45:34,150 --> 03:45:32,399  
the procedures following along with kate

2759  
03:45:35,750 --> 03:45:34,160  
rubins and victor glover who are on the

2760  
03:45:39,110 --> 03:45:35,760  
outside of the international space

2761  
03:45:41,189 --> 03:45:39,120  
station on the far port six truss

2762  
03:45:42,710 --> 03:45:41,199  
kate rubins is working to secure the

2763  
03:45:49,429 --> 03:45:42,720

lower strut to the mounting bracket

2764

03:45:53,110 --> 03:45:51,349

and let me just confirm

2765

03:45:55,990 --> 03:45:53,120

elbow one

2766

03:45:57,910 --> 03:45:56,000

clockwise 250 turn

2767

03:46:04,309 --> 03:45:57,920

good settings and affirmative 15 turns

2768

03:46:08,389 --> 03:46:06,309

and like as kate is working on that we

2769

03:46:15,510 --> 03:46:08,399

will take a glove hat

2770

03:46:22,870 --> 03:46:16,469

okay

2771

03:46:28,630 --> 03:46:26,229

alright i've got 11 decimal eight

2772

03:46:31,030 --> 03:46:28,640

fifth grade light

2773

03:46:40,790 --> 03:46:31,040

six turns on the ppt plus five handstand

2774

03:46:40,800 --> 03:46:46,150

we copy kate and we're checking

2775

03:46:46,160 --> 03:46:51,269

okay and kate mike 22 is a good

2776

03:46:56,070 --> 03:46:53,030

and so ike

2777

03:46:57,990 --> 03:46:56,080

next you'll be finishing driving just a

2778

03:47:00,229 --> 03:46:58,000

warning that this is now a pinch point

2779

03:47:05,510 --> 03:47:00,239

so keep fingers clear of lower strut pad

2780

03:47:10,469 --> 03:47:07,590

and ike uh your settings here will be

2781

03:47:12,550 --> 03:47:10,479

bravo seven clockwise two this is going

2782

03:47:14,950 --> 03:47:12,560

to be a running torque so you'll do ten

2783

03:47:16,950 --> 03:47:14,960

ten turns only and we'll get a

2784

03:47:23,830 --> 03:47:16,960

running torque uh important not to let

2785

03:47:33,269 --> 03:47:26,429

level 7

2786

03:47:36,550 --> 03:47:34,389

ten turns

2787

03:47:40,710 --> 03:47:36,560

i'll let go of the trigger

2788

03:47:40,720 --> 03:47:44,150

and total turns correct

2789

03:47:47,590 --> 03:47:45,910

initially correct and we'll get a

2790

03:47:52,469 --> 03:47:47,600

running torque and give you the settings

2791

03:47:56,870 --> 03:47:53,830

i'm just talking about right now i'm

2792

03:48:07,750 --> 03:47:56,880

doing 10 turns right now correct

2793

03:48:11,590 --> 03:48:09,910

two hours six minutes into today's

2794

03:48:13,349 --> 03:48:11,600

spacewalk

2795

03:48:15,590 --> 03:48:13,359

rubens and glover have successfully

2796

03:48:17,349 --> 03:48:15,600

installed the upper triangle

2797

03:48:18,630 --> 03:48:17,359

portion of the modification kit to the

2798

03:48:20,309 --> 03:48:18,640

mast canister

2799

03:48:22,790 --> 03:48:20,319

okay rubens has successfully installed

2800

03:48:24,550 --> 03:48:22,800

her end of the lower left strut to the

2801  
03:48:26,309 --> 03:48:24,560  
upper portion of where the mounting

2802  
03:48:28,309 --> 03:48:26,319  
bracket is

2803  
03:48:31,189 --> 03:48:28,319  
and vector glover is finalizing his

2804  
03:48:33,110 --> 03:48:31,199  
steps with the final few turns of the

2805  
03:48:46,870 --> 03:48:33,120  
pistol grip tool to secure the lower

2806  
03:48:50,790 --> 03:48:48,950  
okay we copy ike it looks like we

2807  
03:48:55,590 --> 03:48:50,800  
torqued out so we are checking i'll have

2808  
03:48:55,600 --> 03:49:16,710  
and shortly

2809  
03:49:16,720 --> 03:49:46,710  
thank you

2810  
03:49:48,790 --> 03:49:47,750  
it's all right

2811  
03:49:55,429 --> 03:49:48,800  
if you could

2812  
03:49:55,439 --> 03:50:02,950  
okay

2813  
03:50:15,030 --> 03:50:04,150

and like we're just looking to see if

2814

03:50:17,750 --> 03:50:16,389

should be regaining views from the

2815

03:50:19,110 --> 03:50:17,760

international space station here

2816

03:50:21,750 --> 03:50:19,120

momentarily

2817

03:50:23,510 --> 03:50:21,760

when we come back we should see a a good

2818

03:50:25,910 --> 03:50:23,520

left strut

2819

03:50:34,630 --> 03:50:25,920

perhaps victor glover finalizing those

2820

03:50:37,910 --> 03:50:36,229

guys we're going to have you

2821

03:50:39,590 --> 03:50:37,920

hold here while we check and we'll have

2822

03:50:48,389 --> 03:50:39,600

a hand over here in five seconds i'll be

2823

03:50:53,110 --> 03:50:51,269

glover uh completed the uh turns

2824

03:50:54,950 --> 03:50:53,120

necessary using the pistol grip tool

2825

03:50:56,870 --> 03:50:54,960

engineers on the ground we'll just

2826  
03:50:58,229 --> 03:50:56,880  
verify that that's a good torque and

2827  
03:51:00,630 --> 03:50:58,239  
just make sure everything is secure

2828  
03:51:01,990 --> 03:51:00,640  
before they move on to the next steps

2829  
03:51:03,590 --> 03:51:02,000  
in the meantime it sounds like they're

2830  
03:51:05,110 --> 03:51:03,600  
going to take a glove and hat check

2831  
03:51:06,790 --> 03:51:05,120  
we'll hear this periodically throughout

2832  
03:51:08,630 --> 03:51:06,800  
today's spacewalk

2833  
03:51:10,550 --> 03:51:08,640  
making sure there are no scrapes or cuts

2834  
03:51:11,990 --> 03:51:10,560  
on the gloves and making sure the helmet

2835  
03:51:32,150 --> 03:51:12,000  
absorption pad that they're currently

2836  
03:51:36,150 --> 03:51:34,070  
and kate hike back with you guys uh

2837  
03:51:38,150 --> 03:51:36,160  
we're still checking uh kate i'll go

2838  
03:51:40,150 --> 03:51:38,160

ahead and take a glove hap and gauntlet

2839

03:51:44,309 --> 03:51:40,160

check and ike will finish your glove

2840

03:51:44,319 --> 03:52:13,030

i think it works

2841

03:52:29,750 --> 03:52:14,710

no change for the globe no change in the

2842

03:52:33,750 --> 03:52:31,670

coming back with some video from the

2843

03:52:35,830 --> 03:52:33,760

international space station and entering

2844

03:52:38,950 --> 03:52:35,840

into an orbital nighttime international

2845

03:52:41,110 --> 03:52:38,960

space station is 269 statute miles

2846

03:52:42,710 --> 03:52:41,120

just south of the coast of australia

2847

03:52:49,830 --> 03:52:42,720

heading northeastern into an orbital

2848

03:52:55,030 --> 03:52:51,590

can you let us know the status of a

2849

03:52:55,990 --> 03:52:55,040

black line is it flush yet or

2850

03:52:57,510 --> 03:52:56,000

not

2851  
03:52:59,830 --> 03:52:57,520  
negative it's about

2852  
03:53:02,870 --> 03:52:59,840  
about a quarter of an inch

2853  
03:53:02,880 --> 03:54:24,469  
copy a quarter of an inch

2854  
03:54:27,990 --> 03:54:26,389  
this is a helmet camera view from victor

2855  
03:54:29,429 --> 03:54:28,000  
glover who's at the base of the mast

2856  
03:54:31,830 --> 03:54:29,439  
canister you see off to the right there

2857  
03:54:33,910 --> 03:54:31,840  
that's the lower strut that he installed

2858  
03:54:36,229 --> 03:54:33,920  
completing his turns necessary using the

2859  
03:54:37,590 --> 03:54:36,239  
pistol grip tool we're just waiting word

2860  
03:54:38,950 --> 03:54:37,600  
from the engineers here on the ground

2861  
03:54:41,510 --> 03:54:38,960  
that the torque

2862  
03:54:43,510 --> 03:54:41,520  
and the position of the bolt is is all

2863  
03:54:49,830 --> 03:54:43,520

good before we go ahead and move on to

2864

03:54:54,790 --> 03:54:52,070

we completed the installation of the

2865

03:54:57,510 --> 03:54:54,800

mounting bracket and the upper triangle

2866

03:54:59,830 --> 03:54:57,520

this is the next step the lower strut

2867

03:55:02,229 --> 03:54:59,840

rubens and glover will work together on

2868

03:55:04,309 --> 03:55:02,239

the next series of steps to install a

2869

03:55:05,750 --> 03:55:04,319

middle strut on the left side that'll

2870

03:55:07,030 --> 03:55:05,760

complete the left side before they move

2871

03:55:08,870 --> 03:55:07,040

on to the right

2872

03:55:11,189 --> 03:55:08,880

it'll be a mirror image of what we're

2873

03:55:27,750 --> 03:55:11,199

working on now a lower strut as well as

2874

03:55:32,550 --> 03:55:30,070

i thought the bravo seven was in the uh

2875

03:55:36,309 --> 03:55:33,910

i thought it was thirties for three

2876  
03:55:37,429 --> 03:55:36,319  
pounds but

2877  
03:55:39,269 --> 03:55:37,439  
yeah

2878  
03:55:41,110 --> 03:55:39,279  
that's 30.6

2879  
03:57:00,950 --> 03:55:41,120  
i think that was

2880  
03:57:07,349 --> 03:57:03,590  
hi guys apologies for the delay here

2881  
03:57:08,790 --> 03:57:07,359  
but what we're going to do is remove

2882  
03:57:10,229 --> 03:57:08,800  
ike's bolt

2883  
03:57:12,309 --> 03:57:10,239  
and try again so okay we're going to

2884  
03:57:16,229 --> 03:57:12,319  
leave your bolt in place

2885  
03:57:31,670 --> 03:57:16,239  
ike your pgt settings will be

2886  
03:57:35,910 --> 03:57:34,150  
so glover this is the helmet camera view

2887  
03:57:38,070 --> 03:57:35,920  
from victor glover they're going to give

2888  
03:57:40,870 --> 03:57:38,080

this bolt another shot

2889

03:57:42,790 --> 03:57:40,880

completely unbolting it first before

2890

03:57:45,110 --> 03:57:42,800

redoing the series of steps to bolt the

2891

03:58:14,070 --> 03:57:45,120

lower strut at the base of the mass

2892

03:58:17,670 --> 03:58:15,030

if you can

2893

03:58:27,830 --> 03:58:17,680

inspect the bolts and the interface for

2894

03:58:27,840 --> 03:58:33,189

that can help retain control that

2895

03:58:33,199 --> 03:58:56,309

okay

2896

03:58:56,319 --> 03:59:00,469

out

2897

03:59:03,429 --> 03:59:02,389

a little bit of orange residue on the

2898

03:59:05,590 --> 03:59:03,439

threads

2899

03:59:12,630 --> 03:59:05,600

you can see that in my

2900

03:59:15,990 --> 03:59:14,389

like we uh copy and understand

2901  
03:59:18,229 --> 03:59:16,000  
unfortunately not able to see it on the

2902  
03:59:19,750 --> 03:59:18,239  
wvs just because of lighting although

2903  
03:59:29,910 --> 03:59:19,760  
you have a good view there just we can't

2904  
03:59:42,630 --> 03:59:32,710  
it appears in a couple spots

2905  
03:59:42,640 --> 03:59:54,469  
okay

2906  
03:59:57,030 --> 03:59:56,070  
just a little if there was metal and

2907  
03:59:58,630 --> 03:59:57,040  
metal

2908  
04:00:01,590 --> 03:59:58,640  
most of the threads are

2909  
04:00:04,870 --> 04:00:01,600  
the same dark gray color

2910  
04:00:05,990 --> 04:00:04,880  
and that orange stuff appears to be

2911  
04:00:08,870 --> 04:00:06,000  
some

2912  
04:00:10,870 --> 04:00:08,880  
kind of gunked up

2913  
04:00:12,469 --> 04:00:10,880

filling the spaces between the bolts but

2914

04:00:16,790 --> 04:00:12,479

there's definitely something

2915

04:01:18,389 --> 04:00:18,790

okay we caught the hike thank you and

2916

04:01:22,309 --> 04:01:19,910

this is mission control houston again

2917

04:01:23,030 --> 04:01:22,319

you're looking at a helmet camera view

2918

04:01:25,189 --> 04:01:23,040

from

2919

04:01:28,710 --> 04:01:25,199

victor glover's space suit that's camera

2920

04:01:30,630 --> 04:01:28,720

number 20 at the bottom right corner

2921

04:01:31,590 --> 04:01:30,640

glover has unbolted the lower stroke

2922

04:01:36,870 --> 04:01:31,600

strut

2923

04:01:41,030 --> 04:01:38,710

engineering teams here on the ground are

2924

04:01:43,269 --> 04:01:41,040

analyzing the next steps before

2925

04:02:17,910 --> 04:01:43,279

attempting to re-bolt that lower strut

2926

04:02:17,920 --> 04:02:37,349

um

2927

04:02:41,830 --> 04:02:39,189

okay so like we think that orange

2928

04:02:43,830 --> 04:02:41,840

residue is part of the locking feature

2929

04:02:45,189 --> 04:02:43,840

so at this point we're going to try

2930

04:02:46,630 --> 04:02:45,199

again and we'll just start in the

2931

04:02:48,710 --> 04:02:46,640

install so

2932

04:02:56,630 --> 04:02:48,720

verify spherical bearing alignment and

2933

04:03:03,189 --> 04:02:58,309

and i can help control from this side

2934

04:03:03,199 --> 04:03:07,110

bringing it a little bit closer to you

2935

04:03:07,120 --> 04:03:15,349

you can pour me down okay okay perfect

2936

04:03:19,910 --> 04:03:17,269

so frank historical bearing it seems

2937

04:03:21,510 --> 04:03:19,920

like it's supposed to

2938

04:03:22,830 --> 04:03:21,520

rotate a little bit

2939

04:03:27,110 --> 04:03:22,840

to be

2940

04:03:29,189 --> 04:03:27,120

unlocked in one division

2941

04:03:31,349 --> 04:03:29,199

just about flush with the interface on

2942

04:03:34,309 --> 04:03:31,359

the

2943

04:03:38,950 --> 04:03:37,030

it feels like you could pitch

2944

04:03:43,510 --> 04:03:38,960

a little more station mater and it might

2945

04:03:43,520 --> 04:03:52,870

i'm not able to rotate it

2946

04:03:52,880 --> 04:04:22,870

we're uh we copy ike and we're checking

2947

04:04:26,389 --> 04:04:24,469

and so like if you need to you can

2948

04:04:29,110 --> 04:04:26,399

either use your hand

2949

04:04:31,830 --> 04:04:29,120

or a rat to maybe

2950

04:04:33,110 --> 04:04:31,840

re try to realign that spherical bearing

2951  
04:04:42,710 --> 04:04:33,120  
prior to

2952  
04:04:48,070 --> 04:04:44,469  
franklin

2953  
04:04:53,349 --> 04:04:48,080  
i don't think they're ready to do much

2954  
04:04:57,030 --> 04:04:55,110  
maybe this thing moved at one time i

2955  
04:04:58,550 --> 04:04:57,040  
don't know if we could

2956  
04:05:03,830 --> 04:04:58,560  
it's uh there's a lot of friction in

2957  
04:05:10,710 --> 04:05:04,710  
okay

2958  
04:05:16,229 --> 04:05:13,189  
and it's like degrees from from

2959  
04:05:18,950 --> 04:05:16,239  
perfectly flush to snot

2960  
04:05:21,510 --> 04:05:18,960  
into the whole lot and the bracket moves

2961  
04:05:25,189 --> 04:05:21,520  
so it'll it will move to the flush

2962  
04:05:25,199 --> 04:05:35,910  
as i start to install

2963  
04:05:43,110 --> 04:05:38,309

do you think that's causing a mis-thread

2964

04:05:47,990 --> 04:05:45,750

i don't think so i think it's

2965

04:05:50,550 --> 04:05:48,000

it lines the holes up as we're driving

2966

04:05:52,710 --> 04:05:50,560

i'm not sure what the

2967

04:05:54,550 --> 04:05:52,720

the fault if the stress and kind of

2968

04:05:55,590 --> 04:05:54,560

itches and has an orientation it wants

2969

04:05:58,309 --> 04:05:55,600

to be in

2970

04:06:00,389 --> 04:05:58,319

seems like the spherical bearing makes

2971

04:06:03,429 --> 04:06:00,399

the pad on the

2972

04:06:04,630 --> 04:06:03,439

lower struts uh line up

2973

04:06:06,550 --> 04:06:04,640

and then

2974

04:06:08,309 --> 04:06:06,560

it seems like it will drive straight

2975

04:06:09,750 --> 04:06:08,319

once it's engaged

2976

04:06:11,750 --> 04:06:09,760

but it's not because the spherical

2977

04:06:13,590 --> 04:06:11,760

bearing is moving just because

2978

04:06:16,309 --> 04:06:13,600

he uh

2979

04:06:18,070 --> 04:06:16,319

has a little bit of plays

2980

04:06:20,790 --> 04:06:18,080

okay uh we're checking i have words for

2981

04:06:24,870 --> 04:06:22,550

you know if i can help i don't want to

2982

04:06:27,110 --> 04:06:24,880

put too much load into the system but i

2983

04:06:28,950 --> 04:06:27,120

can help stabilize a bit in this end

2984

04:07:34,309 --> 04:06:28,960

okay yeah that's what you're doing now

2985

04:07:38,229 --> 04:07:36,309

okay so uh we're gonna what we're gonna

2986

04:07:40,870 --> 04:07:38,239

have you do is just try to hand start it

2987

04:07:42,550 --> 04:07:40,880

and just uh maybe give us some feedback

2988

04:07:44,469 --> 04:07:42,560

on how you think that's going if that's

2989

04:07:46,710 --> 04:07:44,479

causing a miss thread

2990

04:07:50,229 --> 04:07:46,720

or extra

2991

04:07:52,070 --> 04:07:50,239

friction as you're hand starting it

2992

04:08:01,349 --> 04:07:52,080

okay his hand starts very nicely i've

2993

04:08:06,149 --> 04:08:03,510

okay kate are you putting any uh load

2994

04:08:08,070 --> 04:08:06,159

into it or negative i'm just

2995

04:08:09,510 --> 04:08:08,080

stabilizing yeah it seems like there's

2996

04:08:12,630 --> 04:08:09,520

still place

2997

04:08:14,070 --> 04:08:12,640

the brackets are stopping your face so

2998

04:08:16,389 --> 04:08:14,080

i'm trying when you move that i can see

2999

04:08:19,189 --> 04:08:16,399

the plant here

3000

04:08:21,189 --> 04:08:19,199

after i get like the third turn pretty

3001

04:08:35,349 --> 04:08:21,199

easily around the fourth turn

3002

04:08:38,870 --> 04:08:37,349

okay so like with those words and we're

3003

04:08:40,550 --> 04:08:38,880

we're just going to go ahead and try

3004

04:08:58,229 --> 04:08:40,560

driving it again so your settings will

3005

04:09:02,229 --> 04:09:00,469

this is mission control houston uh you

3006

04:09:03,189 --> 04:09:02,239

are getting a live view from the helmet

3007

04:09:04,630 --> 04:09:03,199

camera

3008

04:09:09,510 --> 04:09:04,640

of uh

3009

04:09:13,590 --> 04:09:11,030

engineers on the ground are happy with

3010

04:09:14,469 --> 04:09:13,600

the current configuration so they're

3011

04:09:16,790 --> 04:09:14,479

giving

3012

04:09:47,510 --> 04:09:16,800

glover the go ahead to proceed and drive

3013

04:09:47,520 --> 04:09:51,349

okay i got

3014

04:09:57,750 --> 04:09:54,710

excuse me i got 10 more turns

3015

04:10:00,950 --> 04:09:57,760

green light 25.3 on the torque

3016

04:10:03,910 --> 04:10:00,960

now the black line is about

3017

04:10:05,510 --> 04:10:03,920

an eighth of an inch

3018

04:10:07,670 --> 04:10:05,520

maybe just quite less than an eighth of

3019

04:10:09,990 --> 04:10:07,680

an inch two millimeters so i'm being

3020

04:10:11,910 --> 04:10:10,000

flush

3021

04:10:25,750 --> 04:10:11,920

okay hike we copied 10 additional turns

3022

04:10:25,760 --> 04:10:30,950

i see that left to right yeah

3023

04:10:34,630 --> 04:10:32,710

and like we're checking those numbers

3024

04:10:37,269 --> 04:10:34,640

we'll have virtually shortly okay we're

3025

04:10:43,110 --> 04:10:37,279

just wondering did you make any tcv

3026  
04:10:45,750 --> 04:10:44,070  
um

3027  
04:10:50,309 --> 04:10:45,760  
when it became night

3028  
04:10:50,319 --> 04:11:01,030  
like zero

3029  
04:11:01,040 --> 04:11:13,830  
okay copy

3030  
04:11:13,840 --> 04:11:38,710  
um

3031  
04:11:41,269 --> 04:11:40,229  
all right so right based on those

3032  
04:11:42,630 --> 04:11:41,279  
numbers we're going to go ahead and go

3033  
04:11:44,950 --> 04:11:42,640  
to manual

3034  
04:11:46,389 --> 04:11:44,960  
ratchet your settings will be ratchet

3035  
04:11:56,950 --> 04:11:46,399  
clockwise

3036  
04:12:00,710 --> 04:11:58,950  
tonight we're anticipating uh

3037  
04:12:02,389 --> 04:12:00,720  
approximately half half a turn

3038  
04:12:16,630 --> 04:12:02,399

additional and you're looking for two

3039

04:12:16,640 --> 04:12:19,269

it works

3040

04:12:19,279 --> 04:12:26,630

it's good and square from up here

3041

04:12:26,640 --> 04:12:56,550

then a quarter of a turn

3042

04:13:07,429 --> 04:13:00,550

okay copy half turn and a good wrench

3043

04:13:11,110 --> 04:13:09,269

actually like before doing that can you

3044

04:13:27,510 --> 04:13:11,120

verify or let us know where the black

3045

04:13:27,520 --> 04:13:41,189

it's done by hamburg

3046

04:13:41,199 --> 04:13:46,710

okay

3047

04:13:51,429 --> 04:13:49,269

whoever uh painted this black line uh

3048

04:13:54,309 --> 04:13:51,439

painted outside the lines a little bit

3049

04:13:55,510 --> 04:13:54,319

it's flush on the top and a millimeter

3050

04:13:57,910 --> 04:13:55,520

on the side

3051

04:14:00,070 --> 04:13:57,920

a flush on this half of a millimeter

3052

04:14:03,269 --> 04:14:00,080

from being flush on the side

3053

04:14:05,030 --> 04:14:03,279

it's very very close

3054

04:14:17,189 --> 04:14:05,040

okay we copy we'll work on our

3055

04:14:26,630 --> 04:14:19,110

i'm still in manual ratchet ratchet

3056

04:14:26,640 --> 04:14:37,349

all right copying we're checking

3057

04:14:41,910 --> 04:14:39,429

like whoever drew around m22 did a

3058

04:16:01,110 --> 04:14:41,920

lovely job

3059

04:16:01,120 --> 04:16:33,590

um

3060

04:16:36,870 --> 04:16:35,269

okay guys so at this point we're going

3061

04:16:38,790 --> 04:16:36,880

to go ahead and move on we may end up

3062

04:16:39,670 --> 04:16:38,800

having to come back to this pulp

3063

04:16:42,389 --> 04:16:39,680

either

3064

04:16:44,229 --> 04:16:42,399  
at the end of the cva or next eva

3065

04:16:54,229 --> 04:16:44,239  
but like for now you can put your pgt

3066

04:16:58,950 --> 04:16:55,910  
and the nike will leave the pgt on

3067

04:17:27,269 --> 04:16:58,960  
handrail 5372 bias it towards the right

3068

04:17:31,110 --> 04:17:29,030  
and because you're working with that pgt

3069

04:17:42,710 --> 04:17:31,120  
could you please do a wiggle test on

3070

04:17:46,550 --> 04:17:44,550  
oh that's interesting because a couple

3071

04:17:51,110 --> 04:17:46,560  
turns ago it had some wiggle but it is

3072

04:17:55,510 --> 04:17:53,590  
okay yeah we see that thanks rick

3073

04:17:59,910 --> 04:17:55,520  
so again you'll put that pgt on handrail

3074

04:18:04,429 --> 04:18:01,429  
and can you help me with the visual on

3075

04:18:07,030 --> 04:18:04,439  
the brt in the mid strip

3076  
04:18:09,510 --> 04:18:07,040  
okay say again i'm looking for a visual

3077  
04:18:11,030 --> 04:18:09,520  
on the brt in the mid stretch

3078  
04:18:17,349 --> 04:18:11,040  
pull that around

3079  
04:18:17,359 --> 04:18:21,590  
not don't worry

3080  
04:18:29,670 --> 04:18:23,429  
oh it's kind of going up towards your

3081  
04:18:32,309 --> 04:18:31,429  
just don't contact him to break a little

3082  
04:18:33,990 --> 04:18:32,319  
bit

3083  
04:18:35,990 --> 04:18:34,000  
it's going after then up to your

3084  
04:18:37,750 --> 04:18:36,000  
underarm hip

3085  
04:18:39,269 --> 04:18:37,760  
if you can push that down

3086  
04:18:43,590 --> 04:18:39,279  
it'll help get you started push that

3087  
04:18:43,600 --> 04:18:50,309  
rotate it

3088  
04:18:50,319 --> 04:18:52,710

okay

3089

04:18:52,720 --> 04:19:08,070

all right

3090

04:19:11,510 --> 04:19:09,510

this is mission control houston you're

3091

04:19:13,910 --> 04:19:11,520

looking at the helmet camera

3092

04:19:17,670 --> 04:19:13,920

from the view of victor glover aboard

3093

04:19:20,790 --> 04:19:17,680

the international space station

3094

04:19:24,790 --> 04:19:22,389

nope i was just going to say that okay

3095

04:19:27,189 --> 04:19:24,800

so ike after you leave your pgt on the

3096

04:19:29,429 --> 04:19:27,199

handrail you'll verify that the mli is

3097

04:19:31,030 --> 04:19:29,439

covering the lower strut pad

3098

04:19:35,429 --> 04:19:31,040

and then next we're going to work on

3099

04:19:35,439 --> 04:19:39,990

in my license plate

3100

04:19:45,110 --> 04:19:42,070

copy and so ike you'll translate to the

3101  
04:19:47,269 --> 04:19:45,120  
mass canister left pad install location

3102  
04:19:48,149 --> 04:19:47,279  
okay you'll be retrieving the left mid

3103  
04:19:50,149 --> 04:19:48,159  
strut

3104  
04:20:00,070 --> 04:19:50,159  
and releasing the pit pin from the lock

3105  
04:20:05,510 --> 04:20:01,590  
i remember that on the next one i could

3106  
04:20:08,070 --> 04:20:07,110  
yeah i think it's okay to keep it in the

3107  
04:20:11,030 --> 04:20:08,080  
locked position because that way it

3108  
04:20:15,590 --> 04:20:11,040  
doesn't extend outlast on my vrt okay

3109  
04:20:18,149 --> 04:20:16,710  
hey guys i'm gonna hand you over to

3110  
04:20:26,149 --> 04:20:18,159  
christina for a couple minutes while

3111  
04:20:26,159 --> 04:20:40,149  
foreign

3112  
04:20:45,670 --> 04:20:41,830  
this is a high definition view from the

3113  
04:20:47,349 --> 04:20:45,680

helmet camera of uh kate rubins

3114

04:20:50,950 --> 04:20:47,359

they just completed the

3115

04:20:53,030 --> 04:20:50,960

the uh duo outside now kate rubens and

3116

04:20:55,269 --> 04:20:53,040

victor glover completed the installation

3117

04:20:57,429 --> 04:20:55,279

of the lower strut they may come back to

3118

04:20:58,790 --> 04:20:57,439

it to give it a couple of extra turns

3119

04:21:00,389 --> 04:20:58,800

but right now they're gearing up to

3120

04:21:02,389 --> 04:21:00,399

install the middle strut and that will

3121

04:21:05,990 --> 04:21:02,399

complete complete the installation on the

3122

04:21:07,910 --> 04:21:06,000

left side of this mast canister

3123

04:21:09,910 --> 04:21:07,920

you can see from the helmet camera of

3124

04:21:11,590 --> 04:21:09,920

kate rubin's victor glover uh crawling

3125

04:21:15,189 --> 04:21:11,600

up the side of the mass canister getting

3126  
04:21:16,710 --> 04:21:15,199  
into place to secure that middle strut

3127  
04:21:30,469 --> 04:21:16,720  
which is currently in the hands of kate

3128  
04:21:33,990 --> 04:21:31,590  
the voice you're hearing from mission

3129  
04:21:37,269 --> 04:21:34,000  
control houston is capcom christina cook

3130  
04:21:53,670 --> 04:21:37,279  
taking over temporarily from ground iv

3131  
04:21:53,680 --> 04:21:56,950  
all right

3132  
04:21:56,960 --> 04:22:02,469  
we've got the start extended

3133  
04:22:06,309 --> 04:22:04,790  
okay i see that it looks like ike has

3134  
04:22:08,149 --> 04:22:06,319  
the side pad

3135  
04:22:10,229 --> 04:22:08,159  
and that means ike here would go to

3136  
04:22:12,070 --> 04:22:10,239  
install the left side pad to the mast

3137  
04:22:13,750 --> 04:22:12,080  
canister just make sure that arrow is

3138  
04:22:15,510 --> 04:22:13,760

pointing up you're going to engage the

3139

04:22:19,429 --> 04:22:15,520

right side and then pivot to the left to

3140

04:22:36,070 --> 04:22:21,030

i guess still have control so that you

3141

04:22:40,950 --> 04:22:38,550

back at the helmet camera view of victor

3142

04:22:42,870 --> 04:22:40,960

glover it's a similar procedure to

3143

04:22:44,870 --> 04:22:42,880

installing that lower strut

3144

04:22:47,189 --> 04:22:44,880

both of the astronauts will be using

3145

04:22:49,349 --> 04:22:47,199

pistol grip tools victor glover will

3146

04:22:51,510 --> 04:22:49,359

first secure the mid-strut to the mask

3147

04:22:53,189 --> 04:22:51,520

canister with his pistol grip tool

3148

04:22:54,950 --> 04:22:53,199

before handing it back over to kate for

3149

04:23:05,670 --> 04:22:54,960

her to install it each of them has a

3150

04:23:05,680 --> 04:23:09,110

just trying to get the

3151

04:23:12,630 --> 04:23:11,269

the right side to pivot

3152

04:23:23,830 --> 04:23:12,640

and then i'm trying to get this nice

3153

04:23:27,030 --> 04:23:25,830

we are talking about it and it looks

3154

04:23:28,870 --> 04:23:27,040

like you're doing everything we would

3155

04:23:30,950 --> 04:23:28,880

recommend pivoting like like what you're

3156

04:23:32,630 --> 04:23:30,960

doing right now are you able to do that

3157

04:23:38,630 --> 04:23:32,640

enough to get that right side under the

3158

04:23:38,640 --> 04:23:43,429

and crease

3159

04:23:46,950 --> 04:23:45,349

kate if you have any more play to move

3160

04:23:49,510 --> 04:23:46,960

it out to your left side that could help

3161

04:23:51,670 --> 04:23:49,520

him as well it's engaged

3162

04:23:55,429 --> 04:23:51,680

it's engaged i'm still holding on

3163

04:23:55,439 --> 04:23:58,389

nice job guys

3164

04:24:02,790 --> 04:24:00,309

it's a good self talking it was also the

3165

04:24:05,510 --> 04:24:02,800

mlr the mlr is kind of fishing drop and

3166

04:24:06,309 --> 04:24:05,520

i see soft docks like they're reasonable

3167

04:24:07,750 --> 04:24:06,319

but

3168

04:24:10,229 --> 04:24:07,760

they're pretty heavy pieces so the

3169

04:24:12,229 --> 04:24:10,239

center pad overcame it i'm just holding

3170

04:24:13,750 --> 04:24:12,239

it very still in position

3171

04:24:17,830 --> 04:24:13,760

it's easy to

3172

04:24:17,840 --> 04:24:22,790

one two three and four let's see

3173

04:24:22,800 --> 04:24:31,670

i ike sagan

3174

04:24:36,469 --> 04:24:34,070

okay we are ready um if you are for your

3175

04:24:41,590 --> 04:24:36,479

pgt work here and i can give you

3176  
04:24:47,590 --> 04:24:43,670  
alpha

3177  
04:24:51,830 --> 04:24:49,429  
clockwise two

3178  
04:24:54,149 --> 04:24:51,840  
is six

3179  
04:24:56,469 --> 04:24:54,159  
and you're going to be doing bolts one

3180  
04:25:01,510 --> 04:24:56,479  
through four to torque it'll be about 11

3181  
04:25:35,750 --> 04:25:03,910  
short

3182  
04:25:39,910 --> 04:25:37,590  
okay

3183  
04:25:56,070 --> 04:25:39,920  
3.6 on the torque

3184  
04:26:01,030 --> 04:25:57,590  
okay you can move on to the next goal

3185  
04:26:01,040 --> 04:26:06,630  
thank you

3186  
04:26:10,950 --> 04:26:09,030  
all right guys back with you here so

3187  
04:26:12,550 --> 04:26:10,960  
now that ike has put in one glove we're

3188  
04:26:14,550 --> 04:26:12,560

working on installing that mid strut

3189

04:26:16,229 --> 04:26:14,560

there are four bolts needed to secure

3190

04:26:19,750 --> 04:26:16,239

the middle strut to the mast canister

3191

04:26:20,950 --> 04:26:19,760

first one is down three to go

3192

04:26:22,229 --> 04:26:20,960

and i'm gonna wait till we get some

3193

04:26:23,910 --> 04:26:22,239

second bolts

3194

04:26:25,990 --> 04:26:23,920

okay

3195

04:26:30,790 --> 04:26:26,000

just tell us what's next complicated am

3196

04:26:36,309 --> 04:26:33,429

yeah you actually can work on currently

3197

04:26:38,550 --> 04:26:36,319

after the first one and so uh but that's

3198

04:26:40,229 --> 04:26:38,560

fine to wait till the second one kate um

3199

04:26:45,189 --> 04:26:40,239

so yeah he'll just continue to work

3200

04:26:48,550 --> 04:26:47,750

no i'm not let's just get this side pad

3201  
04:26:50,469 --> 04:26:48,560  
on

3202  
04:26:52,630 --> 04:26:50,479  
my experience with the uh

3203  
04:26:53,670 --> 04:26:52,640  
upper triangle we want to get this fully

3204  
04:26:55,030 --> 04:26:53,680  
bolted

3205  
04:26:57,349 --> 04:26:55,040  
before i start putting those on this

3206  
04:27:03,590 --> 04:26:59,750  
okay we copied and that's uh where we

3207  
04:27:07,269 --> 04:27:05,429  
i got two on the altitude sidekick you

3208  
04:27:09,429 --> 04:27:07,279  
can get started if you want

3209  
04:27:12,710 --> 04:27:09,439  
2.7 green lights

3210  
04:27:14,309 --> 04:27:12,720  
and that one was 11 turns it's not even

3211  
04:27:15,349 --> 04:27:14,319  
moving my side is nice and straight okay

3212  
04:27:18,309 --> 04:27:15,359  
gotcha

3213  
04:27:24,830 --> 04:27:19,510

we copied

3214

04:27:24,840 --> 04:27:34,070

3. copy 3.7 eleven turns green light

3215

04:27:44,389 --> 04:27:36,389

okay for you your settings will be bravo

3216

04:27:49,030 --> 04:27:46,229

and that last one i gave you uh frank

3217

04:27:51,269 --> 04:27:49,040

was m4 on m3

3218

04:27:55,750 --> 04:27:51,279

i had nine turns

3219

04:28:05,590 --> 04:27:55,760

green light 3.6 on the torch

3220

04:28:10,149 --> 04:28:08,070

glover currently working to install that

3221

04:29:14,070 --> 04:28:10,159

middle strut four bolts needed three are

3222

04:29:17,830 --> 04:29:15,750

i must have been slipping on that one

3223

04:29:20,469 --> 04:29:17,840

frank i guess

3224

04:29:22,790 --> 04:29:20,479

not have been engaged i counted 17 turns

3225

04:29:29,510 --> 04:29:22,800

it's flush like the other bolts

3226

04:29:35,349 --> 04:29:32,389

now we copy i like uh

3227

04:29:36,550 --> 04:29:35,359

17 turns 3.7 green light we'll check uh

3228

04:29:38,309 --> 04:29:36,560

and agree that you're probably worse

3229

04:29:40,710 --> 04:29:38,319

working on that could you please go back

3230

04:29:46,790 --> 04:29:40,720

to m1 on the same settings and see if

3231

04:29:50,950 --> 04:29:49,269

glover can be completed driving all four

3232

04:29:53,189 --> 04:29:50,960

bolts going back to one just to make

3233

04:29:54,870 --> 04:29:53,199

sure it's nice and snug that'll complete

3234

04:29:56,550 --> 04:29:54,880

uh his installation after that he

3235

04:29:58,469 --> 04:29:56,560

doesn't have any more tasks to drive

3236

04:30:00,550 --> 04:29:58,479

this middle strut and then we'll leave

3237

04:30:02,950 --> 04:30:00,560

it to kate rubens to affects the middle

3238

04:30:07,510 --> 04:30:02,960

strut to the mounting bracket on her

3239

04:30:07,520 --> 04:30:29,590

copy no additional turns on anyone

3240

04:30:34,550 --> 04:30:32,229

okay ike uh that is a good install on

3241

04:30:36,550 --> 04:30:34,560

the side pad you can install your pgt

3242

04:30:39,030 --> 04:30:36,560

and then kate your settings on your

3243

04:30:45,349 --> 04:30:39,040

short pgt will be bravo one clockwise

3244

04:30:49,750 --> 04:30:47,429

and as a reminder you may need to egress

3245

04:31:02,469 --> 04:30:49,760

the apfr and you can use the mod kit for

3246

04:31:16,229 --> 04:31:04,630

okay you'll be driving mike 28 to torque

3247

04:31:19,910 --> 04:31:18,070

guys we have a hand over here in about

3248

04:31:37,189 --> 04:31:19,920

10 seconds so i'll be with you shortly

3249

04:31:42,070 --> 04:31:40,630

entering into another uh brief handover

3250

04:31:44,229 --> 04:31:42,080

period we're losing video from the

3251  
04:31:45,429 --> 04:31:44,239  
international space station temporarily

3252  
04:31:46,870 --> 04:31:45,439  
you're getting a view at the

3253  
04:31:48,389 --> 04:31:46,880  
international space station flight

3254  
04:31:50,710 --> 04:31:48,399  
control room these are the teams

3255  
04:31:53,429 --> 04:31:50,720  
supporting today's spacewalk led by

3256  
04:31:55,510 --> 04:31:53,439  
flight director marcus flores

3257  
04:31:57,189 --> 04:31:55,520  
next to him uh frank rubio is the voice

3258  
04:31:59,269 --> 04:31:57,199  
you're hearing here from mission control

3259  
04:32:01,830 --> 04:31:59,279  
the ground iv walking our two astronauts

3260  
04:32:04,229 --> 04:32:01,840  
through the intricate procedures to his

3261  
04:32:06,309 --> 04:32:04,239  
right is uh nasa astronaut christine

3262  
04:32:09,910 --> 04:32:06,319  
cook taking on the capcom roll you'll

3263  
04:32:11,990 --> 04:32:09,920

hear her voice as well occasionally

3264

04:32:13,670 --> 04:32:12,000

and art thomason taking on the spacewalk

3265

04:32:15,110 --> 04:32:13,680

officer role he knows the procedures

3266

04:32:16,790 --> 04:32:15,120

backwards and forwards with the support

3267

04:32:18,870 --> 04:32:16,800

of his team in some of the back rooms

3268

04:32:20,950 --> 04:32:18,880

relaying those procedures and checking

3269

04:32:22,469 --> 04:32:20,960

and verifying all of the steps making

3270

04:32:25,110 --> 04:32:22,479

sure the bolts are tight the torque is

3271

04:32:29,590 --> 04:32:25,120

good all along the way and relaying that

3272

04:32:33,750 --> 04:32:31,910

again we have a good middle strut on

3273

04:32:35,429 --> 04:32:33,760

victor glover's end just waiting to

3274

04:32:38,950 --> 04:32:35,439

install it on

3275

04:32:42,950 --> 04:32:40,950

she has to use her pistol grip tool to

3276

04:32:46,149 --> 04:32:42,960

affix it to the mounting bracket on the

3277

04:32:47,910 --> 04:32:46,159

forward end she's on the tip of a

3278

04:32:49,349 --> 04:32:47,920

portable foot restraint to get her a

3279

04:32:51,510 --> 04:32:49,359

good angle on

3280

04:32:54,070 --> 04:32:51,520

on that mounting bracket

3281

04:32:56,229 --> 04:32:54,080

having her install that

3282

04:32:58,630 --> 04:32:56,239

after she's complete and the engineers

3283

04:33:00,389 --> 04:32:58,640

say everything looks good on their end

3284

04:33:02,550 --> 04:33:00,399

we'll switch over to the right side and

3285

04:33:08,869 --> 04:33:02,560

install the lower and mid struts on the

3286

04:33:13,670 --> 04:33:12,070

copy 10 decimal five turns 11.9 green

3287

04:33:21,429 --> 04:33:13,680

light we're checking and is the black

3288

04:33:21,439 --> 04:33:49,830

copy thank you

3289

04:33:53,990 --> 04:33:51,830

all right guys that is a good bolt on

3290

04:33:57,189 --> 04:33:54,000

mic 28 and a good install for the left

3291

04:33:58,869 --> 04:33:57,199

mid strut so okay you can store your pgt

3292

04:34:16,150 --> 04:33:58,879

and install the grounding pip pin to the

3293

04:34:20,709 --> 04:34:18,629

and ike as kate is installing the granny

3294

04:34:32,949 --> 04:34:20,719

pit pin you can release

3295

04:34:38,070 --> 04:34:34,709

okay

3296

04:34:48,230 --> 04:34:39,189

got it

3297

04:34:51,990 --> 04:34:49,750

with that the left side of the

3298

04:34:53,269 --> 04:34:52,000

modification kit the brackets are

3299

04:34:55,429 --> 04:34:53,279

installed

3300

04:34:57,029 --> 04:34:55,439

you have a middle strut there and just

3301

04:34:59,189 --> 04:34:57,039

below this view from

3302

04:35:01,429 --> 04:34:59,199

victor glover's helmet camera we do have

3303

04:35:03,269 --> 04:35:01,439

a lower strut on the left side as well

3304

04:35:04,789 --> 04:35:03,279

as the upper triangle that will

3305

04:35:06,390 --> 04:35:04,799

containing the mounting bracket that

3306

04:35:10,551 --> 04:35:06,400

will eventually house

3307

04:35:12,470 --> 04:35:10,561

the future irosa solar array upgrade

3308

04:35:13,990 --> 04:35:12,480

with that complete uh the two astronauts

3309

04:35:16,230 --> 04:35:14,000

will move on to the next side there's

3310

04:35:17,670 --> 04:35:16,240

again a mirror image of what we've just

3311

04:35:21,109 --> 04:35:17,680

worked on on the left side you got a

3312

04:35:28,789 --> 04:35:21,119

lower strut as well as a middle strut

3313

04:35:34,830 --> 04:35:30,949

coming up on three hours into today's

3314

04:35:38,551 --> 04:35:37,029

frank i've got my brt right back on my

3315

04:35:40,390 --> 04:35:38,561

brt

3316

04:35:44,150 --> 04:35:40,400

tip 10 is installed it's not involved

3317

04:35:48,949 --> 04:35:45,590

copycat thank you

3318

04:35:54,949 --> 04:35:48,959

okay you can egress the apfr

3319

04:36:01,590 --> 04:35:56,551

route this pit pin so it doesn't

3320

04:36:01,600 --> 04:36:05,830

copy good plan

3321

04:36:05,840 --> 04:36:30,390

for when you get up here my friends

3322

04:36:30,400 --> 04:36:56,629

um

3323

04:37:02,470 --> 04:37:00,150

regaining views from the helmet camera

3324

04:37:04,230 --> 04:37:02,480

of astronaut kate rubins who's currently

3325

04:37:06,949 --> 04:37:04,240

at the end of a portable foot restraint

3326

04:37:10,230 --> 04:37:06,959

she's been in this position to install

3327

04:37:12,230 --> 04:37:10,240

the lower and middle struts

3328

04:37:14,789 --> 04:37:12,240

you can get a good view from her angle

3329

04:37:17,029 --> 04:37:14,799

of that configuration she'll move over

3330

04:37:18,949 --> 04:37:17,039

and reconfigure the uh portable foot

3331

04:37:21,109 --> 04:37:18,959

restraint you see is leaning slightly to

3332

04:37:23,670 --> 04:37:21,119

the left from this position to get a

3333

04:37:24,949 --> 04:37:23,680

good angle on those left struts

3334

04:37:27,189 --> 04:37:24,959

she'll do the same thing on the other

3335

04:37:29,109 --> 04:37:27,199

side just maneuver the portable foot

3336

04:37:31,510 --> 04:37:29,119

restraint over leaning slightly to the

3337

04:37:33,990 --> 04:37:31,520

right and get a good angle to install

3338

04:37:36,230 --> 04:37:34,000

the lower and middle struts on the right

3339

04:37:38,869 --> 04:37:36,240

side

3340

04:37:40,551 --> 04:37:38,879

okay frank i've egressed the hsr

3341

04:37:44,789 --> 04:37:40,561

off of my right side for the lower

3342

04:37:47,990 --> 04:37:46,310

and you'll be changing the roll on the

3343

04:37:49,910 --> 04:37:48,000

apfr

3344

04:37:58,789 --> 04:37:49,920

to charlie so your new settings will be

3345

04:37:58,799 --> 04:38:11,750

or the atlantic ocean

3346

04:38:14,310 --> 04:38:13,029

tonight you're going to be retrieving

3347

04:38:20,949 --> 04:38:14,320

the right mid strut that should be

3348

04:38:20,959 --> 04:38:25,109

charlie reince

3349

04:38:25,119 --> 04:38:34,310

can i be giving you this first

3350

04:38:49,269 --> 04:38:36,070

giving her the mid right

3351  
04:38:53,670 --> 04:38:51,510  
you receive the right mid strut and do a

3352  
04:39:19,029 --> 04:38:53,680  
red stop you'll want it right to the

3353  
04:39:19,039 --> 04:39:42,550  
off

3354  
04:39:42,560 --> 04:39:56,390  
and now you can engross the apfrom

3355  
04:40:14,788 --> 04:39:57,830  
like you'll be retrieving the right

3356  
04:40:18,628 --> 04:40:17,110  
okay reuben's easing her way into the

3357  
04:40:20,550 --> 04:40:18,638  
portable foot restraint this will be the

3358  
04:40:24,070 --> 04:40:20,560  
last angle she needs to install the

3359  
04:40:26,550 --> 04:40:24,080  
right two struts uh from her position at

3360  
04:40:28,788 --> 04:40:26,560  
the top of that foot restraint

3361  
04:40:30,550 --> 04:40:28,798  
attached to her by way of body restraint

3362  
04:40:32,948 --> 04:40:30,560  
tether is the middle strut you'll have

3363  
04:40:34,708 --> 04:40:32,958

that ready to go whenever uh they're

3364

04:40:36,550 --> 04:40:34,718

ready to move on to that task in the

3365

04:40:38,708 --> 04:40:36,560

meantime you can see from the helmet

3366

04:40:41,830 --> 04:40:38,718

camera view of kate rubin's victor

3367

04:40:43,590 --> 04:40:41,840

glover off at the strut bag getting that

3368

04:40:44,868 --> 04:40:43,600

lower strut

3369

04:40:47,510 --> 04:40:44,878

out of the bag

3370

04:40:49,270 --> 04:40:47,520

that'll be the first task for them

3371

04:40:55,270 --> 04:40:49,280

on the right side is installing the

3372

04:41:00,788 --> 04:40:57,830

the tasks will mirror what we just saw

3373

04:41:03,510 --> 04:41:00,798

on the left side they'll position the

3374

04:41:06,230 --> 04:41:03,520

lower strut at the base of the

3375

04:41:09,110 --> 04:41:06,240

mast canister

3376

04:41:09,990 --> 04:41:09,120

victor glover will secure

3377

04:41:16,628 --> 04:41:10,000

the

3378

04:41:20,550 --> 04:41:16,638

in place first with a few turns

3379

04:41:22,948 --> 04:41:20,560

before allowing kate rubins to drive

3380

04:41:25,590 --> 04:41:22,958

the pistol grip tool on her end securing

3381

04:41:25,600 --> 04:41:31,270

mounting bracket

3382

04:41:35,270 --> 04:41:33,110

and glover will finish off the job with

3383

04:41:36,628 --> 04:41:35,280

his uh pistol grip tool

3384

04:41:38,230 --> 04:41:36,638

right to the

3385

04:41:39,670 --> 04:41:38,240

lower strut you'll want to read to the

3386

04:41:52,470 --> 04:41:39,680

handrail extension

3387

04:41:56,948 --> 04:41:55,270

three hours into today's spacewalk the

3388

04:42:00,070 --> 04:41:56,958

two spacewalkers are more than halfway

3389

04:42:15,110 --> 04:42:00,080

done with the first modification kit on

3390

04:42:15,120 --> 04:42:19,430

okay i have control

3391

04:42:19,440 --> 04:42:24,150

control and edits

3392

04:42:26,788 --> 04:42:25,350

and i'm just going to hold this here

3393

04:42:28,230 --> 04:42:26,798

while you translate let me know if i

3394

04:42:30,070 --> 04:42:28,240

need to move it

3395

04:42:32,470 --> 04:42:30,080

oh let's see

3396

04:42:34,788 --> 04:42:32,480

i can move it

3397

04:42:37,190 --> 04:42:34,798

i'm just i need to get that right off oh

3398

04:42:39,270 --> 04:42:37,200

okay so can you push it back towards me

3399

04:42:46,788 --> 04:42:39,280

yep yeah

3400

04:42:50,868 --> 04:42:49,030

okay rubens now has control of that

3401

04:42:53,110 --> 04:42:50,878

lower strut she's just going to hang on

3402

04:42:54,788 --> 04:42:53,120

to it while she's in position on top of

3403

04:42:57,110 --> 04:42:54,798

the portable foot restraint

3404

04:42:59,670 --> 04:42:57,120

allowing uh victor glover to make his

3405

04:43:01,430 --> 04:42:59,680

way over to the work site on the base on

3406

04:43:03,030 --> 04:43:01,440

the right side of the mass canister

3407

04:43:05,110 --> 04:43:03,040

that'll be the position he needs to be

3408

04:43:10,708 --> 04:43:05,120

in in order to drive the bolts of that

3409

04:43:10,718 --> 04:43:16,830

that fingers in the way

3410

04:43:20,948 --> 04:43:18,948

okay i'm just going to clear it from

3411

04:43:24,550 --> 04:43:20,958

your translation path uh you're fine

3412

04:43:38,628 --> 04:43:26,230

and i will be translating to the mass

3413

04:44:07,990 --> 04:43:40,948

okay you can release the I6 grounding

3414

04:44:08,000 --> 04:44:15,270

foreign

3415

04:44:18,550 --> 04:44:17,030

yeah it's a pretty outstanding view it's

3416

04:44:21,590 --> 04:44:18,560

like non-stop

3417

04:44:21,600 --> 04:44:25,110

all right

3418

04:44:30,788 --> 04:44:27,750

i think i didn't wear a camera on me

3419

04:44:34,070 --> 04:44:30,798

we've got an hd video for you

3420

04:44:38,948 --> 04:44:36,310

yep and uh also of note it's actually

3421

04:44:42,310 --> 04:44:38,958

significantly better than the wvs view

3422

04:44:43,110 --> 04:44:42,320

which is coming in very broken

3423

04:44:46,788 --> 04:44:43,120

okay

3424

04:44:51,910 --> 04:44:48,310

that's the uh that's the weather issue

3425

04:44:56,070 --> 04:44:54,230

and ike that may be a tight fit for you

3426

04:45:04,390 --> 04:44:56,080

there you may want to go around the

3427

04:45:08,948 --> 04:45:05,510

there should be a pretty good

3428

04:45:23,190 --> 04:45:08,958

translation path around the bottom side

3429

04:45:27,670 --> 04:45:25,110

from this view you can clearly see the

3430

04:45:29,590 --> 04:45:27,680

mast canister it is the uh soda can

3431

04:45:30,550 --> 04:45:29,600

looking structure at the center of your

3432

04:45:33,110 --> 04:45:30,560

screen

3433

04:45:35,670 --> 04:45:33,120

uh the astronaut with the red stripes is

3434

04:45:37,510 --> 04:45:35,680

astronaut kate rubin she's at the top of

3435

04:45:39,830 --> 04:45:37,520

a portable foot restraint at the perfect

3436

04:45:42,070 --> 04:45:39,840

angle to install the final two struts on

3437

04:45:43,750 --> 04:45:42,080

the right side

3438

04:45:46,310 --> 04:45:43,760

astronaut uh

3439

04:45:48,310 --> 04:45:46,320

victor glover is making his way over to

3440

04:45:51,670 --> 04:45:48,320

his work site at the bottom of the mass

3441

04:45:56,150 --> 04:45:53,910

his next task is to install the lower

3442

04:45:58,390 --> 04:45:56,160

strut on the right side getting a good

3443

04:46:01,270 --> 04:45:58,400

angle he'll need to use a pistol grip

3444

04:46:05,030 --> 04:46:01,280

tool the space drill to secure

3445

04:46:09,270 --> 04:46:07,190

that strut currently in tow by uh

3446

04:46:22,070 --> 04:46:09,280

astronaut kate rubin she'll hand it off

3447

04:46:22,080 --> 04:46:45,830

okay

3448

04:46:56,230 --> 04:46:47,510

i feel like this setting is one more

3449

04:47:01,030 --> 04:46:57,750

okay to understand you would want one

3450

04:47:04,550 --> 04:47:02,708

negative i feel like it is one more

3451

04:47:06,070 --> 04:47:04,560

quicker roll or

3452

04:47:09,590 --> 04:47:06,080

something different than the other side

3453

04:47:10,868 --> 04:47:09,600

and i'm liking it very much

3454

04:47:12,390 --> 04:47:10,878

copy thank you

3455

04:47:25,350 --> 04:47:12,400

for your future

3456

04:47:25,360 --> 04:47:36,550

uh

3457

04:47:40,550 --> 04:47:38,708

you'll want to verify the spherical

3458

04:47:42,948 --> 04:47:40,560

bearing alignment and then kate also

3459

04:47:44,628 --> 04:47:42,958

remind her to avoid imparting loads

3460

04:47:47,350 --> 04:47:44,638

during the lower strut

3461

04:47:49,830 --> 04:47:47,360

bolt install

3462

04:47:58,390 --> 04:47:49,840

copy and same thing i still just hold it

3463

04:48:02,390 --> 04:48:00,788

this last time the sun was right in

3464

04:48:03,910 --> 04:48:02,400

front of me doing this and same things

3465

04:48:17,110 --> 04:48:03,920

happening

3466

04:48:20,550 --> 04:48:18,788

you can see on this side i'm not really

3467

04:48:27,350 --> 04:48:20,560

able to influence the

3468

04:48:36,948 --> 04:48:30,628

just about parallel to the

3469

04:48:36,958 --> 04:48:48,470

copy

3470

04:48:48,480 --> 04:48:54,550

okay you started two turns

3471

04:49:06,948 --> 04:48:57,110

and your pgt settings will be alpha one

3472

04:49:11,350 --> 04:49:09,750

glover has the lower strut hand started

3473

04:49:12,628 --> 04:49:11,360

just a couple turns with his hand he'll

3474

04:49:14,470 --> 04:49:12,638

now move over

3475

04:49:16,150 --> 04:49:14,480

and use the pistol grip tool you can see

3476

04:49:18,230 --> 04:49:16,160

just out of his reach

3477

04:49:20,628 --> 04:49:18,240

give it a few more turns with the space

3478

04:49:23,750 --> 04:49:20,638

drill uh before he hands it over to kate

3479

04:49:27,350 --> 04:49:23,760

rubins who has her own pgt pistol grip

3480

04:49:32,910 --> 04:49:27,360

tool and she'll secure the lower strut

3481

04:49:32,920 --> 04:49:37,110

[Music]

3482

04:49:41,030 --> 04:49:38,550

and like again you're looking for alpha

3483

04:49:42,708 --> 04:49:41,040

one clockwise one and you'll be driving

3484

04:49:52,390 --> 04:49:42,718

four turns total so it should be two

3485

04:50:14,310 --> 04:49:55,910

i also want clockwise one six

3486

04:50:14,320 --> 04:50:18,868

two additional terms

3487

04:50:18,878 --> 04:50:25,990

copy

3488

04:50:32,948 --> 04:50:27,830

okay you can install the right lower

3489

04:50:52,070 --> 04:50:34,868

hey i see l6

3490

04:50:57,350 --> 04:50:53,910

okay that is affirmative that is the mic

3491

04:51:21,030 --> 04:51:00,788

and then assuming that hand starts

3492

04:51:26,788 --> 04:51:23,350

all right glover has uh

3493

04:51:32,470 --> 04:51:30,550

secured on his end temporarily

3494

04:51:34,550 --> 04:51:32,480

now kate rubin's just hand tightening

3495

04:51:36,470 --> 04:51:34,560

the lower strut on her end to the

3496

04:51:40,390 --> 04:51:36,480

mounting bracket she'll then use the

3497

04:51:48,788 --> 04:51:43,910

clockwise two

3498

04:51:52,150 --> 04:51:50,390

and you'll be driving

3499

04:52:44,470 --> 04:51:52,160

mic 20 to torque

3500

04:52:44,480 --> 04:52:49,430

all right i've got a low torque 10.4

3501

04:52:56,230 --> 04:52:53,830

go ahead it says send turns

3502

04:52:58,550 --> 04:52:56,240

i just don't mind uh

3503

04:53:02,230 --> 04:52:58,560

okay i understand 10.4 on the torque 10

3504

04:53:12,868 --> 04:53:03,830

if you move your left shoulder away from

3505

04:53:15,830 --> 04:53:13,830

all right

3506

04:53:17,910 --> 04:53:15,840

got it i drove it again about a quarter

3507

04:53:21,510 --> 04:53:17,920

turn 11 decimal eight

3508

04:53:25,190 --> 04:53:23,270

okay i understand green light 11 dozen

3509

04:53:31,910 --> 04:53:25,200

light about a quarter additional turn

3510

04:53:31,920 --> 04:53:36,788

this black line

3511

04:53:42,230 --> 04:53:38,868

copy thank you kate

3512

04:53:51,670 --> 04:53:46,948

okay

3513

04:53:53,350 --> 04:53:51,680

20 you can store your pgt mike your

3514

04:54:03,430 --> 04:53:53,360

settings will now be bravo seven

3515

04:54:07,830 --> 04:54:05,350

and with that we have a good install on

3516

04:54:09,590 --> 04:54:07,840

the mounting bracket uh kate rubin

3517

04:54:12,070 --> 04:54:09,600

successfully installed that lower strut

3518

04:54:13,750 --> 04:54:12,080

to the top portion where she is working

3519

04:54:15,510 --> 04:54:13,760

her current work site

3520

04:54:17,190 --> 04:54:15,520

now going back to victor glover he only

3521

04:54:19,190 --> 04:54:17,200

has a couple turns on the lower end of

3522

04:54:21,030 --> 04:54:19,200

that strut he's going to go ahead and

3523

04:54:23,030 --> 04:54:21,040

finish it off with his

3524

04:54:25,510 --> 04:54:23,040

pistol grip tool making sure it's secure

3525

04:54:41,910 --> 04:54:25,520

to the base of the mass canister

3526

04:54:41,920 --> 04:54:45,270

hey

3527

04:54:49,030 --> 04:54:47,190

for emu

3528

04:54:53,750 --> 04:54:49,040

ecb's at one and a half repeaters off

3529

04:54:53,760 --> 04:55:08,948

copycat

3530

04:55:08,958 --> 04:55:18,708

we've got a six turn green light 25.4

3531

04:55:22,470 --> 04:55:20,150

can you say again in the turn count

3532

04:55:25,030 --> 04:55:22,480

please like

3533

04:55:25,040 --> 04:55:29,670

concerns

3534

04:55:39,350 --> 04:55:32,230

okay understand six turns and 25 decimal

3535

04:55:39,360 --> 04:55:54,470

and it's torquefield greenlight yeah

3536

04:55:58,230 --> 04:55:56,150

all right could you please hit it again

3537

04:56:01,030 --> 04:55:58,240

at the same torque

3538

04:56:26,070 --> 04:56:01,040

or same setting correction and uh before

3539

04:56:38,628 --> 04:56:29,590

in light 25 44 in

3540

04:56:38,638 --> 04:56:52,948

copying and we're checking

3541

04:56:52,958 --> 04:57:35,670

okay

3542

04:57:35,680 --> 04:57:59,990

um

3543

04:58:03,030 --> 04:58:00,868

okay

3544

04:58:04,868 --> 04:58:03,040

based on what we saw on the other side

3545

04:58:07,110 --> 04:58:04,878

we're going to back this out six turns

3546

04:58:09,430 --> 04:58:07,120

only so your settings will be bravo

3547

04:58:25,750 --> 04:58:09,440

seven counterclockwise two and you'll

3548

04:58:25,760 --> 04:58:45,510

good

3549

04:58:49,910 --> 04:58:47,750

so glover is uh undoing the bolt just a

3550

04:58:52,070 --> 04:58:49,920

couple of turns about halfway

3551  
04:58:56,540 --> 04:58:52,080  
and then going to re-attempt to give it

3552  
04:58:56,550 --> 04:59:05,190  
[Music]

3553  
04:59:05,200 --> 04:59:08,470  
copy six turns right

3554  
04:59:21,430 --> 04:59:10,070  
okay uh you'll go back to your original

3555  
05:00:04,470 --> 04:59:23,350  
thinking

3556  
05:00:09,750 --> 05:00:05,670  
hi could you please say again those

3557  
05:00:14,310 --> 05:00:11,910  
five and a half turns

3558  
05:00:21,910 --> 05:00:14,320  
and 5.4 on the torque

3559  
05:00:21,920 --> 05:00:35,750  
okay we copy it

3560  
05:00:39,670 --> 05:00:37,590  
okay hike so we're going to try a manual

3561  
05:00:49,830 --> 05:00:39,680  
ratchet so your settings will be ratchet

3562  
05:00:52,948 --> 05:00:51,270  
and you'll drive

3563  
05:01:00,390 --> 05:00:52,958

to torque again and you're looking for

3564

05:01:05,750 --> 05:01:02,628

so again using that pistol grip tool as

3565

05:01:07,670 --> 05:01:05,760

a ratchet giving it a few extra turns

3566

05:01:37,350 --> 05:01:07,680

making sure it is nice and snug at the

3567

05:01:37,360 --> 05:01:54,230

is

3568

05:01:59,590 --> 05:01:56,390

all right two good pops

3569

05:02:02,070 --> 05:01:59,600

it was one in a quarter turn

3570

05:02:04,230 --> 05:02:02,080

and we are

3571

05:02:07,990 --> 05:02:04,240

millimeters from having the black line

3572

05:02:10,788 --> 05:02:09,910

copy two good pops

3573

05:02:12,628 --> 05:02:10,798

uh

3574

05:02:14,390 --> 05:02:12,638

one millimeter and

3575

05:02:17,430 --> 05:02:14,400

i understand one millimeter from the

3576

05:02:37,270 --> 05:02:19,510

two millimeters

3577

05:02:40,708 --> 05:02:39,350

okay mike if you could drive it one more

3578

05:02:46,150 --> 05:02:40,718

time on

3579

05:02:46,160 --> 05:02:51,910

good work

3580

05:02:58,708 --> 05:02:54,550

i've got the pit in the grounding block

3581

05:03:20,788 --> 05:03:00,390

coffee gate thank you and next you'll

3582

05:03:25,830 --> 05:03:22,948

and 2d pulse is just a fraction of a

3583

05:03:25,840 --> 05:03:30,788

let's do the need for this phone

3584

05:03:35,590 --> 05:03:33,110

okay we copy i two more good pops and a

3585

05:03:37,830 --> 05:03:35,600

fraction of a turn

3586

05:03:41,750 --> 05:03:37,840

uh you can leave the pgt on handrail

3587

05:03:43,830 --> 05:03:41,760

5372 and if you can also do a quick uh

3588

05:03:44,708 --> 05:03:43,840

wiggle test on the

3589

05:03:47,350 --> 05:03:44,718

lower

3590

05:03:51,830 --> 05:03:50,230

this one still has some play in it but i

3591

05:03:54,788 --> 05:03:51,840

also admitted something just now while i

3592

05:03:55,990 --> 05:03:54,798

was ratcheting it i was able to adjust

3593

05:03:59,510 --> 05:03:56,000

the uh

3594

05:04:01,830 --> 05:03:59,520

angle of the spherical variant

3595

05:04:03,750 --> 05:04:01,840

when i pulled i

3596

05:04:05,750 --> 05:04:03,760

when i pulled to ratchet

3597

05:04:10,310 --> 05:04:05,760

it pulls the spherical bearing in the

3598

05:04:18,470 --> 05:04:11,830

you're now line back up here straight

3599

05:04:22,310 --> 05:04:20,628

okay we copy like a good observation so

3600

05:04:26,310 --> 05:04:22,320

if you um if you think you can get more

3601

05:04:30,470 --> 05:04:28,628

okay let me just

3602

05:04:32,788 --> 05:04:30,480

i think it's straight we're still

3603

05:04:33,910 --> 05:04:32,798

getting some play in the end it is you

3604

05:04:36,470 --> 05:04:33,920

know

3605

05:04:38,470 --> 05:04:36,480

some uh wiggle to it

3606

05:04:52,150 --> 05:04:38,480

and i've got it what looks straight to

3607

05:04:52,160 --> 05:05:08,070

thanks

3608

05:05:11,670 --> 05:05:09,910

okay we're going to go ahead and move on

3609

05:05:13,910 --> 05:05:11,680

we may end up having to come back here

3610

05:05:16,868 --> 05:05:13,920

with the torque wrench again so you'll

3611

05:05:19,430 --> 05:05:16,878

leave the pgt on handrail 5372 and then

3612

05:05:29,830 --> 05:05:19,440

verify that the lower strut mli covering

3613

05:05:52,708 --> 05:05:32,150

i'll take my next step that's the mid

3614

05:05:56,788 --> 05:05:54,550

okay you can work on releasing the pit

3615

05:06:03,430 --> 05:05:56,798

pin from the lock position should be

3616

05:06:07,750 --> 05:06:05,430

with that the two astronauts will move

3617

05:06:10,230 --> 05:06:07,760

on to the middle strut the lower strut

3618

05:06:12,390 --> 05:06:10,240

is installed might need a few more turns

3619

05:06:13,270 --> 05:06:12,400

later with another tool likely a torque

3620

05:06:15,030 --> 05:06:13,280

wrench

3621

05:06:16,948 --> 05:06:15,040

it's the same on the other side as well

3622

05:06:19,670 --> 05:06:16,958

give it a couple extra turns make sure

3623

05:06:21,110 --> 05:06:19,680

it's snug in the meantime the teams here

3624

05:06:22,868 --> 05:06:21,120

on the ground are ready to move on to

3625

05:06:35,270 --> 05:06:22,878

the next task which is installing that

3626

05:06:38,788 --> 05:06:37,270

for future irosa

3627

05:06:41,110 --> 05:06:38,798

extended when it was right in front of

3628

05:06:43,350 --> 05:06:41,120

me versus waiting until i get the hand

3629

05:06:45,270 --> 05:06:43,360

off and pushing away

3630

05:06:46,788 --> 05:06:45,280

i definitely recommend this the second

3631

05:06:50,390 --> 05:06:46,798

way i did this

3632

05:06:50,400 --> 05:07:30,708

we cofficate appreciate the words

3633

05:07:30,718 --> 05:08:14,390

foreign

3634

05:08:18,390 --> 05:08:15,990

all right like we see uh you have the

3635

05:08:20,390 --> 05:08:18,400

side pad with the arrow pointing up and

3636

05:08:31,830 --> 05:08:20,400

uh for the soft dock you'll engage the

3637

05:08:31,840 --> 05:08:36,628

okay we see that great job

3638

05:08:40,390 --> 05:08:37,990

okay you can work on installing the

3639

05:08:42,628 --> 05:08:40,400

middle grounding pip pin into the final

3640

05:08:45,590 --> 05:08:42,638

position on the mid strut

3641

05:08:46,550 --> 05:08:45,600

like you'll be using the long pgt

3642

05:08:49,190 --> 05:08:46,560

hey

3643

05:08:50,470 --> 05:08:49,200

great i'm gonna hope it's here right

3644

05:08:53,750 --> 05:08:50,480

we'll just get him

3645

05:09:01,750 --> 05:08:56,070

like i'll be using uh the long pgt alpha

3646

05:09:01,760 --> 05:09:06,230

alpha turning clockwise two

3647

05:09:10,550 --> 05:09:08,550

uh alpha two clockwise two but it needs

3648

05:09:14,150 --> 05:09:10,560

help yeah i didn't thought that was this

3649

05:09:22,070 --> 05:09:14,160

is the last time alpha two

3650

05:09:29,910 --> 05:09:23,270

those are good settings alpha two

3651  
05:09:34,948 --> 05:09:32,150  
and like you'll be driving mic 9 through

3652  
05:09:36,788 --> 05:09:34,958  
mic 12 order doesn't matter

3653  
05:09:46,470 --> 05:09:36,798  
driving them to torque we anticipate 11

3654  
05:09:50,550 --> 05:09:49,190  
8.7 on the torch seven and a half turns

3655  
05:09:52,470 --> 05:09:50,560  
green lights

3656  
05:09:56,868 --> 05:09:52,480  
on thirteen

3657  
05:09:56,878 --> 05:10:21,030  
copy michael evans

3658  
05:10:21,040 --> 05:10:28,230  
you can okay

3659  
05:10:34,390 --> 05:10:30,708  
and i we copied that 3.7 green lights

3660  
05:10:41,590 --> 05:10:37,750  
7 turns online

3661  
05:10:48,550 --> 05:10:44,230  
i think i'm ready for pgc settings for

3662  
05:10:55,510 --> 05:10:51,190  
okay uh your settings will be bravo one

3663  
05:10:55,520 --> 05:11:00,868

one first

3664

05:11:07,830 --> 05:11:03,590

and a half three point six spring light

3665

05:11:11,590 --> 05:11:10,390

copy 10 and a half 3.6 green light on

3666

05:11:13,510 --> 05:11:11,600

m12

3667

05:11:17,510 --> 05:11:13,520

okay you'll be driving mic 24 to torque

3668

05:11:17,520 --> 05:11:24,550

okay

3669

05:11:27,590 --> 05:11:25,830

guys we're going to have a hand over

3670

05:11:30,470 --> 05:11:27,600

here in about 30 seconds

3671

05:11:32,070 --> 05:11:30,480

and so ike you can continue with uh mike

3672

05:11:33,510 --> 05:11:32,080

nine and k you'll

3673

05:11:35,830 --> 05:11:33,520

drive mike 24 i'll see you guys on the

3674

05:11:39,510 --> 05:11:35,840

other side

3675

05:11:40,550 --> 05:11:39,520

seven turns 3.6 on the torque green

3676

05:11:58,550 --> 05:11:40,560

light

3677

05:12:01,830 --> 05:12:00,310

once again entering into a short

3678

05:12:04,230 --> 05:12:01,840

handover losing video from the

3679

05:12:06,550 --> 05:12:04,240

international space station glover and

3680

05:12:08,708 --> 05:12:06,560

rubens together flying through that uh

3681

05:12:10,628 --> 05:12:08,718

those procedures for the middle strut on

3682

05:12:12,550 --> 05:12:10,638

the right side

3683

05:12:15,830 --> 05:12:12,560

lover working his way around all four

3684

05:12:18,310 --> 05:12:15,840

bolts to secure it to the mass canister

3685

05:12:20,788 --> 05:12:18,320

and reuben's confirming the uh

3686

05:12:21,910 --> 05:12:20,798

settings on the pistol grip tool for her

3687

05:12:23,510 --> 05:12:21,920

task

3688

05:12:26,390 --> 05:12:23,520

to

3689

05:12:39,430 --> 05:12:26,400

drive one bolt on her end

3690

05:12:45,190 --> 05:12:40,868

all right guys back with you how do you

3691

05:12:50,628 --> 05:12:47,910

all right still working on

3692

05:12:53,830 --> 05:12:51,910

copycat

3693

05:13:09,270 --> 05:12:53,840

and ike that was a good install on the

3694

05:13:24,868 --> 05:13:10,628

all right that was approximately three

3695

05:13:24,878 --> 05:13:46,150

okay

3696

05:13:46,160 --> 05:13:54,310

turn

3697

05:14:13,910 --> 05:13:56,628

okay we've okay we copied rotor okay you

3698

05:14:30,390 --> 05:14:16,390

7.9 good green light that's about an

3699

05:14:39,270 --> 05:14:32,390

we copy kate and that is a good install

3700

05:14:39,280 --> 05:14:44,628

i've got my rep back from the mid

3701

05:14:44,638 --> 05:14:55,030

okay copy

3702

05:15:27,430 --> 05:14:56,948

okay you can install the pip pin to the

3703

05:15:27,440 --> 05:15:35,270

copycat

3704

05:15:37,830 --> 05:15:36,310

and

3705

05:15:39,910 --> 05:15:37,840

next you're going to be

3706

05:15:42,628 --> 05:15:39,920

driving the adjustment collar bolts mic

3707

05:15:44,708 --> 05:15:42,638

25 and 26 we're just checking real quick

3708

05:15:47,270 --> 05:15:44,718

to see the ability to translate because

3709

05:15:53,030 --> 05:15:47,280

of the play still left on those lower

3710

05:15:57,750 --> 05:15:55,030

there's only playing on the right lower

3711

05:17:22,390 --> 05:15:57,760

strokes or left lower strokes the solid

3712

05:17:22,400 --> 05:17:36,070

moon eggs

3713

05:17:39,830 --> 05:17:37,830

guys uh looks like we have a go to

3714

05:17:42,868 --> 05:17:39,840

translate we'll just have to be extra

3715

05:17:45,350 --> 05:17:42,878

careful and ginger on the uh

3716

05:17:46,470 --> 05:17:45,360

while translating on the struts or the

3717

05:17:47,830 --> 05:17:46,480

bracket

3718

05:17:49,990 --> 05:17:47,840

uh so gate

3719

05:17:51,830 --> 05:17:50,000

kate you will egress the apfr and you're

3720

05:17:53,110 --> 05:17:51,840

going to be working on closing the mli

3721

05:18:02,868 --> 05:17:53,120

on the struts

3722

05:18:06,470 --> 05:18:04,230

mike you're going to be driving the

3723

05:18:09,910 --> 05:18:06,480

adjustment collar bolts mic 25 and mic

3724

05:18:09,920 --> 05:18:12,788

26.

3725

05:18:18,150 --> 05:18:14,310

we need to drive the bolts before we do

3726

05:18:18,160 --> 05:18:32,868

topic

3727

05:18:36,230 --> 05:18:34,470

so with that the engineers on the ground

3728

05:18:38,470 --> 05:18:36,240

have given a go for both of the

3729

05:18:40,868 --> 05:18:38,480

astronauts to go ahead and move along

3730

05:18:42,310 --> 05:18:40,878

the modification kit

3731

05:18:45,270 --> 05:18:42,320

they still need to make sure that that

3732

05:18:47,190 --> 05:18:45,280

bottom lower strut is uh secure but they

3733

05:18:48,708 --> 05:18:47,200

are confident enough that the astronauts

3734

05:18:52,628 --> 05:18:48,718

themselves can translate and perform

3735

05:18:55,430 --> 05:18:52,638

some of the next next next tasks

3736

05:18:58,708 --> 05:18:55,440

glover is uh working to

3737

05:19:00,550 --> 05:18:58,718

secure bolts of the adjustable section

3738

05:19:03,350 --> 05:19:00,560

of the middle strut

3739

05:19:05,830 --> 05:19:03,360

it was adjustable to allow it to uh

3740

05:19:07,270 --> 05:19:05,840

stretch out enough to be bolted to both

3741

05:19:09,110 --> 05:19:07,280

the mounting bracket and the mass

3742

05:19:23,670 --> 05:19:09,120

canister

3743

05:19:23,680 --> 05:19:31,670

go back and forth

3744

05:19:35,510 --> 05:19:33,750

okay uh we see that like uh and yeah

3745

05:19:48,550 --> 05:19:35,520

we'll try just driving each one all the

3746

05:19:53,830 --> 05:19:51,750

yep you'll want to drive mic 26 first

3747

05:20:04,868 --> 05:19:53,840

and then verify that the tab is secure

3748

05:20:21,830 --> 05:20:06,150

like you're driving this to torque we

3749

05:20:25,830 --> 05:20:23,910

here's the helmet cam review from uh

3750

05:20:27,510 --> 05:20:25,840

victor glover

3751

05:20:29,270 --> 05:20:27,520

you can see there's two bolts on the

3752

05:20:30,948 --> 05:20:29,280

adjustable section of that middle strut

3753

05:20:36,548 --> 05:20:30,958

he's just uh closing those up and

3754

05:20:36,558 --> 05:20:41,430

yeah charles torqued out of three turns

3755

05:20:46,548 --> 05:20:45,110

at a green light 22 on four

3756

05:20:51,990 --> 05:20:46,558

okay i understand three turns and is

3757

05:20:57,350 --> 05:20:53,910

it's still about a little more than a

3758

05:21:10,868 --> 05:21:00,070

okay

3759

05:21:51,030 --> 05:21:21,190

uh

3760

05:21:59,350 --> 05:21:53,270

that one went about a quarter of a turn

3761

05:21:59,360 --> 05:23:46,310

okay i understand we're checking

3762

05:23:50,070 --> 05:23:47,910

and ike we're still with you here we're

3763

05:23:51,830 --> 05:23:50,080

just discussing uh we're going to have

3764

05:24:00,628 --> 05:23:51,840

to back out these bolts and we're just

3765

05:24:04,948 --> 05:24:02,628

victor glover continuing to work on that

3766

05:24:06,470 --> 05:24:04,958

uh the bolts near the adjustable part of

3767

05:24:08,070 --> 05:24:06,480

that middle strut just making sure

3768

05:24:10,868 --> 05:24:08,080

they're secure in place engineers on the

3769

05:24:13,110 --> 05:24:10,878

ground just evaluating those turns in

3770

05:24:15,430 --> 05:24:13,120

the meantime the space station is in an

3771

05:24:18,310 --> 05:24:15,440

orbital nighttime crossing into darkness

3772

05:24:19,190 --> 05:24:18,320

270 statute miles over the south indian

3773

05:24:20,628 --> 05:24:19,200

ocean

3774

05:24:33,590 --> 05:24:20,638

bravo 5

3775

05:24:38,868 --> 05:24:35,350

and here you're going to back out the

3776

05:24:42,708 --> 05:24:41,110

good words back out the tab side bolt

3777

05:24:49,270 --> 05:24:42,718

two turns only we're going to try to

3778

05:24:49,280 --> 05:24:57,590

you think helps turns

3779

05:24:57,600 --> 05:25:16,868

is that two turns only

3780

05:25:20,708 --> 05:25:18,868

okay

3781

05:25:21,430 --> 05:25:20,718

and i got confirmed you got two turns on

3782

05:25:29,190 --> 05:25:21,440

that

3783

05:25:44,708 --> 05:25:29,200

turns i guess we had a handover or

3784

05:25:44,718 --> 05:25:50,788

two turns on line 26

3785

05:25:50,798 --> 05:25:57,190

okay copy

3786

05:26:00,628 --> 05:25:58,948

and so right now you will go to bravo

3787

05:26:02,708 --> 05:26:00,638

five clockwise

3788

05:26:11,110 --> 05:26:02,718

two and we're going to try to drive the

3789

05:26:21,990 --> 05:26:15,510

level five clockwise to nonsense

3790

05:26:28,948 --> 05:26:23,990

okay i got one turn on it how what am i

3791

05:26:32,868 --> 05:26:31,270

okay uh we understand one

3792

05:26:35,270 --> 05:26:32,878

turn

3793

05:26:38,150 --> 05:26:35,280

and now we'll go back to the tab side i

3794

05:26:45,910 --> 05:26:38,160

only got one through the next step

3795

05:26:49,910 --> 05:26:47,430

that one turned into that stop you

3796

05:26:51,670 --> 05:26:49,920

didn't work out or just stop

3797

05:26:53,110 --> 05:26:51,680

i understand like uh we're discussing we

3798

05:26:54,070 --> 05:26:53,120

just ready to

3799

05:26:54,868 --> 05:26:54,080

uh

3800

05:26:56,230 --> 05:26:54,878

hold

3801  
05:26:57,670 --> 05:26:56,240  
and i'll have words for you shortly

3802  
05:27:21,510 --> 05:26:57,680  
we're going to have a handover here in

3803  
05:27:24,948 --> 05:27:23,350  
once again losing video from the

3804  
05:27:26,788 --> 05:27:24,958  
international space station should be

3805  
05:27:32,310 --> 05:27:26,798  
regaining it here shortly just in a

3806  
05:27:35,830 --> 05:27:34,070  
in the meantime glover is continuing to

3807  
05:27:51,030 --> 05:27:35,840  
work on that adjustable part of the mid

3808  
05:27:51,040 --> 05:27:57,430  
i come back with you out of here

3809  
05:28:01,430 --> 05:27:59,590  
okay so what we uh thanks gonna work

3810  
05:28:04,868 --> 05:28:01,440  
best here or we're in an attempt just to

3811  
05:28:06,788 --> 05:28:04,878  
walk the clamp alternating sides

3812  
05:28:08,788 --> 05:28:06,798  
so complete one additional turn on that

3813  
05:28:10,708 --> 05:28:08,798

side for two turns total

3814

05:28:47,190 --> 05:28:10,718

and then you'll alternate by two turns

3815

05:28:51,590 --> 05:28:50,310

on the mic 12 yeah my 26 that i only got

3816

05:28:59,510 --> 05:28:51,600

one term

3817

05:29:02,788 --> 05:29:01,350

okay we copy

3818

05:29:04,230 --> 05:29:02,798

hike and

3819

05:29:36,310 --> 05:29:04,240

are you able to get any additional turns

3820

05:29:36,320 --> 05:29:40,230

negative

3821

05:29:42,310 --> 05:29:41,030

okay

3822

05:29:43,990 --> 05:29:42,320

uh we copy

3823

05:31:48,788 --> 05:29:44,000

we're discussing i'll have words for you

3824

05:31:52,788 --> 05:31:50,548

how are you doing over okay i'm doing

3825

05:31:56,868 --> 05:31:52,798

good

3826

05:32:16,548 --> 05:31:59,270

how are you doing

3827

05:32:20,628 --> 05:32:18,948

right now victor glover and kate rubin's

3828

05:32:22,390 --> 05:32:20,638

both standing by

3829

05:32:24,708 --> 05:32:22,400

glover has been working on that middle

3830

05:32:26,310 --> 05:32:24,718

strut the adjustable uh the bolts near

3831

05:32:28,788 --> 05:32:26,320

the adjustable section of that middle

3832

05:32:29,750 --> 05:32:28,798

strut on the right side to secure it in

3833

05:32:31,110 --> 05:32:29,760

place

3834

05:32:33,110 --> 05:32:31,120

engineers on the ground are currently

3835

05:32:35,030 --> 05:32:33,120

evaluating some of the next steps making

3836

05:32:37,510 --> 05:32:35,040

sure it's good to go or if there's any

3837

05:32:39,190 --> 05:32:37,520

additional steps needed

3838

05:32:41,910 --> 05:32:39,200

unfortunately

3839

05:32:44,070 --> 05:32:41,920

it involves a little bit more than just

3840

05:32:46,868 --> 05:32:44,080

uh continuing to

3841

05:32:48,470 --> 05:32:46,878

drive and

3842

05:32:51,430 --> 05:32:48,480

uh with these bolts i'll have words

3843

05:33:27,030 --> 05:32:52,868

but frank we know that the smart folks

3844

05:33:39,590 --> 05:33:28,390

i think we should have tested some of

3845

05:33:44,470 --> 05:33:42,628

all right guys uh so two-step plan uh

3846

05:33:46,390 --> 05:33:44,480

first up cape for you is we're going to

3847

05:33:47,990 --> 05:33:46,400

have you go and get the torque wrench we

3848

05:33:49,190 --> 05:33:48,000

feel like we're going to need that for

3849

05:33:52,470 --> 05:33:49,200

possibly

3850

05:33:53,750 --> 05:33:52,480

this clamp and also for the lower struts

3851  
05:34:04,070 --> 05:33:53,760  
and so the

3852  
05:34:08,830 --> 05:34:06,070  
and cake correction that's the ratchet

3853  
05:34:33,670 --> 05:34:08,840  
wrench that we're looking for ratchet

3854  
05:34:33,680 --> 05:35:01,190  
and over to the bag

3855  
05:35:06,788 --> 05:35:03,110  
so victor lover is going to remain in

3856  
05:35:08,470 --> 05:35:06,798  
his position on the right middle strut

3857  
05:35:10,470 --> 05:35:08,480  
in the meantime

3858  
05:35:12,708 --> 05:35:10,480  
kate rubins is going to translate to the

3859  
05:35:14,150 --> 05:35:12,718  
bag that's currently on the zenith side

3860  
05:35:17,030 --> 05:35:14,160  
at the beginning of the space walk they

3861  
05:35:19,430 --> 05:35:17,040  
both brought strut bags out to the work

3862  
05:35:20,948 --> 05:35:19,440  
site one for each of the power channels

3863  
05:35:23,190 --> 05:35:20,958

they're using the

3864

05:35:25,030 --> 05:35:23,200

ones on the 2b channel now there's a

3865

05:35:26,708 --> 05:35:25,040

ratchet wrench and the other bag she's

3866

05:35:27,670 --> 05:35:26,718

just going to go grab it

3867

05:35:29,910 --> 05:35:27,680

and

3868

05:35:31,990 --> 05:35:29,920

possibly use it for

3869

05:35:33,670 --> 05:35:32,000

securing the bolts on some of the lower

3870

05:35:34,708 --> 05:35:33,680

struts and even possibly the middle

3871

05:35:36,150 --> 05:35:34,718

strut

3872

05:35:37,990 --> 05:35:36,160

engineers on the ground will continue to

3873

05:35:40,230 --> 05:35:38,000

evaluate that but she'll get that and

3874

05:35:42,628 --> 05:35:40,240

that'll help secure some of these some

3875

05:35:45,190 --> 05:35:42,638

of these remaining parts down

3876

05:35:53,910 --> 05:35:45,200

of the modification kit to the mast

3877

05:35:59,670 --> 05:35:55,910

and kate you're going to be heading over

3878

05:35:59,680 --> 05:36:08,310

happy

3879

05:36:11,910 --> 05:36:10,150

i'm frank the rods are a couple of

3880

05:36:13,030 --> 05:36:11,920

degrees from being like perfectly

3881

05:36:14,390 --> 05:36:13,040

centered but

3882

05:36:26,628 --> 05:36:14,400

they are both

3883

05:36:28,948 --> 05:36:27,510

okay

3884

05:36:31,990 --> 05:36:28,958

so based on that we're going to go ahead

3885

05:36:34,310 --> 05:36:32,000

and release the bolts

3886

05:37:10,230 --> 05:36:34,320

so your settings will be bravo 5

3887

05:37:13,110 --> 05:37:11,510

those are a

3888

05:37:15,750 --> 05:37:13,120

good words for these settings ike and

3889

05:37:46,470 --> 05:37:15,760

you'll just rotate the

3890

05:37:46,480 --> 05:38:15,510

uh

3891

05:38:26,070 --> 05:38:17,590

okay

3892

05:38:28,788 --> 05:38:27,030

you can

3893

05:38:31,590 --> 05:38:28,798

start your pgt and you're going to take

3894

05:38:33,670 --> 05:38:31,600

the telescoping portion

3895

05:38:35,110 --> 05:38:33,680

and rotate essentially there's a tooth

3896

05:38:37,110 --> 05:38:35,120

mechanism and we want to make sure that

3897

05:38:40,310 --> 05:38:37,120

the teeth aren't hitting each other

3898

05:38:42,470 --> 05:38:40,320

so you'll rotate both pieces

3899

05:38:44,310 --> 05:38:42,480

and then align

3900

05:38:45,350 --> 05:38:44,320

the bars back up and try to get it as

3901

05:39:12,310 --> 05:38:45,360

close to

3902

05:39:17,590 --> 05:39:13,350

all right frank and i'm going to need

3903

05:39:22,390 --> 05:39:19,910

see the bag

3904

05:39:27,910 --> 05:39:22,400

there's no handrail between bag and i am

3905

05:39:44,788 --> 05:39:29,910

coffee kate and we're checking however

3906

05:39:49,270 --> 05:39:46,548

i'm not able to uh

3907

05:39:51,190 --> 05:39:49,280

remove it at all

3908

05:39:54,708 --> 05:39:51,200

you know the side with the bolt hits on

3909

05:39:57,110 --> 05:39:54,718

it you can get it to spring in and out

3910

05:39:58,830 --> 05:39:57,120

and the other side goes

3911

05:40:02,310 --> 05:39:58,840

in

3912

05:40:05,190 --> 05:40:02,320

place okay copy ike um

3913

05:40:06,948 --> 05:40:05,200

i think rotating one side maybe uh still

3914

05:40:08,948 --> 05:40:06,958

have the same effect and so if you can

3915

05:40:09,910 --> 05:40:08,958

just align them back up and then we'll

3916

05:40:13,430 --> 05:40:09,920

try to

3917

05:40:17,590 --> 05:40:15,750

they will stay rotate together so

3918

05:40:18,948 --> 05:40:17,600

because i'm not able to rotate i'm

3919

05:40:20,470 --> 05:40:18,958

talking about the bracket the thing i'm

3920

05:40:23,110 --> 05:40:20,480

trying to tighten

3921

05:40:25,190 --> 05:40:23,120

i cannot uh i cannot rotate it relative

3922

05:40:27,030 --> 05:40:25,200

to the teeth

3923

05:40:30,390 --> 05:40:27,040

the uh

3924

05:40:36,470 --> 05:40:30,400

the left side is a sticks

3925

05:40:41,030 --> 05:40:39,190

when i try to grab the uh

3926

05:40:43,910 --> 05:40:41,040

which what's supposed to rotate roses to

3927

05:40:49,910 --> 05:40:43,920

what the telescoping portion

3928

05:40:49,920 --> 05:41:23,350

okay i understand ike

3929

05:41:27,350 --> 05:41:25,510

okay like uh in

3930

05:41:29,430 --> 05:41:27,360

in that case uh once you have them

3931

05:41:30,948 --> 05:41:29,440

aligned as close to uh

3932

05:41:32,470 --> 05:41:30,958

perfectly as possible we're gonna

3933

05:41:33,910 --> 05:41:32,480

attempt to re

3934

05:41:41,670 --> 05:41:33,920

drive the bolts at the higher torque

3935

05:41:41,680 --> 05:41:47,190

affirmative

3936

05:41:47,200 --> 05:41:59,510

ready

3937

05:42:03,670 --> 05:42:01,190

and uh kate it looks like you figured it

3938

05:42:05,430 --> 05:42:03,680

out uh you continued heading inboard

3939

05:42:06,470 --> 05:42:05,440

over to the training structure and then

3940

05:42:15,670 --> 05:42:06,480

you'll add

3941

05:42:19,750 --> 05:42:17,270

well we're still working on the middle

3942

05:42:20,868 --> 05:42:19,760

section of that mid strut on the right

3943

05:42:22,868 --> 05:42:20,878

side

3944

05:42:25,270 --> 05:42:22,878

going to redo some of those bolts at the

3945

05:42:26,868 --> 05:42:25,280

adjustable section in the middle there

3946

05:42:27,990 --> 05:42:26,878

at this time at a higher torque in the

3947

05:42:29,590 --> 05:42:28,000

meantime

3948

05:42:31,510 --> 05:42:29,600

kate rubin's coming back with a ratchet

3949

05:42:49,110 --> 05:42:31,520

bench

3950

05:42:49,120 --> 05:43:02,548

captain

3951

05:43:02,558 --> 05:43:07,190

almost six clockwise to set

3952

05:43:07,200 --> 05:43:20,628

good words

3953

05:43:24,868 --> 05:43:21,830

which one would you like me to start

3954

05:43:29,910 --> 05:43:26,708

yeah we're going to start with a tab

3955

05:43:32,070 --> 05:43:29,920

side again and do the same walking

3956

05:43:33,510 --> 05:43:32,080

method where you do two turns here

3957

05:44:07,110 --> 05:43:33,520

and then alternate two turns on either

3958

05:44:07,120 --> 05:44:22,470

i think

3959

05:45:57,670 --> 05:44:24,390

indicate the ratchet wrench should be

3960

05:46:08,470 --> 05:46:01,430

i'm trying both having shortcuts

3961

05:46:08,480 --> 05:46:23,350

copyright and is the tap still moving

3962

05:46:23,360 --> 05:46:28,310

we're checking

3963

05:46:31,990 --> 05:46:29,910

but there's also no longer any

3964

05:46:42,470 --> 05:46:32,000

screenplay on the volkswagen side as

3965

05:46:46,628 --> 05:46:44,628

okay understand no more free play hike

3966

05:46:48,628 --> 05:46:46,638

does the clamp look symmetrically closed

3967

05:46:58,310 --> 05:46:48,638

at this point like on both sides

3968

05:46:58,320 --> 05:47:02,628

copy

3969

05:47:27,590 --> 05:47:04,390

and like uh do you have any idea on the

3970

05:47:36,070 --> 05:47:30,070

and uh ikey came in

3971

05:47:36,080 --> 05:47:40,788

with three three total on each one

3972

05:47:44,470 --> 05:47:42,230

okay i understand three turns on each

3973

05:47:52,310 --> 05:47:44,480

side

3974

05:47:55,350 --> 05:47:55,110

i think i've got the ratchet

3975

05:47:56,628 --> 05:47:55,360

for wrench

3976

05:47:58,628 --> 05:47:56,638

mini workstation i'm bringing the

3977

05:48:01,510 --> 05:47:58,638

adjustable with me as well

3978

05:48:13,910 --> 05:48:01,520

open up the back here

3979

05:48:13,920 --> 05:48:41,430

yes

3980

05:48:45,670 --> 05:48:43,750

okay i think we're at a stopping point

3981

05:48:47,510 --> 05:48:45,680

for now on this caller

3982

05:48:54,788 --> 05:48:47,520

so can you verify that the middle pippin

3983

05:48:54,798 --> 05:49:11,030

it is

3984

05:49:15,830 --> 05:49:13,030

and like as you put that pippin in place

3985

05:49:17,910 --> 05:49:15,840

you can also put the mli covering

3986

05:49:20,230 --> 05:49:17,920

in place you we may have to come back

3987

05:49:44,390 --> 05:49:20,240

but we can't leave this strut without

3988

05:49:44,400 --> 05:49:53,590

location

3989

05:49:53,600 --> 05:50:17,670

yes

3990

05:50:17,680 --> 05:50:25,910

thanks

3991

05:50:30,548 --> 05:50:27,910

and like the pit pin should be coming

3992

05:50:33,670 --> 05:50:30,558

out by the handrail and then the final

3993

05:51:10,470 --> 05:50:33,680

install location will be into the narrow

3994

05:51:10,480 --> 05:51:14,948

15 is in the final location

3995

05:51:14,958 --> 05:51:27,110

topic

3996

05:51:30,548 --> 05:51:29,110

the affiliate goes under the inlet

3997

05:51:35,270 --> 05:51:30,558

because they don't see a hole in the

3998

05:51:39,190 --> 05:51:37,510

that's a affirmative like the mli goes

3999

05:51:43,670 --> 05:51:39,200

on top of the pip and there is no hole

4000

05:51:43,680 --> 05:51:48,470

and kate you are heading to the right

4001  
05:52:08,310 --> 05:51:51,270  
lower uh strut radiator side right lower

4002  
05:52:08,320 --> 05:53:02,390  
all right

4003  
05:53:02,400 --> 05:54:00,470  
uh

4004  
05:54:00,480 --> 05:54:19,430  
um

4005  
05:54:25,750 --> 05:54:21,830  
four hours 12 minutes into today's

4006  
05:54:30,470 --> 05:54:28,868  
moving on to the next task of

4007  
05:54:31,350 --> 05:54:30,480  
covering some of the sections of the

4008  
05:54:33,670 --> 05:54:31,360  
strut

4009  
05:54:35,270 --> 05:54:33,680  
with multi-layer insulation that white

4010  
05:54:37,030 --> 05:54:35,280  
fabric that you see just making sure all

4011  
05:54:40,310 --> 05:54:37,040  
those parts are covered

4012  
05:54:42,310 --> 05:54:40,320  
and no metal is exposed in the meantime

4013  
05:54:44,948 --> 05:54:42,320

kate rubins is coming back to the work

4014

05:54:47,870 --> 05:54:44,958

site with a ratchet wrench and toe in

4015

05:54:51,270 --> 05:54:47,880

toe

4016

05:54:51,280 --> 05:55:00,470

i know

4017

05:55:03,510 --> 05:55:01,750

correct kate so you're going to be

4018

05:55:15,510 --> 05:55:03,520

essentially taking the same path that

4019

05:55:15,520 --> 05:55:23,990

on the left

4020

05:55:24,000 --> 05:55:31,350

copyright

4021

05:55:35,030 --> 05:55:33,030

would you play kate oh i'm just saying

4022

05:55:38,070 --> 05:55:35,040

i'm back with you on p picture

4023

05:55:40,548 --> 05:55:38,080

thank you

4024

05:55:42,390 --> 05:55:40,558

i uh while you're in that area can you

4025

05:55:48,310 --> 05:55:42,400

make sure that the right

4026  
05:55:48,320 --> 05:55:59,030

okay

4027  
05:55:59,040 --> 05:56:04,708

[Music]

4028  
05:56:04,718 --> 05:56:34,628

oh

4029  
05:56:34,638 --> 05:56:52,390

hmm

4030  
05:56:56,310 --> 05:56:54,788

thank you simply

4031  
05:56:59,350 --> 05:56:56,320

thanks yep that's what we were looking

4032  
05:57:02,948 --> 05:57:01,350

all right guys as uh kate you're getting

4033  
05:57:04,230 --> 05:57:02,958

to your location and like you finish

4034  
05:57:06,070 --> 05:57:04,240

that up

4035  
05:57:08,230 --> 05:57:06,080

let me give you a big picture right now

4036  
05:57:11,110 --> 05:57:08,240

so right now the limiting consumable is

4037  
05:57:12,788 --> 05:57:11,120

ev2 battery at 754.

4038  
05:57:13,910 --> 05:57:12,798

we're about 45 minutes down on our

4039

05:57:15,910 --> 05:57:13,920

timeline

4040

05:57:18,390 --> 05:57:15,920

our goal right now is to finish the two

4041

05:57:19,990 --> 05:57:18,400

bravo config and get it as uh get that

4042

05:57:22,390 --> 05:57:20,000

right side

4043

05:57:25,910 --> 05:57:22,400

lower struts as close

4044

05:57:27,590 --> 05:57:25,920

and config as possible to the left side

4045

05:57:29,430 --> 05:57:27,600

and we're discussing plan forward right

4046

05:57:31,510 --> 05:57:29,440

now uh we don't think we can get to the

4047

05:57:33,030 --> 05:57:31,520

minimum config for the

4048

05:57:34,868 --> 05:57:33,040

four bubble side but we're hoping to

4049

05:57:48,788 --> 05:57:34,878

possibly build the upper triangle and

4050

05:57:51,910 --> 05:57:50,070

and guys right now we're looking at

4051  
05:58:01,430 --> 05:57:51,920  
about four four hours and 15 minutes

4052  
05:58:06,230 --> 05:58:03,590  
great big picture words by frank rubio

4053  
05:58:07,670 --> 05:58:06,240  
the ground iv for today essentially

4054  
05:58:09,110 --> 05:58:07,680  
rubens and

4055  
05:58:12,470 --> 05:58:09,120  
glover will

4056  
05:58:14,708 --> 05:58:12,480  
work with the ratchet wrench to give the

4057  
05:58:15,750 --> 05:58:14,718  
lower right strut just a little extra

4058  
05:58:18,390 --> 05:58:15,760  
tug

4059  
05:58:20,070 --> 05:58:18,400  
to make it nice and snug on that fixture

4060  
05:58:22,230 --> 05:58:20,080  
at the base of the mass canister making

4061  
05:58:24,390 --> 05:58:22,240  
sure that it is stable

4062  
05:58:26,230 --> 05:58:24,400  
on the two bravo side they are a little

4063  
05:58:29,110 --> 05:58:26,240

bit behind on the timeline because of

4064

05:58:31,430 --> 05:58:29,120

their efforts to tie down uh some of

4065

05:58:34,070 --> 05:58:31,440

these struts with the proper amount of

4066

05:58:36,708 --> 05:58:34,080

torque so the plan the going in plan now

4067

05:58:39,190 --> 05:58:36,718

is to just make sure that the bolts on

4068

05:58:42,470 --> 05:58:39,200

this side on the two bravo side that's

4069

05:58:44,868 --> 05:58:42,480

the earth-facing side are secure

4070

05:58:46,868 --> 05:58:44,878

before moving on to the four bravo side

4071

05:58:48,788 --> 05:58:46,878

on the other side

4072

05:58:50,548 --> 05:58:48,798

of course they do have another spacewalk

4073

05:58:53,510 --> 05:58:50,558

to go ahead and tackle the activities

4074

05:58:56,230 --> 05:58:53,520

needed to install that modification kit

4075

05:58:59,270 --> 05:58:56,240

but they're going to go ahead and

4076  
05:59:00,868 --> 05:58:59,280  
build the upper triangle that's on the

4077  
05:59:02,868 --> 05:59:00,878  
very top of the configuration of the

4078  
05:59:05,350 --> 05:59:02,878  
modification kit

4079  
05:59:08,390 --> 05:59:05,360  
and move on to

4080  
05:59:10,948 --> 05:59:08,400  
go ahead and ingress or enter the quest

4081  
05:59:12,948 --> 05:59:10,958  
airlock and wrap up today's spacewalk so

4082  
05:59:14,708 --> 05:59:12,958  
the plan right now is to continue to

4083  
05:59:17,030 --> 05:59:14,718  
address the two bravo side making sure

4084  
05:59:19,990 --> 05:59:17,040  
that that is uh nice and snug

4085  
05:59:25,350 --> 05:59:20,000  
and fit and complete the installation of

4086  
05:59:30,230 --> 05:59:27,670  
and uh next we're going to have you

4087  
05:59:32,470 --> 05:59:30,240  
translate over to the

4088  
05:59:34,150 --> 05:59:32,480

left mid thread adjustment collar bolts

4089

05:59:35,670 --> 05:59:34,160

and do those but before

4090

05:59:39,190 --> 05:59:35,680

initiating your translation i'll take a

4091

05:59:39,200 --> 05:59:43,350

thank you

4092

06:00:01,510 --> 05:59:44,788

destroy

4093

06:00:01,520 --> 06:00:10,788

those are updated

4094

06:00:16,708 --> 06:00:12,948

and copy gauntlets and gloves and

4095

06:00:21,110 --> 06:00:16,718

understand dry hat hike

4096

06:00:26,310 --> 06:00:23,590

okay we copy and you'll be translating

4097

06:00:27,910 --> 06:00:26,320

down and around the canister to get over

4098

06:00:32,470 --> 06:00:27,920

to the

4099

06:00:35,590 --> 06:00:33,910

on the way

4100

06:00:37,110 --> 06:00:35,600

and is this the same translation

4101  
06:00:41,830 --> 06:00:37,120  
consideration

4102  
06:00:45,510 --> 06:00:43,990  
affirmative yep we are still able to

4103  
06:00:47,430 --> 06:00:45,520  
translate but we have to be extra

4104  
06:00:48,948 --> 06:00:47,440  
careful with it

4105  
06:00:50,150 --> 06:00:48,958  
and kate when you have a chance i'll

4106  
06:00:53,270 --> 06:00:50,160  
take a glove

4107  
06:00:57,910 --> 06:00:55,350  
okay and i've got the two-inch socket

4108  
06:01:10,150 --> 06:00:57,920  
from the pgt from the ia on for the

4109  
06:01:14,070 --> 06:01:12,230  
victor glover making his way up the left

4110  
06:01:16,070 --> 06:01:14,080  
side of the structure he's heading to

4111  
06:01:18,070 --> 06:01:16,080  
the middle strut to do the same thing he

4112  
06:01:20,390 --> 06:01:18,080  
did on the other side just bolt down

4113  
06:01:26,470 --> 06:01:20,400

some of the bolts on the adjustable

4114

06:01:34,310 --> 06:01:28,948

copy uh nominal gloves try hat

4115

06:01:34,320 --> 06:01:38,470

okay copy

4116

06:01:42,470 --> 06:01:40,548

again the astronauts will continue to do

4117

06:01:43,990 --> 06:01:42,480

these periodic glove and hap checks

4118

06:01:45,110 --> 06:01:44,000

making sure that there are no cuts or

4119

06:01:46,788 --> 06:01:45,120

scrapes

4120

06:01:49,430 --> 06:01:46,798

on their gloves at their gauntlets or

4121

06:01:50,708 --> 06:01:49,440

the fabric around their wrists are down

4122

06:01:53,590 --> 06:01:50,718

and that their hap their helmet

4123

06:01:55,670 --> 06:01:53,600

absorption pad on their head is dry

4124

06:01:57,030 --> 06:01:55,680

all three confirmed by both of the

4125

06:02:01,350 --> 06:01:57,040

astronauts as they continue through

4126  
06:02:01,360 --> 06:02:04,628  
all right copyright

4127  
06:02:09,270 --> 06:02:06,230  
this strip someone like the one on the

4128  
06:02:16,470 --> 06:02:09,280  
right is able to rotate

4129  
06:02:16,480 --> 06:02:22,788  
okay we copy and we see that rotation i

4130  
06:02:26,708 --> 06:02:24,708  
also have some metal shavings on the

4131  
06:02:28,868 --> 06:02:26,718  
upper portion right in the 30s that's

4132  
06:02:31,030 --> 06:02:28,878  
not actually right next to m30 but just

4133  
06:02:32,628 --> 06:02:31,040  
on that side of the bracket

4134  
06:02:34,948 --> 06:02:32,638  
in the center where the threads the big

4135  
06:02:36,708 --> 06:02:34,958  
grids on the telescoping portion are

4136  
06:02:42,470 --> 06:02:36,718  
there's some metal shavings if you can

4137  
06:02:46,150 --> 06:02:44,150  
okay understand the metal shavings

4138  
06:02:48,230 --> 06:02:46,160

unfortunately we do not see them on the

4139

06:02:50,150 --> 06:02:48,240

wvs

4140

06:03:07,270 --> 06:02:50,160

are you able to point to it to where you

4141

06:03:11,030 --> 06:03:09,270

okay uh thank you mike we see that and

4142

06:03:13,350 --> 06:03:11,040

we think that that is not unexpected

4143

06:03:14,310 --> 06:03:13,360

because of the uh teeth mechanism that's

4144

06:03:16,390 --> 06:03:14,320

there

4145

06:03:19,190 --> 06:03:16,400

and so we're gonna have you uh drive

4146

06:03:27,670 --> 06:03:19,200

this with your long pgt your settings

4147

06:03:32,948 --> 06:03:29,750

i'm at the right lower strut

4148

06:03:52,390 --> 06:03:35,270

okay copy uh kate i'll have words for

4149

06:03:56,948 --> 06:03:54,868

and so our cake you're just going to

4150

06:03:58,628 --> 06:03:56,958

drive clockwise and you're going to

4151  
06:04:07,590 --> 06:03:58,638  
torque it to as high of a torque as you

4152  
06:04:14,708 --> 06:04:09,910  
okay we'll take a turn count once you're

4153  
06:04:19,750 --> 06:04:16,708  
and for you um again you're going to

4154  
06:04:21,190 --> 06:04:19,760  
start with mic 30 the tab side

4155  
06:04:23,270 --> 06:04:21,200  
but it's probably a good idea to

4156  
06:04:25,830 --> 06:04:23,280  
alternate sides and just keep a running

4157  
06:04:30,070 --> 06:04:25,840  
uh turn count as you go with two turns

4158  
06:04:33,830 --> 06:04:32,150  
the helmet camera of kate rubins she is

4159  
06:04:35,670 --> 06:04:33,840  
using the ratchet wrench to tie down

4160  
06:04:36,948 --> 06:04:35,680  
that lower right strut just a little

4161  
06:04:38,628 --> 06:04:36,958  
extra

4162  
06:04:50,070 --> 06:04:38,638  
torque on that bolt to make sure it's

4163  
06:04:55,270 --> 06:04:53,110

and frank real quick i've got the

4164

06:04:56,948 --> 06:04:55,280

ratchet on to inch on

4165

06:04:58,708 --> 06:04:56,958

and

4166

06:05:00,470 --> 06:04:58,718

all the torque i can which is more than

4167

06:05:04,390 --> 06:05:00,480

30 decimal five

4168

06:05:23,910 --> 06:05:06,708

okay understand kate and understand no

4169

06:05:26,948 --> 06:05:24,948

guys we're going to have a hand over

4170

06:05:29,110 --> 06:05:26,958

here in about 15 seconds i'll catch you

4171

06:05:33,670 --> 06:05:29,120

on the other side okay we're discussing

4172

06:05:33,680 --> 06:05:53,030

i think you are that maybe

4173

06:05:56,708 --> 06:05:55,030

another brief handover of that video

4174

06:05:59,030 --> 06:05:56,718

from the international space station

4175

06:06:00,868 --> 06:05:59,040

this is uh just expected to be a few a

4176  
06:06:02,548 --> 06:06:00,878  
few minutes to

4177  
06:06:04,310 --> 06:06:02,558  
maybe even a matter of seconds until we

4178  
06:06:06,230 --> 06:06:04,320  
regain that video

4179  
06:06:08,708 --> 06:06:06,240  
again kate rubins is using a ratchet

4180  
06:06:11,670 --> 06:06:08,718  
wrench to perform a little extra torque

4181  
06:06:13,830 --> 06:06:11,680  
on the lower right strut

4182  
06:06:17,190 --> 06:06:13,840  
make sure that's nice and snug the

4183  
06:06:19,030 --> 06:06:17,200  
modification kit to the mast canister

4184  
06:06:21,510 --> 06:06:19,040  
in the meantime glover is over on the

4185  
06:06:22,948 --> 06:06:21,520  
middle left strut performing some of the

4186  
06:06:24,788 --> 06:06:22,958  
same techniques he was doing on the

4187  
06:06:25,990 --> 06:06:24,798  
middle right strut there's an adjustable

4188  
06:06:28,150 --> 06:06:26,000

section that he needs to drive some

4189

06:06:30,708 --> 06:06:28,160

bolts and secure it in place and he's

4190

06:06:37,350 --> 06:06:30,718

performing those techniques

4191

06:06:42,230 --> 06:06:39,670

okay i have you same uh ike first uh can

4192

06:06:44,628 --> 06:06:42,240

you verify that your left safer handle

4193

06:06:46,310 --> 06:06:44,638

is down uh the team thought they might

4194

06:06:53,350 --> 06:06:46,320

have seen something on video that

4195

06:06:58,230 --> 06:06:56,310

rubens and glover both working on the 2b

4196

06:07:01,110 --> 06:06:58,240

side the mast canister if you can see

4197

06:07:03,350 --> 06:07:01,120

from this view at the very base of the

4198

06:07:04,948 --> 06:07:03,360

rollout solar array there is a soda can

4199

06:07:05,990 --> 06:07:04,958

looking fixture that's exactly where

4200

06:07:10,470 --> 06:07:06,000

they are

4201

06:07:14,310 --> 06:07:12,230

both of them are torqued out in the

4202

06:07:16,548 --> 06:07:14,320

market 30 sides the top side is close

4203

06:07:18,230 --> 06:07:16,558

together but the tab is still loose

4204

06:07:23,110 --> 06:07:18,240

it's like a quarter of an inch and the

4205

06:07:26,868 --> 06:07:24,948

okay uh

4206

06:07:28,868 --> 06:07:26,878

we copy i can we see that um can you

4207

06:07:42,150 --> 06:07:28,878

just verify that the tab still moves

4208

06:07:42,160 --> 06:07:46,628

okay copy thanks

4209

06:07:50,548 --> 06:07:48,948

okay we see that thanks

4210

06:07:52,868 --> 06:07:50,558

uh kate the team was wondering if we

4211

06:07:54,470 --> 06:07:52,878

could uh reposition so that you're in a

4212

06:07:55,910 --> 06:07:54,480

position to

4213

06:08:00,868 --> 06:07:55,920

pull

4214

06:08:00,878 --> 06:08:45,030

yep

4215

06:08:45,040 --> 06:09:14,628

okay

4216

06:09:17,270 --> 06:09:15,910

and like uh

4217

06:09:24,150 --> 06:09:17,280

we're discussing i'll have further words

4218

06:09:49,110 --> 06:09:44,150

uh

4219

06:09:51,430 --> 06:09:49,120

the bolts back two turns so your

4220

06:09:57,190 --> 06:09:51,440

settings for that will be

4221

06:09:57,200 --> 06:10:00,390

level five chelsea

4222

06:10:03,830 --> 06:10:02,310

all right and frank i am in a pole

4223

06:10:05,990 --> 06:10:03,840

position

4224

06:10:07,270 --> 06:10:06,000

with a small angle between the ratchet

4225

06:10:10,868 --> 06:10:07,280

wrench

4226

06:10:16,150 --> 06:10:11,910

when

4227

06:10:19,830 --> 06:10:18,310

okay we see that kate yep uh i think

4228

06:10:21,510 --> 06:10:19,840

you're moving the whole structure but

4229

06:10:49,590 --> 06:10:21,520

the bolt is not moving

4230

06:10:53,430 --> 06:10:51,670

few things i bought them all still two

4231

06:10:55,270 --> 06:10:53,440

turns each

4232

06:11:00,150 --> 06:10:55,280

and that's still a difference the gap on

4233

06:11:39,190 --> 06:11:01,830

okay understand tab

4234

06:11:43,190 --> 06:11:41,030

okay so ike

4235

06:11:46,948 --> 06:11:43,200

we're going to drive forward with a

4236

06:11:48,310 --> 06:11:46,958

higher setting bravo seven clockwise two

4237

06:11:49,510 --> 06:11:48,320

and you'll start with the side with the

4238

06:11:51,750 --> 06:11:49,520

bigger gap

4239

06:13:32,470 --> 06:11:51,760

and just again alternating two turns

4240

06:13:41,270 --> 06:13:34,150

what's going down there kate oh it's

4241

06:13:52,548 --> 06:13:42,548

okay we're still with you and we're

4242

06:13:57,510 --> 06:13:55,830

all right frank i got two extra turns

4243

06:13:59,590 --> 06:13:57,520

on the bottom

4244

06:14:01,670 --> 06:13:59,600

the m29 side so the gap was a little

4245

06:14:04,390 --> 06:14:01,680

more even now they're both

4246

06:14:10,230 --> 06:14:04,400

a quarter of an inch the path is still

4247

06:14:14,628 --> 06:14:12,470

okay i understand a quarter

4248

06:14:41,990 --> 06:14:14,638

of an inch gap and both torquing out and

4249

06:14:45,910 --> 06:14:44,230

and i i think we're

4250

06:14:48,150 --> 06:14:45,920

going to call it as far as torquing it

4251  
06:14:50,470 --> 06:14:48,160  
could you verify essentially do a wiggle

4252  
06:14:52,070 --> 06:14:50,480  
test but in the rotational axis so try

4253  
06:14:53,430 --> 06:14:52,080  
to rotate

4254  
06:14:55,430 --> 06:14:53,440  
um

4255  
06:14:57,430 --> 06:14:55,440  
the two pieces so it won't be the collar

4256  
06:14:59,590 --> 06:14:57,440  
but the telescoping piece and the bigger

4257  
06:15:01,990 --> 06:14:59,600  
piece and try to see if they rotate with

4258  
06:15:07,030 --> 06:15:04,310  
yeah like the other side they're

4259  
06:15:09,830 --> 06:15:07,040  
secured together now i cannot rotate

4260  
06:15:11,990 --> 06:15:09,840  
relative to the telescoping piece or the

4261  
06:15:13,590 --> 06:15:12,000  
wider piece and they both rotate

4262  
06:15:14,548 --> 06:15:13,600  
together they don't twist relative to

4263  
06:15:16,150 --> 06:15:14,558

each other

4264

06:15:19,590 --> 06:15:16,160

but whatever is tension in there is

4265

06:15:19,600 --> 06:15:34,470

okay we copy thanks

4266

06:15:34,480 --> 06:15:52,868

okay

4267

06:15:52,878 --> 06:15:56,310

bye

4268

06:15:56,320 --> 06:16:11,990

uh

4269

06:16:31,670 --> 06:16:14,150

and i can kate for both we are

4270

06:16:36,470 --> 06:16:33,590

so kate rubins and victor glover both

4271

06:16:38,230 --> 06:16:36,480

standing by still on the 2b side of the

4272

06:16:39,750 --> 06:16:38,240

international space station's port 6

4273

06:16:42,390 --> 06:16:39,760

truss

4274

06:16:45,590 --> 06:16:42,400

i have installed the modification kit

4275

06:16:47,190 --> 06:16:45,600

and most of the bolts are secured

4276  
06:16:49,350 --> 06:16:47,200  
the teams on the ground are discussing

4277  
06:16:58,310 --> 06:16:49,360  
the next steps specifically for the

4278  
06:17:02,390 --> 06:17:00,390  
teams seem to be happy with the

4279  
06:17:04,868 --> 06:17:02,400  
left middle strut the adjustable section

4280  
06:17:09,750 --> 06:17:07,990  
glover going to uh

4281  
06:17:11,750 --> 06:17:09,760  
attach some of the

4282  
06:17:17,670 --> 06:17:11,760  
multi-layer insulation the white fabric

4283  
06:17:21,030 --> 06:17:19,430  
in the meantime the

4284  
06:17:22,868 --> 06:17:21,040  
teams on the ground are still discussing

4285  
06:18:09,110 --> 06:17:22,878  
the lower right strut and we'll address

4286  
06:19:29,270 --> 06:18:10,948  
i would love that i did not thank you

4287  
06:19:32,468 --> 06:19:31,270  
okay uh ike looks like you've read our

4288  
06:19:35,590 --> 06:19:32,478

mind there thanks for putting that

4289

06:19:37,190 --> 06:19:35,600

pippin in place and uh putting the mli

4290

06:19:39,270 --> 06:19:37,200

in place after you're done with that

4291

06:19:42,468 --> 06:19:39,280

mid-strut mli if you can just verify

4292

06:19:44,948 --> 06:19:42,478

that the mli on the remaining

4293

06:19:49,830 --> 06:19:44,958

struts and pads is in place that would

4294

06:19:52,948 --> 06:19:51,510

all right so kate uh we think we have

4295

06:19:54,788 --> 06:19:52,958

enough time here to try to back this

4296

06:19:57,030 --> 06:19:54,798

bolt out so we're going to get it

4297

06:19:58,868 --> 06:19:57,040

started

4298

06:20:00,628 --> 06:19:58,878

with the

4299

06:20:18,230 --> 06:20:00,638

wrench and then try to back it out with

4300

06:20:23,350 --> 06:20:20,708

so again the modification kit on the two

4301  
06:20:24,868 --> 06:20:23,360  
bravo channel this is the on the far

4302  
06:20:26,390 --> 06:20:24,878  
port six truss

4303  
06:20:27,750 --> 06:20:26,400  
facing right down towards the earth you

4304  
06:20:30,548 --> 06:20:27,760  
can see a good view from the helmet

4305  
06:20:32,468 --> 06:20:30,558  
camera of victor glover they do have the

4306  
06:20:34,708 --> 06:20:32,478  
kit installed victor glover is just

4307  
06:20:36,468 --> 06:20:34,718  
working to make sure all the different

4308  
06:20:37,990 --> 06:20:36,478  
parts of the middle beam are covered

4309  
06:20:39,990 --> 06:20:38,000  
with the multi-layer insulation the

4310  
06:20:42,070 --> 06:20:40,000  
white fabric he's going to do a check of

4311  
06:20:44,070 --> 06:20:42,080  
the entire structure in the meantime

4312  
06:20:46,468 --> 06:20:44,080  
kate rubins is going to try one last

4313  
06:20:48,708 --> 06:20:46,478

time to back up that bolt on the lower

4314

06:20:50,628 --> 06:20:48,718

right strut which is uh being quite

4315

06:20:53,910 --> 06:20:50,638

stubborn today and give it one more go

4316

06:20:57,030 --> 06:20:53,920

to see if it can uh uh secure that that

4317

06:20:58,628 --> 06:20:57,040

part of the structure to the uh base of

4318

06:21:02,868 --> 06:20:58,638

the bass canister on the international

4319

06:21:02,878 --> 06:21:07,030

let

4320

06:21:11,190 --> 06:21:09,750

roger 8 and you can just uh break torque

4321

06:21:21,750 --> 06:21:11,200

with the

4322

06:21:21,760 --> 06:21:24,948

all right happy

4323

06:22:08,948 --> 06:21:26,708

maybe uh break torque plus a couple

4324

06:22:08,958 --> 06:22:14,628

recorder

4325

06:22:19,510 --> 06:22:16,150

and this is a

4326  
06:22:19,520 --> 06:22:28,310  
half total

4327  
06:22:28,320 --> 06:22:45,270  
um

4328  
06:22:49,750 --> 06:22:47,990  
that's one total turn

4329  
06:22:54,150 --> 06:22:49,760  
propagate and you'll back it out with

4330  
06:23:03,670 --> 06:22:56,788  
i think i'm gonna get

4331  
06:23:03,680 --> 06:23:23,670  
keep trying

4332  
06:23:23,680 --> 06:23:43,670  
um

4333  
06:23:47,350 --> 06:23:45,990  
okay ruben's continuing to troubleshoot

4334  
06:23:48,788 --> 06:23:47,360  
that uh

4335  
06:23:50,310 --> 06:23:48,798  
lower strut

4336  
06:23:52,468 --> 06:23:50,320  
working with the pistol grip tool and

4337  
06:23:54,708 --> 06:23:52,478  
the ratchet wrench to

4338  
06:23:56,468 --> 06:23:54,718

give it another attempt to securing that

4339

06:23:59,030 --> 06:23:56,478

bolt on the bottom of the strut

4340

06:24:02,948 --> 06:23:59,040

in the meantime the station is 261

4341

06:24:05,830 --> 06:24:02,958

statute miles over venezuela looking at

4342

06:24:46,468 --> 06:24:05,840

the caribbean just off in the distance

4343

06:24:50,468 --> 06:24:48,548

hey before you leave that workstation

4344

06:24:52,468 --> 06:24:50,478

that works right there if you can just

4345

06:24:55,030 --> 06:24:52,478

make sure that the mli on the upper

4346

06:24:58,230 --> 06:24:55,040

strut where that meets the

4347

06:24:59,430 --> 06:24:58,240

bracket that that is secure

4348

06:25:00,948 --> 06:24:59,440

okay thank y'all already left the

4349

06:25:02,070 --> 06:25:00,958

worksheet the upper stroke from the live

4350

06:25:04,868 --> 06:25:02,080

replacement

4351  
06:25:07,270 --> 06:25:04,878  
i'm off the uh mounting bracket the ipa

4352  
06:25:13,830 --> 06:25:07,280  
structure from evening i'm back on the

4353  
06:25:17,990 --> 06:25:15,350  
all right and frank say again how many

4354  
06:25:19,350 --> 06:25:18,000  
turns expected

4355  
06:25:21,190 --> 06:25:19,360  
uh okay we're just going to drive the

4356  
06:25:24,150 --> 06:25:21,200  
bolt completely out and do an inspection

4357  
06:25:52,150 --> 06:25:24,160  
of the bolt and the interface

4358  
06:25:56,230 --> 06:25:53,910  
okay ruben standing by for the number of

4359  
06:25:57,350 --> 06:25:56,240  
turns needed to completely undo the bolt

4360  
06:25:59,030 --> 06:25:57,360  
on the lower

4361  
06:26:01,590 --> 06:25:59,040  
right strut in the meantime victor

4362  
06:26:03,510 --> 06:26:01,600  
glover is going around the structure the

4363  
06:26:05,430 --> 06:26:03,520

modification kit and just making sure

4364

06:26:08,788 --> 06:26:05,440

that all of the multi-layer insulation

4365

06:26:11,430 --> 06:26:08,798

the white fabric that's completely

4366

06:26:29,190 --> 06:26:11,440

wrapping the modification kit making

4367

06:26:29,200 --> 06:26:55,830

hmm

4368

06:27:02,628 --> 06:26:57,830

and like it looks like from what we saw

4369

06:27:05,670 --> 06:27:02,638

on the wvs the moi on the left

4370

06:27:07,030 --> 06:27:05,680

upper strut so the triangle

4371

06:27:09,430 --> 06:27:07,040

where the left upper strut and the

4372

06:27:11,910 --> 06:27:09,440

bracket meet wasn't quite uh in place

4373

06:27:13,270 --> 06:27:11,920

are you able to translate back up there

4374

06:27:14,548 --> 06:27:13,280

and uh

4375

06:27:17,670 --> 06:27:14,558

address that

4376  
06:27:21,750 --> 06:27:20,070  
and frank that was seven and a half turn

4377  
06:27:22,788 --> 06:27:21,760  
back it out plus by two she's pretty

4378  
06:27:24,548 --> 06:27:22,798  
close

4379  
06:27:25,910 --> 06:27:24,558  
i'm taking a look at the interface for

4380  
06:27:27,590 --> 06:27:25,920  
inspection

4381  
06:27:29,270 --> 06:27:27,600  
i don't see anything on the threads i'm

4382  
06:27:31,270 --> 06:27:29,280  
going to steal my ptp and get a closer

4383  
06:28:00,628 --> 06:27:31,280  
look

4384  
06:28:05,750 --> 06:28:02,788  
and i see the interface

4385  
06:28:07,190 --> 06:28:05,760  
completely clean

4386  
06:28:09,990 --> 06:28:07,200  
mess canister

4387  
06:28:11,030 --> 06:28:10,000  
i'll check the poles now

4388  
06:28:12,868 --> 06:28:11,040

okay

4389

06:28:15,030 --> 06:28:12,878

copycat on the interface and as you

4390

06:28:17,030 --> 06:28:15,040

check the bolt if you could depress it

4391

06:28:22,948 --> 06:28:17,040

so that as many of the threads stick out

4392

06:28:26,788 --> 06:28:24,628

hey frank almost wanted to wait until

4393

06:28:28,548 --> 06:28:26,798

she's downloaded so and that pretty

4394

06:28:30,230 --> 06:28:28,558

installed or do you want to go

4395

06:28:31,990 --> 06:28:30,240

okay now it looks like both sides the

4396

06:28:34,548 --> 06:28:32,000

right hand left over stroke

4397

06:28:36,310 --> 06:28:34,558

that's the top

4398

06:28:42,868 --> 06:28:36,320

since the vinyl liners the mounting

4399

06:28:46,788 --> 06:28:45,270

yep like we can cut on both sides and

4400

06:28:48,150 --> 06:28:46,798

we'll just wait until we're done with

4401  
06:28:50,628 --> 06:28:48,160  
this lower

4402  
06:29:01,750 --> 06:28:50,638  
strut so we're not applying unnecessary

4403  
06:29:05,750 --> 06:29:03,190  
yeah sorry i didn't see that when i was

4404  
06:29:07,750 --> 06:29:05,760  
on the right side i

4405  
06:29:10,948 --> 06:29:07,760  
adjusted the mli on the lower strip the

4406  
06:29:12,708 --> 06:29:10,958  
top part of the lower stroke

4407  
06:29:18,230 --> 06:29:12,718  
yep no worries that's a tough angle to

4408  
06:29:22,468 --> 06:29:19,350  
okay

4409  
06:29:24,390 --> 06:29:22,478  
hopefully you've got this in hecka

4410  
06:29:26,948 --> 06:29:24,400  
pushing the bolt in

4411  
06:29:28,468 --> 06:29:26,958  
i see the same uh i call it yellowish

4412  
06:29:30,390 --> 06:29:28,478  
orange

4413  
06:29:33,270 --> 06:29:30,400

in the threads

4414

06:29:36,548 --> 06:29:33,280  
starting from the pull away

4415

06:29:40,468 --> 06:29:36,558  
from the bolt head at the point

4416

06:29:40,478 --> 06:29:48,948  
going up

4417

06:29:48,958 --> 06:29:55,670  
that was a great view thank you

4418

06:30:01,510 --> 06:29:58,708  
it's okay we'll try to drive again

4419

06:30:10,310 --> 06:30:01,520  
and if you can try to manually align

4420

06:30:13,830 --> 06:30:12,070  
spacewalk team here in mission control

4421

06:30:15,430 --> 06:30:13,840  
houston inspecting that bolt getting

4422

06:30:16,468 --> 06:30:15,440  
great views with the high definition

4423

06:30:17,830 --> 06:30:16,478  
camera

4424

06:30:20,070 --> 06:30:17,840  
mentioned it looked good so they're

4425

06:30:22,150 --> 06:30:20,080  
going to go ahead and try to reinstall

4426

06:30:31,990 --> 06:30:22,160

the lower strut to the base of the mass

4427

06:30:35,910 --> 06:30:34,230

okay i understand the spherical bearing

4428

06:30:39,990 --> 06:30:35,920

essentially is misaligned and you're not

4429

06:30:53,750 --> 06:30:40,948

okay

4430

06:30:59,350 --> 06:30:54,948

complicate

4431

06:31:06,628 --> 06:31:01,990

i could possibly use the ratchet wrench

4432

06:31:17,110 --> 06:31:07,990

it's not moving but we'll wait for your

4433

06:31:19,910 --> 06:31:18,628

okay we think

4434

06:31:21,910 --> 06:31:19,920

unfortunately this is very similar to

4435

06:31:22,868 --> 06:31:21,920

what we saw on the other side so we'll

4436

06:31:24,468 --> 06:31:22,878

try

4437

06:31:26,390 --> 06:31:24,478

somewhere where we did just hand start

4438

06:31:34,468 --> 06:31:26,400

and drive the bolt and see if that

4439

06:31:46,070 --> 06:31:36,150

nice your hand started just two turns

4440

06:31:50,150 --> 06:31:47,510

and

4441

06:31:51,910 --> 06:31:50,160

i've got a proposal for you

4442

06:31:54,390 --> 06:31:51,920

frank why don't i hand start it as far

4443

06:32:02,948 --> 06:31:54,400

as i can

4444

06:32:02,958 --> 06:32:24,230

three

4445

06:32:37,590 --> 06:32:26,230

copy five turns and your settings will

4446

06:32:40,310 --> 06:32:39,510

and total turns we were expecting on

4447

06:32:52,708 --> 06:32:40,320

this

4448

06:32:56,830 --> 06:32:54,628

so kate

4449

06:32:59,670 --> 06:32:56,840

the total turn should have been

4450

06:33:01,350 --> 06:32:59,680

around 14 and so we're looking for

4451  
06:33:02,788 --> 06:33:01,360  
another

4452  
06:33:04,868 --> 06:33:02,798  
correction the 16 so we're looking for

4453  
06:33:13,110 --> 06:33:04,878  
another 11 turns but really we just want

4454  
06:33:17,830 --> 06:33:16,150  
all right so a few uh hand tightening uh

4455  
06:33:20,230 --> 06:33:17,840  
techniques a couple extra turns with the

4456  
06:33:23,350 --> 06:33:20,240  
hand and now using the pistol grip tool

4457  
06:33:25,830 --> 06:33:23,360  
uh we'll see how this works for the

4458  
06:33:27,350 --> 06:33:25,840  
last attempt for the installing the

4459  
06:33:29,750 --> 06:33:27,360  
lower struts

4460  
06:33:31,270 --> 06:33:29,760  
23 decimal zero

4461  
06:33:33,670 --> 06:33:31,280  
there's green light oh that's a low

4462  
06:33:37,350 --> 06:33:33,680  
shots first

4463  
06:33:42,708 --> 06:33:40,548

there's my good torque 25 decimal four

4464

06:33:54,390 --> 06:33:42,718

that's another five turns plus a half

4465

06:33:58,230 --> 06:33:56,708

okay we see a cadence we see the wiggle

4466

06:34:18,070 --> 06:33:58,240

as you move it

4467

06:34:18,080 --> 06:34:32,788

yes

4468

06:34:32,798 --> 06:34:57,350

again

4469

06:35:01,110 --> 06:34:58,788

didn't look like you got any additional

4470

06:35:01,120 --> 06:35:11,670

uh yeah no movement

4471

06:35:15,910 --> 06:35:14,310

okay uh complicate and uh at this point

4472

06:35:36,230 --> 06:35:15,920

we'll just take whatever turns you can

4473

06:35:40,948 --> 06:35:38,390

and like at this point you have a goal

4474

06:36:09,990 --> 06:35:40,958

to address that mli at the top of the

4475

06:36:10,000 --> 06:36:23,110

the quarter turn

4476  
06:36:26,708 --> 06:36:25,190  
that's it and it's i don't know if you

4477  
06:36:28,708 --> 06:36:26,718  
can see it hector

4478  
06:36:30,948 --> 06:36:28,718  
it is canted

4479  
06:36:32,868 --> 06:36:30,958  
uh from the side to side

4480  
06:36:34,310 --> 06:36:32,878  
and with that last seat

4481  
06:36:36,390 --> 06:36:34,320  
the bolt head

4482  
06:36:38,230 --> 06:36:36,400  
is fully seated against the receptacle

4483  
06:36:41,030 --> 06:36:38,240  
interface at the top

4484  
06:36:43,590 --> 06:36:41,040  
i think that's all you're gonna get

4485  
06:36:45,190 --> 06:36:43,600  
okay we copy and we see that kate if you

4486  
06:36:48,070 --> 06:36:45,200  
could just do one additional wriggle

4487  
06:37:08,868 --> 06:36:48,080  
test for us

4488  
06:37:08,878 --> 06:37:12,628

okay ready for the visual stuff

4489

06:37:12,638 --> 06:37:16,070

ready

4490

06:37:20,310 --> 06:37:18,070

so in my view

4491

06:37:22,390 --> 06:37:20,320

from the label m19

4492

06:37:26,390 --> 06:37:22,400

we call that top to bottom which is the

4493

06:37:28,390 --> 06:37:26,400

base of the joint i've got no motion

4494

06:37:29,910 --> 06:37:28,400

how i'm looking at it seeing this major

4495

06:37:32,390 --> 06:37:29,920

snow motion

4496

06:37:34,390 --> 06:37:32,400

left to right i've got just a little bit

4497

06:37:37,990 --> 06:37:34,400

and the bolt is hitting

4498

06:37:39,910 --> 06:37:38,000

closest to the m19

4499

06:37:41,830 --> 06:37:39,920

okay i understand a little bit of left

4500

06:37:45,750 --> 06:37:41,840

to right motion with the bolt hitting

4501  
06:37:50,548 --> 06:37:47,830  
and in that axis no

4502  
06:37:54,948 --> 06:37:52,948  
copy okay uh what distance do you

4503  
06:37:55,990 --> 06:37:54,958  
estimate between the black line being

4504  
06:37:59,750 --> 06:37:56,000  
flush

4505  
06:37:59,760 --> 06:38:05,190  
you get an iphone

4506  
06:38:09,110 --> 06:38:07,190  
a millimeter

4507  
06:38:19,670 --> 06:38:09,120  
possibly two millimeters

4508  
06:38:26,230 --> 06:38:23,270  
the degree of off-centeredness is uh

4509  
06:38:30,708 --> 06:38:26,240  
look at the full head completely

4510  
06:38:30,718 --> 06:38:35,830  
copy thanks kate

4511  
06:38:45,590 --> 06:38:37,190  
okay we're discussing i'll have words

4512  
06:38:49,430 --> 06:38:48,070  
so k rubens was able to undo the bolt on

4513  
06:38:50,310 --> 06:38:49,440

the lower right strut which has been

4514

06:38:52,150 --> 06:38:50,320

giving

4515

06:38:54,788 --> 06:38:52,160

some difficulty on the installation

4516

06:38:56,390 --> 06:38:54,798

process here i was able to reinstall it

4517

06:38:58,390 --> 06:38:56,400

using the pistol grip tool and give it

4518

06:39:00,708 --> 06:38:58,400

an extra tug with the ratchet wrench

4519

06:39:02,548 --> 06:39:00,718

giving it a little extra torque

4520

06:39:05,510 --> 06:39:02,558

she's showing minimal movement

4521

06:39:07,110 --> 06:39:05,520

from some of her wiggle tests now the

4522

06:39:08,948 --> 06:39:07,120

engineers here in mission control

4523

06:39:10,868 --> 06:39:08,958

houston are assessing uh some of the

4524

06:39:11,830 --> 06:39:10,878

next steps making sure that that is good

4525

06:39:13,910 --> 06:39:11,840

to go

4526  
06:39:16,628 --> 06:39:13,920  
before they head into

4527  
06:39:18,468 --> 06:39:16,638  
potential wrap-up procedures

4528  
06:39:20,788 --> 06:39:18,478  
to end today's spacewalk just waiting

4529  
06:39:46,150 --> 06:39:20,798  
for word from mission control on some of

4530  
06:39:46,160 --> 06:40:10,150  
huh

4531  
06:40:10,160 --> 06:40:52,548  
foreign

4532  
06:40:56,708 --> 06:40:55,030  
while reuben's awaits for

4533  
06:40:58,548 --> 06:40:56,718  
some guidance from mission control on

4534  
06:41:01,110 --> 06:40:58,558  
the status of the

4535  
06:41:03,750 --> 06:41:01,120  
lower strut

4536  
06:41:05,830 --> 06:41:03,760  
glover is uh continuing to secure that

4537  
06:41:07,670 --> 06:41:05,840  
multi-layer insulation the white fabric

4538  
06:41:09,590 --> 06:41:07,680

that completely surrounds

4539

06:41:12,230 --> 06:41:09,600

the modification kit

4540

06:42:25,190 --> 06:41:12,240

making sure all parts of the multi-layer

4541

06:42:29,270 --> 06:42:28,070

all right uh kate so

4542

06:42:30,868 --> 06:42:29,280

first thing we're gonna have you do is

4543

06:42:33,030 --> 06:42:30,878

go ahead and do a socket swap from the

4544

06:42:35,270 --> 06:42:33,040

ratchet wrench to the pgt

4545

06:42:38,628 --> 06:42:35,280

and then we'll stow the ratchet wrench

4546

06:42:38,638 --> 06:42:42,468

thanks

4547

06:42:42,478 --> 06:43:03,510

welcome back to the pgtm

4548

06:45:06,070 --> 06:43:05,830

thank you i'm right behind you on the

4549

06:45:13,270 --> 06:45:07,830

okay you can store that ratchet in the

4550

06:45:13,280 --> 06:45:16,390

and

4551  
06:45:16,400 --> 06:45:30,230  
taking a look

4552  
06:45:34,468 --> 06:45:32,310  
each other is underneath him

4553  
06:45:37,830 --> 06:45:34,478  
so

4554  
06:45:39,670 --> 06:45:37,840  
i propose i leave it on structure

4555  
06:45:41,270 --> 06:45:39,680  
and if he's getting the two bottles back

4556  
06:45:51,910 --> 06:45:41,280  
he'd pick it up otherwise that's across

4557  
06:46:10,708 --> 06:45:53,830  
we bring in the pgt back in the bag as

4558  
06:46:14,628 --> 06:46:12,468  
okay we're going to we agree with your

4559  
06:46:16,310 --> 06:46:14,638  
plan for the ratchet wrench

4560  
06:46:17,510 --> 06:46:16,320  
we're discussing the plan forward which

4561  
06:46:19,110 --> 06:46:17,520  
is going to affect what we're going to

4562  
06:46:21,990 --> 06:46:19,120  
do with the pgt so i'll have words for

4563  
06:46:23,590 --> 06:46:22,000

you shortly on that

4564

06:46:24,788 --> 06:46:23,600

okay i'll show the ratchet right next to

4565

06:46:38,468 --> 06:46:24,798

the ptp

4566

06:46:38,478 --> 06:46:57,670

um

4567

06:47:02,948 --> 06:47:00,310

kate rubins and uh victor glover

4568

06:47:05,190 --> 06:47:02,958

wrapping up some of their work on the 2b

4569

06:47:06,070 --> 06:47:05,200

work site this is the two bravo power

4570

06:47:07,750 --> 06:47:06,080

channel

4571

06:47:09,510 --> 06:47:07,760

on the earth-facing side of the

4572

06:47:14,788 --> 06:47:09,520

international space station's port 6

4573

06:47:18,628 --> 06:47:17,030

right now mission control is discussing

4574

06:47:22,230 --> 06:47:18,638

some of those next steps given the

4575

06:47:26,150 --> 06:47:24,150

the configuration of the modification

4576

06:47:28,548 --> 06:47:26,160

kit meets the minimum requirements

4577

06:47:31,110 --> 06:47:28,558

needed to just uh keep it there in place

4578

06:47:34,390 --> 06:47:31,120

it is tied down they may readdress it on

4579

06:47:37,190 --> 06:47:34,400

a future space uh walk

4580

06:47:38,548 --> 06:47:37,200

to give the bolts a couple extra turns

4581

06:47:40,390 --> 06:47:38,558

and make sure that it is secure and

4582

06:47:42,548 --> 06:47:40,400

ready to

4583

06:47:46,230 --> 06:47:42,558

hold those solar arrays expected later

4584

06:47:51,430 --> 06:47:48,708

while they

4585

06:47:53,990 --> 06:47:51,440

deconfigure their work site

4586

06:47:56,150 --> 06:47:54,000

redo their tethers and and put away some

4587

06:48:13,300 --> 06:47:56,160

of their tools they're just standing by

4588

06:48:44,070 --> 06:48:15,430

[Music]

4589

06:48:44,080 --> 06:49:15,670

okay

4590

06:49:33,510 --> 06:49:28,468

this

4591

06:49:35,670 --> 06:49:33,520

astronaut kate rubin she's standing by

4592

06:49:38,708 --> 06:49:35,680

for words from mission control on some

4593

06:49:42,548 --> 06:49:40,708

she's hanging onto one of the handrails

4594

06:49:45,030 --> 06:49:42,558

at the integrated electronics assembly

4595

06:49:48,390 --> 06:49:45,040

that holds the batteries that store

4596

06:49:50,310 --> 06:49:48,400

power drawn from the 2b power channel

4597

06:49:52,390 --> 06:49:50,320

the solar arrays there and store power

4598

06:49:54,868 --> 06:49:52,400

and new lithium ion batteries so the

4599

06:49:56,310 --> 06:49:54,878

first thing is great job on working

4600

06:49:57,590 --> 06:49:56,320

through the

4601  
06:49:59,510 --> 06:49:57,600  
two bravo side i know there are some

4602  
06:50:00,390 --> 06:49:59,520  
challenges there so thanks for sticking

4603  
06:50:02,628 --> 06:50:00,400  
with us

4604  
06:50:04,628 --> 06:50:02,638  
uh the good thing is that structure is

4605  
06:50:07,270 --> 06:50:04,638  
in a safe config for

4606  
06:50:10,310 --> 06:50:07,280  
iss and it can currently

4607  
06:50:17,590 --> 06:50:10,320  
uh will not affect vga movement or loads

4608  
06:50:22,390 --> 06:50:19,830  
uh the plan forward as we see it is

4609  
06:50:23,430 --> 06:50:22,400  
we're gonna reposition the apfr over to

4610  
06:50:25,990 --> 06:50:23,440  
the

4611  
06:50:28,548 --> 06:50:26,000  
four bravo side with 37 and that way

4612  
06:50:30,070 --> 06:50:28,558  
it's available for the next eva

4613  
06:50:32,708 --> 06:50:30,080

our goal will be to clean up the two

4614

06:50:33,990 --> 06:50:32,718

bravo site and then go up to the four

4615

06:50:36,150 --> 06:50:34,000

brother side

4616

06:50:42,788 --> 06:50:36,160

build the upper triangle

4617

06:50:47,510 --> 06:50:44,310

uh most likely we're going to look at

4618

06:50:51,830 --> 06:50:49,590

and we do have a hand over here in 22nd

4619

06:51:03,590 --> 06:50:51,840

so i'll have more for you guys on the

4620

06:51:03,600 --> 06:51:14,070

a good summary from

4621

06:51:18,150 --> 06:51:16,548

as we lose video from handover of some

4622

06:51:19,750 --> 06:51:18,160

of that

4623

06:51:22,070 --> 06:51:19,760

some of the feeds from the international

4624

06:51:25,110 --> 06:51:22,080

space station we had a good summary from

4625

06:51:27,270 --> 06:51:25,120

ground iv frank rubio

4626  
06:51:30,150 --> 06:51:27,280  
essentially the

4627  
06:51:32,708 --> 06:51:30,160  
modification kit that rubens and glover

4628  
06:51:34,788 --> 06:51:32,718  
both installed on the 2b power channel

4629  
06:51:38,230 --> 06:51:34,798  
is in a good configuration for now they

4630  
06:51:40,468 --> 06:51:38,240  
may re-address some of those struts and

4631  
06:51:42,548 --> 06:51:40,478  
during a later spacewalk but for now

4632  
06:51:44,390 --> 06:51:42,558  
it's in a safe configuration

4633  
06:51:46,948 --> 06:51:44,400  
to take the loads that

4634  
06:51:48,708 --> 06:51:46,958  
go with space station attitude control

4635  
06:51:50,390 --> 06:51:48,718  
and the flight there

4636  
06:51:54,390 --> 06:51:50,400  
and kate nike back with you how do you

4637  
06:52:06,708 --> 06:52:00,310  
okay

4638  
06:52:18,468 --> 06:52:08,070

yeah would you like me to start getting

4639

06:52:22,390 --> 06:52:20,230

uh yes kate that would be great and

4640

06:52:31,110 --> 06:52:22,400

that'll be your primary task will be to

4641

06:52:35,270 --> 06:52:32,548

thank you for only building the upper

4642

06:52:37,350 --> 06:52:35,280

triangle on the other side do we need uh

4643

06:52:42,468 --> 06:52:37,360

what do you want to do pvp wise in uh in

4644

06:52:49,190 --> 06:52:44,150

let me have the long one on my swing arm

4645

06:52:49,200 --> 06:53:25,590

i think i need both

4646

06:53:25,600 --> 06:53:31,200

like

4647

06:53:31,210 --> 06:53:49,670

[Music]

4648

06:53:53,110 --> 06:53:51,430

we agree with your plan uh we should

4649

06:53:54,310 --> 06:53:53,120

only need the short pgt to build the

4650

06:53:55,750 --> 06:53:54,320

upper triangle

4651  
06:53:58,070 --> 06:53:55,760  
and so if you want to swap out you can

4652  
06:54:10,230 --> 06:53:58,080  
leave the long pgt on the two-part side

4653  
06:54:14,708 --> 06:54:11,750  
am i leaving the bag or am i folding up

4654  
06:54:21,350 --> 06:54:16,548  
we're gonna we're gonna lose the uh bag

4655  
06:54:28,708 --> 06:54:24,830  
okay

4656  
06:54:35,350 --> 06:54:28,718  
back in board

4657  
06:54:38,070 --> 06:54:36,708  
copycat

4658  
06:54:40,070 --> 06:54:38,080  
okay right now

4659  
06:54:41,030 --> 06:54:40,080  
on video we're seeing that your ingross

4660  
06:54:42,868 --> 06:54:41,040  
age

4661  
06:54:44,390 --> 06:54:42,878  
is still extended uh ike do you want to

4662  
06:54:45,510 --> 06:54:44,400  
do a visual on that just make sure that

4663  
06:54:56,390 --> 06:54:45,520

you don't need to address that before

4664

06:55:00,390 --> 06:54:57,670

can you get anywhere you can see the

4665

06:55:00,400 --> 06:55:14,708

oh yeah

4666

06:55:18,468 --> 06:55:17,030

so again the modification kit on the 2b

4667

06:55:19,510 --> 06:55:18,478

power channel you can see a really good

4668

06:55:21,830 --> 06:55:19,520

view

4669

06:55:24,070 --> 06:55:21,840

from this angle as the sun sets in an

4670

06:55:26,070 --> 06:55:24,080

orb into an orbital nighttime

4671

06:55:27,750 --> 06:55:26,080

station is on the

4672

06:55:28,868 --> 06:55:27,760

still a limiting consumer

4673

06:55:30,150 --> 06:55:28,878

we're about two hours down on the

4674

06:55:32,150 --> 06:55:30,160

timeline

4675

06:55:33,510 --> 06:55:32,160

uh to build the upper triangle and get

4676  
06:55:36,310 --> 06:55:33,520  
it

4677  
06:55:38,390 --> 06:55:36,320  
properly stowed we are looking at going

4678  
06:55:40,390 --> 06:55:38,400  
slightly over seven hours

4679  
06:55:42,310 --> 06:55:40,400  
i just want to see how how you guys are

4680  
06:55:57,350 --> 06:55:42,320  
feeling and what your thoughts are on

4681  
06:56:21,750 --> 06:55:59,030  
that does account for plenty of time for

4682  
06:56:25,750 --> 06:56:23,670  
so it sounds like the crew is up for

4683  
06:56:28,070 --> 06:56:25,760  
going on the other side on the

4684  
06:56:29,990 --> 06:56:28,080  
four bravo side that faces space

4685  
06:56:32,070 --> 06:56:30,000  
translation path is going to look very

4686  
06:56:40,548 --> 06:56:32,080  
similar from when you went and got the

4687  
06:56:43,910 --> 06:56:42,230  
as the sun sets into an orbital night

4688  
06:56:46,628 --> 06:56:43,920

time they're continuing to wrap up their

4689

06:56:48,230 --> 06:56:46,638

work side on the two bravo side

4690

06:56:51,350 --> 06:56:48,240

reuben's about to take the portable foot

4691

06:56:52,868 --> 06:56:51,360

restraint over to the other side

4692

06:56:54,390 --> 06:56:52,878

and uh

4693

06:56:56,310 --> 06:56:54,400

glover working with some of the pistol

4694

06:56:58,628 --> 06:56:56,320

grip tools making sure he has the right

4695

06:57:00,708 --> 06:56:58,638

one to take over to

4696

06:57:02,310 --> 06:57:00,718

the 4 bravo side

4697

06:57:03,910 --> 06:57:02,320

their next task is to build the upper

4698

06:57:06,230 --> 06:57:03,920

triangle which was the first task of

4699

06:57:08,628 --> 06:57:06,240

today for the two bravo side they'll

4700

06:57:10,788 --> 06:57:08,638

start that on the other side and simply

4701

06:57:13,110 --> 06:57:10,798

just tie it down

4702

06:57:16,230 --> 06:57:13,120

leave it in a good configuration

4703

06:57:18,788 --> 06:57:16,240

nice and tight for them to address it uh

4704

06:57:20,070 --> 06:57:18,798

on a on the next spacewalk scheduled for

4705

06:57:22,548 --> 06:57:20,080

march 5th

4706

06:57:27,190 --> 06:57:22,558

rubens will head out the hatch with uh

4707

06:57:30,868 --> 06:57:29,190

copyright friday then you can begin your

4708

06:57:32,948 --> 06:57:30,878

translation to the floor bravo side

4709

06:57:35,430 --> 06:57:32,958

yours is a much friendlier translation

4710

06:57:38,390 --> 06:57:35,440

you should just be able to go

4711

06:58:13,110 --> 06:57:38,400

zenith on the outboard forward aspect of

4712

06:58:13,120 --> 06:58:45,510

hmm

4713

06:58:45,520 --> 06:59:04,708

uh

4714

06:59:04,718 --> 06:59:50,468

foreign

4715

06:59:50,478 --> 07:00:00,628

all right i came at the triangle

4716

07:00:16,548 --> 07:00:03,190

and ike once you are at the bag you can

4717

07:00:21,030 --> 07:00:18,548

guys for your situational awareness we

4718

07:01:01,590 --> 07:00:21,040

are moving the arm for

4719

07:01:01,600 --> 07:01:12,948

uh

4720

07:01:12,958 --> 07:01:33,510

um

4721

07:01:38,468 --> 07:01:36,788

hey frank i went up the triangle

4722

07:01:41,110 --> 07:01:38,478

i believe and now

4723

07:01:45,030 --> 07:01:41,120

we're back in make sure that

4724

07:01:49,750 --> 07:01:47,670

sorry back out

4725

07:01:51,590 --> 07:01:49,760

yep sorry i understand you are on the

4726  
07:01:58,708 --> 07:01:51,600  
zenith aspect of the training structure

4727  
07:02:04,070 --> 07:02:01,350  
okay so you will head outboard

4728  
07:02:25,110 --> 07:02:04,080  
and when you get to the

4729  
07:02:25,120 --> 07:02:32,468  
all right

4730  
07:02:32,478 --> 07:03:12,548  
come on i'm going to put your

4731  
07:03:17,270 --> 07:03:15,350  
during an orbital nighttime rubens and

4732  
07:03:20,150 --> 07:03:17,280  
glover both heading over to the other

4733  
07:03:22,150 --> 07:03:20,160  
side of the port 6 truss now on the

4734  
07:03:24,788 --> 07:03:22,160  
space facing side

4735  
07:03:26,788 --> 07:03:24,798  
they'll start some of the work on the 4b

4736  
07:03:29,110 --> 07:03:26,798  
channel

4737  
07:03:32,628 --> 07:03:29,120  
getting some of their tools in place and

4738  
07:03:34,788 --> 07:03:32,638

ready to access very quickly on the next

4739

07:03:37,510 --> 07:03:34,798

spacewalk

4740

07:03:39,110 --> 07:03:37,520

okay do you have a

4741

07:03:44,868 --> 07:03:39,120

handrail number for us

4742

07:03:48,868 --> 07:03:47,030

yeah this

4743

07:03:50,310 --> 07:03:48,878

the apfr

4744

07:03:54,708 --> 07:03:50,320

effects is the thing

4745

07:03:56,948 --> 07:03:54,718

translate with six max 5385

4746

07:04:08,868 --> 07:03:56,958

my copy that i'm headed out

4747

07:04:13,350 --> 07:04:10,390

flight controller is checking reuben's

4748

07:04:14,788 --> 07:04:13,360

location one of her tasks is to stow the

4749

07:04:16,310 --> 07:04:14,798

portable foot restraint that she's been

4750

07:04:17,430 --> 07:04:16,320

using throughout the duration of today's

4751  
07:04:19,670 --> 07:04:17,440  
spacewalk

4752  
07:04:21,350 --> 07:04:19,680  
get it nice and close to her work site

4753  
07:04:23,750 --> 07:04:21,360  
that she'll have to address next

4754  
07:04:25,990 --> 07:04:23,760  
spacewalk she'll once again take

4755  
07:04:27,350 --> 07:04:26,000  
the role of going in the portable foot

4756  
07:04:30,070 --> 07:04:27,360  
restraint perform a lot of the same

4757  
07:04:31,510 --> 07:04:30,080  
tasks that she performed today

4758  
07:04:34,948 --> 07:04:31,520  
just on the other side of the fort six

4759  
07:04:38,708 --> 07:04:36,788  
the other tasks that rubens and glover

4760  
07:04:40,628 --> 07:04:38,718  
will both attempt to tackle will be the

4761  
07:04:42,150 --> 07:04:40,638  
construction of the upper triangle this

4762  
07:04:43,910 --> 07:04:42,160  
was the first section of the bracket

4763  
07:04:45,430 --> 07:04:43,920

that was built at the beginning of

4764

07:04:47,670 --> 07:04:45,440

today's spacewalk

4765

07:04:50,230 --> 07:04:47,680

and will eventually be mounted on the

4766

07:04:51,990 --> 07:04:50,240

top portion of the mast canister as the

4767

07:04:54,070 --> 07:04:52,000

first portion of the modification kit

4768

07:04:56,948 --> 07:04:54,080

that needs to be installed though it

4769

07:04:59,030 --> 07:04:56,958

will likely not be installed during this

4770

07:04:59,990 --> 07:04:59,040

spacewalk it will be installed later so

4771

07:05:01,590 --> 07:05:00,000

what they'll do is they'll just

4772

07:05:03,990 --> 07:05:01,600

construct that upper bracket and then

4773

07:05:05,750 --> 07:05:04,000

tie it down make it nice and secure so

4774

07:05:13,750 --> 07:05:05,760

they can go ahead and just grab it on

4775

07:05:16,948 --> 07:05:15,670

okay if you can just hold your current

4776

07:05:18,390 --> 07:05:16,958

uh

4777

07:05:26,628 --> 07:05:18,400

position we'll have a transmission

4778

07:05:30,788 --> 07:05:29,270

i'm at 5 30 1 6.

4779

07:05:42,590 --> 07:05:30,798

i'm following it back to my greenhouse i

4780

07:05:42,600 --> 07:06:12,070

[Music]

4781

07:06:22,070 --> 07:06:15,190

all right frank the bag is open um

4782

07:06:25,750 --> 07:06:23,510

roger

4783

07:06:26,788 --> 07:06:25,760

mike um you have a go to start the upper

4784

07:06:32,390 --> 07:06:26,798

triangle i have words for you here

4785

07:06:32,400 --> 07:06:37,350

okay

4786

07:07:34,948 --> 07:06:39,190

i'm just going to drop a local i'm at

4787

07:07:39,430 --> 07:07:36,708

all right kate uh i think we have your

4788

07:07:41,110 --> 07:07:39,440

location sorry about that we missed uh a

4789

07:07:43,670 --> 07:07:41,120

slight turn there so

4790

07:07:45,910 --> 07:07:43,680

you just need to go slightly outboard

4791

07:07:47,910 --> 07:07:45,920

to the ia

4792

07:08:02,310 --> 07:07:47,920

and then you'll move forward translate

4793

07:08:02,320 --> 07:08:09,910

should take you forward

4794

07:08:18,948 --> 07:08:12,230

next handrail should be five three three

4795

07:08:22,708 --> 07:08:21,190

when you get to the forward aspect we

4796

07:08:24,628 --> 07:08:22,718

just wanna make sure to verify that your

4797

07:08:44,868 --> 07:08:24,638

safety tether is routed correctly and

4798

07:08:48,070 --> 07:08:46,468

all right so right for you we're going

4799

07:08:50,628 --> 07:08:48,080

to go ahead and retrieve the right upper

4800

07:08:52,310 --> 07:08:50,638

struts which is going to be straps one

4801  
07:08:54,150 --> 07:08:52,320  
and two and we're going to assemble that

4802  
07:09:03,190 --> 07:08:54,160  
to the

4803  
07:09:07,590 --> 07:09:05,110  
hey frank is the intention to have that

4804  
07:09:17,910 --> 07:09:07,600  
mli in place the stuff i just did on the

4805  
07:09:20,310 --> 07:09:19,190  
now

4806  
07:09:21,830 --> 07:09:20,320  
essentially we're just going to build

4807  
07:09:28,070 --> 07:09:21,840  
the upper triangle and then we're going

4808  
07:09:31,030 --> 07:09:29,750  
okay so you don't install that in a line

4809  
07:09:40,708 --> 07:09:31,040  
so after you

4810  
07:09:44,948 --> 07:09:43,030  
uh hey kate

4811  
07:09:46,390 --> 07:09:44,958  
you are on the correct phase but we

4812  
07:09:48,150 --> 07:09:46,400  
think you're heading outboard you need

4813  
07:09:52,150 --> 07:09:48,160

to head inboard towards the trunnion

4814

07:09:56,390 --> 07:09:54,468

okay thank you

4815

07:09:58,708 --> 07:09:56,400

yep you're basically going back to where

4816

07:10:16,628 --> 07:09:58,718

ike's green hook is and then you'll head

4817

07:10:20,628 --> 07:10:19,510

so i a clarifying word yes as you are

4818

07:10:35,830 --> 07:10:20,638

building the

4819

07:10:35,840 --> 07:10:46,310

i'll be

4820

07:10:50,868 --> 07:10:48,948

another short handover from our tracking

4821

07:10:52,390 --> 07:10:50,878

and data relay satellites should be

4822

07:10:54,468 --> 07:10:52,400

regaining that communication here

4823

07:10:56,948 --> 07:10:54,478

shortly especially audio in just a few

4824

07:10:59,750 --> 07:10:56,958

seconds glover is building is busy

4825

07:11:01,670 --> 07:10:59,760

building the upper triangle portion of

4826  
07:11:11,270 --> 07:11:01,680  
the next modification kit that'll go on

4827  
07:11:15,110 --> 07:11:13,430  
okay rubens is following her translation

4828  
07:11:18,310 --> 07:11:15,120  
path or her uh

4829  
07:11:19,990 --> 07:11:18,320  
her path towards uh the stow location

4830  
07:11:22,070 --> 07:11:20,000  
for her portable foot restraint that she

4831  
07:11:23,830 --> 07:11:22,080  
used for today's spacewalk she's just

4832  
07:11:26,390 --> 07:11:23,840  
going to put it

4833  
07:11:33,350 --> 07:11:26,400  
in a location close to where she'll need

4834  
07:11:37,430 --> 07:11:36,468  
okay the tab is inserted to the right

4835  
07:11:50,150 --> 07:11:37,440  
for

4836  
07:11:50,160 --> 07:11:56,230  
good

4837  
07:12:01,110 --> 07:11:58,070  
and i apologize can you say again last

4838  
07:12:05,910 --> 07:12:03,990

turns on each pulse by hand and the tab

4839

07:12:07,510 --> 07:12:05,920

is inserted ready for pcc settings i

4840

07:12:10,868 --> 07:12:07,520

believe

4841

07:12:12,948 --> 07:12:10,878

okay roger that

4842

07:12:17,430 --> 07:12:12,958

your pgt settings will be bravo three

4843

07:12:21,510 --> 07:12:19,190

more

4844

07:12:24,468 --> 07:12:21,520

and you're gonna drive

4845

07:12:34,230 --> 07:12:24,478

four turns on mic 13 and mike 14. four

4846

07:12:39,110 --> 07:12:36,310

i attached my green hook

4847

07:12:40,468 --> 07:12:39,120

and backwards

4848

07:12:41,750 --> 07:12:40,478

roger kate

4849

07:12:45,030 --> 07:12:41,760

and at this time you're going to head

4850

07:12:47,110 --> 07:12:45,040

out board to the near edge of the iea

4851  
07:12:48,150 --> 07:12:47,120  
and similar you'll take the handrail

4852  
07:12:50,150 --> 07:12:48,160  
path

4853  
07:12:53,510 --> 07:12:50,160  
across to the aft

4854  
07:12:55,830 --> 07:12:53,520  
section of the ia

4855  
07:12:57,510 --> 07:12:55,840  
okay

4856  
07:12:58,708 --> 07:12:57,520  
level three clockwise two four terms

4857  
07:13:00,788 --> 07:12:58,718  
total

4858  
07:13:06,788 --> 07:13:00,798  
alpha bravo three clockwise two two

4859  
07:13:12,788 --> 07:13:09,030  
a little difficult to see as the station

4860  
07:13:17,750 --> 07:13:12,798  
is in an orbital night time

4861  
07:13:21,910 --> 07:13:19,750  
just over malaysia now heading on a

4862  
07:13:24,310 --> 07:13:21,920  
northeastern course but

4863  
07:13:26,230 --> 07:13:24,320

glover has the pistol grip tool in hand

4864

07:13:28,868 --> 07:13:26,240

and is constructing the upper triangle

4865

07:13:30,628 --> 07:13:28,878

some of the steps that he just did

4866

07:13:32,548 --> 07:13:30,638

earlier on today's spacewalk one of the

4867

07:13:34,150 --> 07:13:32,558

first tasks he did

4868

07:13:36,868 --> 07:13:34,160

he's just getting the upper triangle

4869

07:13:38,390 --> 07:13:36,878

built for the next spacewalk

4870

07:13:39,670 --> 07:13:38,400

kate as you get to the corner there you

4871

07:13:48,548 --> 07:13:39,680

may want to

4872

07:13:52,468 --> 07:13:50,548

hike next you're going to be retrieving

4873

07:13:53,910 --> 07:13:52,478

the left upper struts and assembling

4874

07:14:07,670 --> 07:13:53,920

that to the

4875

07:14:07,680 --> 07:14:23,910

that's correct

4876

07:14:28,230 --> 07:14:25,670

okay once that fairlead is in place

4877

07:14:37,830 --> 07:14:28,240

you'll head outboard

4878

07:14:37,840 --> 07:14:56,948

all right i'm back in your territory

4879

07:14:56,958 --> 07:15:00,230

keel

4880

07:15:09,590 --> 07:15:02,150

five three

4881

07:15:15,110 --> 07:15:12,628

say again

4882

07:15:15,990 --> 07:15:15,120

i'm at five three six four and five

4883

07:15:17,670 --> 07:15:16,000

three

4884

07:15:24,548 --> 07:15:17,680

five nine and i'll take a progressive

4885

07:15:29,510 --> 07:15:27,270

roger yep and uh now you'll start moving

4886

07:15:35,670 --> 07:15:29,520

station forward uh you're looking for

4887

07:15:47,990 --> 07:15:37,750

all right and you want me to move

4888

07:16:04,788 --> 07:15:49,670

you may you'll have to go on the other

4889

07:16:10,150 --> 07:16:07,030

yeah okay there's not a great path here

4890

07:16:11,750 --> 07:16:10,160

so you can go up and over the a-frame or

4891

07:16:17,750 --> 07:16:11,760

on top of the batteries to get around

4892

07:16:17,760 --> 07:16:21,190

copy

4893

07:16:24,230 --> 07:16:22,708

and you're going to be installing the

4894

07:16:35,670 --> 07:16:24,240

left upper strut

4895

07:16:35,680 --> 07:16:43,990

it works

4896

07:16:44,000 --> 07:16:57,350

i headed towards you

4897

07:17:27,590 --> 07:17:01,350

your clocking is going to be six

4898

07:17:46,788 --> 07:17:29,910

your pgt settings will be bravo one

4899

07:17:46,798 --> 07:17:51,190

and you'll be driving

4900

07:18:00,468 --> 07:17:55,510

clockwise two

4901  
07:18:09,830 --> 07:18:00,478  
good words you'll drive mike 17 to

4902  
07:18:16,948 --> 07:18:14,150  
again okay level one clockwise two

4903  
07:18:34,548 --> 07:18:16,958  
and driving is the torque

4904  
07:18:39,350 --> 07:18:36,070  
let me know if i'm getting in your way

4905  
07:18:42,628 --> 07:18:40,868  
okay we got seven turns level point

4906  
07:18:50,708 --> 07:18:42,638  
handle the torque green lights

4907  
07:18:54,708 --> 07:18:52,788  
high quick copy seven turns black line

4908  
07:18:59,270 --> 07:18:54,718  
flush

4909  
07:18:59,280 --> 07:19:03,910  
7.8

4910  
07:19:03,920 --> 07:19:20,788  
copy 11.8 checking those numbers

4911  
07:19:25,750 --> 07:19:23,750  
all right that is a good bolt on mic 17.

4912  
07:19:46,120 --> 07:19:25,760  
you can release the reds from the right

4913  
07:19:46,130 --> 07:19:50,388

[Music]

4914

07:19:53,350 --> 07:19:52,070

okay next you're going to be installing

4915

07:19:55,350 --> 07:19:53,360

the left

4916

07:19:57,670 --> 07:19:55,360

mounting bracket is right next to your

4917

07:20:05,990 --> 07:19:57,680

right next to your helmet so

4918

07:20:09,750 --> 07:20:07,990

you'll be installing a left upper strut

4919

07:20:23,110 --> 07:20:09,760

to the mounting bracket

4920

07:20:28,230 --> 07:20:25,990

glover continuing to assemble that upper

4921

07:20:29,830 --> 07:20:28,240

triangle for the next modification kit

4922

07:20:31,830 --> 07:20:29,840

on the 4b channel

4923

07:20:34,388 --> 07:20:31,840

there are three points that he needs to

4924

07:20:35,590 --> 07:20:34,398

bolt uh two of them have been completed

4925

07:20:40,468 --> 07:20:35,600

this last

4926  
07:20:42,388 --> 07:20:40,478  
complete the work to construct

4927  
07:20:45,110 --> 07:20:42,398  
that upper triangle

4928  
07:20:47,910 --> 07:20:45,120  
the plan as of now is once that upper

4929  
07:20:50,548 --> 07:20:47,920  
triangle is uh completely bolted

4930  
07:20:52,868 --> 07:20:50,558  
together and constructed

4931  
07:20:55,510 --> 07:20:52,878  
glover will work to use different wire

4932  
07:20:57,910 --> 07:20:55,520  
ties to tie down the upper bracket in

4933  
07:21:00,948 --> 07:20:57,920  
place and leave it there for to be

4934  
07:21:02,388 --> 07:21:00,958  
installed on the next spacewalk on march

4935  
07:21:05,190 --> 07:21:02,398  
5th

4936  
07:21:07,590 --> 07:21:05,200  
copying your pgt settings will be bravo

4937  
07:21:09,590 --> 07:21:07,600  
3 clockwise 2.

4938  
07:21:18,310 --> 07:21:09,600

you'll be driving both of these bolts

4939

07:21:22,388 --> 07:21:20,388

and gate for you once you have the wiff

4940

07:21:24,468 --> 07:21:22,398

x installed with the clocking of six the

4941

07:21:42,868 --> 07:21:24,478

current settings for the rfx and the

4942

07:21:42,878 --> 07:21:55,110

clockwise

4943

07:22:00,070 --> 07:21:58,150

thanks for the clocking

4944

07:22:01,750 --> 07:22:00,080

there's a strike on that pointing

4945

07:22:03,270 --> 07:22:01,760

towards the mass canister or towards the

4946

07:22:13,910 --> 07:22:03,280

iea

4947

07:22:17,830 --> 07:22:15,990

uh okay the handrail should be pointing

4948

07:22:20,868 --> 07:22:17,840

towards the iea to have the proper

4949

07:22:24,868 --> 07:22:22,548

give

4950

07:22:30,468 --> 07:22:24,878

that clutch

4951  
07:22:34,070 --> 07:22:32,310  
okay once you get that installed the

4952  
07:22:35,510 --> 07:22:34,080  
current settings are good to go the only

4953  
07:22:37,670 --> 07:22:35,520  
thing we got to make sure is that the

4954  
07:22:54,868 --> 07:22:37,680  
ingress 8 is folded down

4955  
07:22:54,878 --> 07:23:03,670  
okay ready for settings

4956  
07:23:07,750 --> 07:23:05,830  
okay i you'll be driving

4957  
07:23:10,628 --> 07:23:07,760  
mike 16

4958  
07:23:15,110 --> 07:23:10,638  
two torque we anticipate uh 20

4959  
07:23:15,120 --> 07:23:23,110  
i wish

4960  
07:23:28,070 --> 07:23:25,670  
kate rubin's wrapping up her efforts for

4961  
07:23:29,990 --> 07:23:28,080  
stowing the portable foot restraint it

4962  
07:23:31,670 --> 07:23:30,000  
needs to be in a certain configuration

4963  
07:23:34,948 --> 07:23:31,680

to to make sure

4964

07:23:38,150 --> 07:23:34,958

it is in a proper stowed position again

4965

07:23:39,910 --> 07:23:38,160

it'll be retrieved uh next spacewalk

4966

07:23:41,990 --> 07:23:39,920

it's just in a location that's close and

4967

07:23:43,590 --> 07:23:42,000

can be easily retrieved uh for the

4968

07:23:45,350 --> 07:23:43,600

spacewalk on friday

4969

07:23:47,590 --> 07:23:45,360

in the meantime glover this is the

4970

07:23:49,750 --> 07:23:47,600

helmet camera view from victor glover

4971

07:23:52,150 --> 07:23:49,760

you can see the translucent number 20 on

4972

07:23:54,788 --> 07:23:52,160

the bottom right he is wrapping up the

4973

07:23:57,030 --> 07:23:54,798

installation uh the construction rather

4974

07:23:59,670 --> 07:23:57,040

of the upper triangle

4975

07:24:02,948 --> 07:23:59,680

working on those last two bolts to

4976

07:24:04,548 --> 07:24:02,958

secure it together uh once it is fully

4977

07:24:06,788 --> 07:24:04,558

constructed

4978

07:24:09,190 --> 07:24:06,798

rubens is scheduled to go ahead and help

4979

07:24:11,190 --> 07:24:09,200

him out gather some wire ties and

4980

07:24:13,270 --> 07:24:11,200

temporarily stow it

4981

07:24:14,788 --> 07:24:13,280

next to the work site here

4982

07:24:16,628 --> 07:24:14,798

it will not be installed on the mast

4983

07:24:18,628 --> 07:24:16,638

canister today it will just be in a

4984

07:24:20,468 --> 07:24:18,638

temporary stowed position

4985

07:24:22,548 --> 07:24:20,478

just wired down and making sure it is

4986

07:24:26,948 --> 07:24:22,558

secure before they go ahead and wrap up

4987

07:24:35,030 --> 07:24:29,430

18.3

4988

07:24:35,040 --> 07:24:39,750

zero 20 turns

4989

07:24:48,628 --> 07:24:42,070

i'm having it trouble getting it engaged

4990

07:24:48,638 --> 07:25:00,150

copycat we're checking

4991

07:25:05,510 --> 07:25:02,230

and i can you uh verify that black line

4992

07:25:09,270 --> 07:25:05,520

was flash on mic 16.

4993

07:25:19,190 --> 07:25:11,030

turns the locking collar sticky will

4994

07:25:27,670 --> 07:25:20,708

well not right now

4995

07:25:30,070 --> 07:25:28,788

all right

4996

07:25:31,990 --> 07:25:30,080

that uh

4997

07:25:35,030 --> 07:25:32,000

that torque is good or that bolt is good

4998

07:25:36,788 --> 07:25:35,040

to go you'll do the same for mic 15

4999

07:25:54,388 --> 07:25:36,798

approximately

5000

07:25:54,398 --> 07:26:06,868

and

5001  
07:26:10,788 --> 07:26:09,190  
okay can you uh repeat last he said you

5002  
07:26:13,830 --> 07:26:10,798  
were able to get it in with a clocking

5003  
07:26:15,590 --> 07:26:14,708  
i think

5004  
07:26:16,548 --> 07:26:15,600  
this

5005  
07:26:21,750 --> 07:26:16,558  
pen

5006  
07:26:32,868 --> 07:26:24,070  
yeah they've got lost black on black

5007  
07:26:39,190 --> 07:26:35,830  
19 turns 18.3 on the door green light

5008  
07:26:41,830 --> 07:26:39,200  
left line flush

5009  
07:27:04,868 --> 07:26:41,840  
roger i understand black line flush and

5010  
07:27:08,628 --> 07:27:06,388  
frank i can confirm for you this

5011  
07:27:11,110 --> 07:27:08,638  
ingredient is folded down

5012  
07:27:13,830 --> 07:27:11,120  
and locked

5013  
07:27:16,230 --> 07:27:13,840

okay we copy kate and uh we also copied

5014

07:27:17,990 --> 07:27:16,240

the uh good pool twist test we're just

5015

07:27:32,548 --> 07:27:18,000

trying to figure out the orientation uh

5016

07:27:36,310 --> 07:27:34,310

okay we're going to have you hold in

5017

07:27:37,990 --> 07:27:36,320

your current position uh

5018

07:27:39,270 --> 07:27:38,000

we're about five minutes away from a day

5019

07:27:41,830 --> 07:27:39,280

pass and we're hoping that that's going

5020

07:27:56,628 --> 07:27:41,840

to be able to help as far as situational

5021

07:28:05,510 --> 07:27:58,388

and ike you can release the red from the

5022

07:28:05,520 --> 07:28:29,030

thank you

5023

07:28:33,190 --> 07:28:31,110

next we're going to drive mic

5024

07:28:41,270 --> 07:28:33,200

14 and 13 so this will be the right

5025

07:28:41,280 --> 07:28:55,270

clockwise

5026  
07:28:58,708 --> 07:28:57,270  
a good position would be where i did a

5027  
07:29:02,628 --> 07:28:58,718  
triangle are

5028  
07:29:05,830 --> 07:29:04,310  
spring here

5029  
07:29:08,230 --> 07:29:05,840  
and

5030  
07:29:10,628 --> 07:29:08,240  
i think uh

5031  
07:29:16,468 --> 07:29:10,638  
probably leave it in at 10 and

5032  
07:29:20,468 --> 07:29:18,230  
okay all right kate that sounds like a

5033  
07:29:22,468 --> 07:29:20,478  
good plan so we'll just have you follow

5034  
07:29:25,830 --> 07:29:22,478  
your translation back around your

5035  
07:29:28,150 --> 07:29:25,840  
translation pack path back around the ia

5036  
07:29:32,190 --> 07:29:28,160  
and to the inboard aspect of the bag

5037  
07:29:32,200 --> 07:29:48,868  
ikea vrt

5038  
07:29:53,510 --> 07:29:51,270

rubens and glover side by side working

5039

07:29:55,350 --> 07:29:53,520

on two different tasks

5040

07:29:58,150 --> 07:29:55,360

glover you see from helmet camera number

5041

07:30:00,708 --> 07:29:58,160

20 here is driving those final bolts

5042

07:30:03,110 --> 07:30:00,718

he did install two of the three sides of

5043

07:30:05,910 --> 07:30:03,120

this triangle just working on the bolts

5044

07:30:08,150 --> 07:30:05,920

on that final side

5045

07:30:11,110 --> 07:30:08,160

in the meantime rubens is trying to get

5046

07:30:13,110 --> 07:30:11,120

a good configuration to secure that uh

5047

07:30:15,030 --> 07:30:13,120

portable foot restraint to its uh

5048

07:30:16,788 --> 07:30:15,040

worksite interface location temporary

5049

07:30:20,948 --> 07:30:16,798

stowed position so it's easily

5050

07:30:20,958 --> 07:30:24,868

black line spacewalk

5051  
07:30:31,270 --> 07:30:27,510  
copy 19 turns 18.4 green light black

5052  
07:30:31,280 --> 07:30:37,510  
and you can push to my 13 same settings

5053  
07:30:37,520 --> 07:31:11,910  
it works

5054  
07:31:11,920 --> 07:31:18,788  
a 1900 18.4 green light black line four

5055  
07:31:34,948 --> 07:31:21,190  
okay i understand 19 18.4 green light

5056  
07:31:38,788 --> 07:31:36,310  
okay all right

5057  
07:32:01,590 --> 07:31:38,798  
those are both two good bolts mike 13

5058  
07:32:05,430 --> 07:32:03,670  
about to enter into an orbital sunrise

5059  
07:32:07,670 --> 07:32:05,440  
you'll start to see the views here get a

5060  
07:32:10,468 --> 07:32:07,680  
little bit brighter we can see some of

5061  
07:32:13,110 --> 07:32:10,478  
the work that glover has been doing to

5062  
07:32:15,510 --> 07:32:13,120  
construct this triangle that sun should

5063  
07:32:18,628 --> 07:32:15,520

illuminate his work a little bit better

5064

07:32:21,110 --> 07:32:18,638

also we should get a better view of

5065

07:32:22,070 --> 07:32:21,120

kate rubin's work to temporarily stow

5066

07:32:23,910 --> 07:32:22,080

the

5067

07:32:25,670 --> 07:32:23,920

portable foot restraint

5068

07:32:27,670 --> 07:32:25,680

though from this particular angle we are

5069

07:32:38,708 --> 07:32:27,680

having some randy coverage with her

5070

07:32:41,110 --> 07:32:39,910

all right guys

5071

07:32:43,590 --> 07:32:41,120

strong work

5072

07:32:45,990 --> 07:32:43,600

now we're transitioning to

5073

07:32:47,190 --> 07:32:46,000

tying down the triangle on top of the

5074

07:32:50,468 --> 07:32:47,200

iea

5075

07:33:00,868 --> 07:32:50,478

but first i'll take a glove app and

5076  
07:33:14,230 --> 07:33:02,468  
have these dry

5077  
07:33:14,240 --> 07:33:25,510  
the red glove looks good

5078  
07:33:30,388 --> 07:33:26,788  
my left

5079  
07:33:30,398 --> 07:33:33,510  
got uh

5080  
07:33:33,520 --> 07:33:38,628  
right where the rtv is missing

5081  
07:33:48,868 --> 07:33:40,150  
let me get some better light on it for

5082  
07:33:53,030 --> 07:33:51,830  
right at the intersection of the

5083  
07:33:54,310 --> 07:33:53,040  
third

5084  
07:33:56,628 --> 07:33:54,320  
[Music]

5085  
07:33:59,430 --> 07:33:56,638  
digit or joint and

5086  
07:33:59,440 --> 07:34:05,430  
fourth size closest to my phone

5087  
07:34:11,350 --> 07:34:08,948  
um the rtz is

5088  
07:34:14,468 --> 07:34:11,360

just thinking it looks

5089

07:34:21,910 --> 07:34:14,478

like a small hole in the rtv

5090

07:34:27,030 --> 07:34:24,868

okay uh like we copy and we see

5091

07:34:28,708 --> 07:34:27,040

at least part of that on the wvs you can

5092

07:34:29,910 --> 07:34:28,718

go ahead and just take every as much

5093

07:34:40,948 --> 07:34:29,920

time as you need to do a proper

5094

07:34:44,230 --> 07:34:42,388

if there's a hole in the fabric or if

5095

07:34:45,270 --> 07:34:44,240

that's just the fabric the weave of the

5096

07:34:47,190 --> 07:34:45,280

fabric

5097

07:34:55,670 --> 07:34:47,200

i'm thinking it's the weave of the

5098

07:34:55,680 --> 07:35:00,070

rtv where i can see it clearly

5099

07:35:04,948 --> 07:35:01,190

okay

5100

07:35:08,230 --> 07:35:06,310

i want to take this over here maybe i

5101  
07:35:09,510 --> 07:35:08,240  
can show you in the echo okay

5102  
07:35:10,948 --> 07:35:09,520  
for yourself

5103  
07:35:12,310 --> 07:35:10,958  
and for mike

5104  
07:35:28,868 --> 07:35:12,320  
yep and that's exactly what we were

5105  
07:37:02,948 --> 07:35:30,628  
a

5106  
07:37:16,548 --> 07:37:02,958  
on the upper

5107  
07:37:22,150 --> 07:37:19,190  
nearing the six hour mark into today's

5108  
07:37:24,468 --> 07:37:22,160  
spacewalk

5109  
07:37:25,270 --> 07:37:24,478  
has completed the construction of that

5110  
07:37:31,030 --> 07:37:25,280  
uh

5111  
07:37:36,388 --> 07:37:33,590  
his next task will be to go ahead and

5112  
07:37:37,910 --> 07:37:36,398  
secure that upper triangle

5113  
07:37:39,830 --> 07:37:37,920

to the

5114

07:37:41,510 --> 07:37:39,840

truss of the international space station

5115

07:37:44,388 --> 07:37:41,520

it won't be installed on the mast

5116

07:37:46,150 --> 07:37:44,398

canister for this spacewalk but it will

5117

07:37:48,548 --> 07:37:46,160

be easily accessible and already

5118

07:37:54,388 --> 07:37:48,558

constructed ready to go for the next

5119

07:37:57,830 --> 07:37:56,548

and you can see just beyond that upper

5120

07:37:59,830 --> 07:37:57,840

triangle the

5121

07:38:01,750 --> 07:37:59,840

portable foot restraint is stowed in its

5122

07:38:03,030 --> 07:38:01,760

position that was the work that kate

5123

07:38:06,788 --> 07:38:03,040

rubins did

5124

07:38:06,798 --> 07:38:14,868

on my left hand yep

5125

07:38:29,910 --> 07:38:16,230

i don't know where they're moving to so

5126  
07:38:34,708 --> 07:38:32,230  
the finger is centered on the camera can

5127  
07:38:39,430 --> 07:38:34,718  
you just get the uh get your hand closer

5128  
07:38:43,350 --> 07:38:41,190  
the camera is bringing the camera closer

5129  
07:38:48,628 --> 07:38:43,360  
to the fingers

5130  
07:38:48,638 --> 07:39:05,990  
maybe a little down for the lights

5131  
07:39:09,750 --> 07:39:07,510  
i think i think that's fabric if you

5132  
07:39:12,948 --> 07:39:09,760  
look at the bottom of that digit

5133  
07:39:14,708 --> 07:39:12,958  
see some beaver spaces in the fabric

5134  
07:39:15,830 --> 07:39:14,718  
just stands out because it's in that

5135  
07:39:17,750 --> 07:39:15,840  
center of

5136  
07:39:24,230 --> 07:39:17,760  
a hole in our tv

5137  
07:39:28,230 --> 07:39:26,708  
okay like uh so well

5138  
07:39:30,150 --> 07:39:28,240

i think we have as good of you as we're

5139

07:39:32,150 --> 07:39:30,160

gonna get we'll just attempt to minimize

5140

07:39:34,310 --> 07:39:32,160

that hand minimize the use of that hand

5141

07:39:35,670 --> 07:39:34,320

as we finish up the

5142

07:39:37,670 --> 07:39:35,680

tie down

5143

07:39:49,030 --> 07:39:37,680

and clean up and then head back to the

5144

07:39:52,230 --> 07:39:50,388

engineers here in mission control

5145

07:39:55,190 --> 07:39:52,240

houston taking a look at victor glover's

5146

07:39:56,948 --> 07:39:55,200

left glove the upper triangle on top of

5147

07:40:01,510 --> 07:39:56,958

the iea

5148

07:40:06,468 --> 07:40:04,230

center pad is going to be facing outward

5149

07:40:07,750 --> 07:40:06,478

and the bracket is going to be facing

5150

07:40:14,788 --> 07:40:07,760

inboard

5151

07:40:20,548 --> 07:40:16,150

the

5152

07:40:25,110 --> 07:40:20,558

middle battery

5153

07:40:28,948 --> 07:40:26,708

so the triangle is essentially sitting

5154

07:40:31,110 --> 07:40:28,958

smack in the middle of the ia

5155

07:40:45,830 --> 07:40:31,120

with the bracket facing

5156

07:40:45,840 --> 07:40:49,590

okay

5157

07:40:53,030 --> 07:40:51,350

so that triangle will essentially sit

5158

07:40:55,670 --> 07:40:53,040

right on top of the lithium ion

5159

07:40:57,590 --> 07:40:55,680

batteries that

5160

07:40:59,350 --> 07:40:57,600

make up the interface of the electronics

5161

07:41:01,510 --> 07:40:59,360

assembly that they're referencing this

5162

07:41:03,750 --> 07:41:01,520

is pretty close to the work site for the

5163

07:41:07,910 --> 07:41:03,760

next spacewalk they have the proper

5164

07:41:13,970 --> 07:41:09,590

and now just uh the next step will be to

5165

07:41:13,980 --> 07:41:21,110

[Music]

5166

07:41:27,510 --> 07:41:23,510

okay great hooks up and with the center

5167

07:41:29,990 --> 07:41:27,520

pad outboard or center back inboard

5168

07:41:44,468 --> 07:41:30,000

the center pad is outboard and the

5169

07:41:44,478 --> 07:41:55,670

so it's going to be like this

5170

07:41:59,030 --> 07:41:57,510

your description was

5171

07:42:00,948 --> 07:41:59,040

correct

5172

07:42:03,270 --> 07:42:00,958

and on the

5173

07:42:08,548 --> 07:42:03,280

side nearest to use on the forward

5174

07:42:16,070 --> 07:42:11,190

and on the aft aspect it'll be on the

5175

07:42:22,948 --> 07:42:18,468

got a five three five five

5176  
07:42:32,150 --> 07:42:24,150  
can you give this level where they're

5177  
07:42:36,070 --> 07:42:34,070  
yeah sorry guys uh we had a incorrect

5178  
07:42:37,190 --> 07:42:36,080  
number here so it's five three five zero

5179  
07:42:39,830 --> 07:42:37,200  
is what you're looking for on the

5180  
07:42:46,468 --> 07:42:39,840  
forward aspect

5181  
07:43:13,510 --> 07:42:49,510  
we're going to need to uh extend those

5182  
07:43:17,510 --> 07:43:15,910  
i'm five three five zero

5183  
07:43:18,468 --> 07:43:17,520  
you have a preference for outboard or

5184  
07:43:23,910 --> 07:43:18,478  
inboard

5185  
07:43:28,150 --> 07:43:27,110  
no preference key

5186  
07:43:30,070 --> 07:43:28,160  
all right

5187  
07:43:47,830 --> 07:43:30,080  
thank you am i folding up the bag on the

5188  
07:43:52,150 --> 07:43:49,990

like we will be folding up that bag uh

5189

07:43:53,270 --> 07:43:52,160

we'll just finish this side together and

5190

07:43:59,670 --> 07:43:53,280

then have you translate down there to

5191

07:44:08,548 --> 07:44:01,030

guys we have a handover in about 10

5192

07:44:08,558 --> 07:44:17,030

all right

5193

07:44:20,628 --> 07:44:19,190

once again another handover of some of

5194

07:44:22,468 --> 07:44:20,638

the video coming down from the

5195

07:44:25,430 --> 07:44:22,478

international space station

5196

07:44:28,310 --> 07:44:25,440

uh rubens and glover are tying down the

5197

07:44:31,030 --> 07:44:28,320

constructed upper triangle that makes up

5198

07:44:32,590 --> 07:44:31,040

the modification kit of the 4b uh

5199

07:44:42,628 --> 07:44:32,600

channel power

5200

07:44:53,510 --> 07:44:44,070

and then i'll pitch this thing down to

5201  
07:44:57,190 --> 07:44:55,350  
and guys i'm back with you on the

5202  
07:44:58,548 --> 07:44:57,200  
opposite on the outside of the iaea

5203  
07:45:02,070 --> 07:44:58,558  
you'll be looking for handrail five

5204  
07:45:03,670 --> 07:45:02,080  
three four nine three four nine

5205  
07:45:05,910 --> 07:45:03,680  
five three four nine on the opposite

5206  
07:45:08,948 --> 07:45:05,920  
side of the rea i'm headed there it's

5207  
07:45:34,708 --> 07:45:08,958  
been handed to me across the ia

5208  
07:45:38,628 --> 07:45:36,310  
back on board the international space

5209  
07:45:40,230 --> 07:45:38,638  
station this is victor glover handling

5210  
07:45:41,750 --> 07:45:40,240  
the upper triangle

5211  
07:45:43,350 --> 07:45:41,760  
rubens has made her way to the other

5212  
07:45:45,190 --> 07:45:43,360  
side of the integrated electronics

5213  
07:45:46,788 --> 07:45:45,200

assembly to get a good handle on the

5214

07:45:48,868 --> 07:45:46,798

other side of that

5215

07:45:50,708 --> 07:45:48,878

upper triangle she's going to help to

5216

07:45:52,388 --> 07:45:50,718

tie down the upper triangle to the

5217

07:45:53,910 --> 07:45:52,398

integrated electronics assembly right on

5218

07:45:55,510 --> 07:45:53,920

top of the batteries

5219

07:45:57,190 --> 07:45:55,520

keep it in a nice tight down stowed

5220

07:46:01,990 --> 07:45:57,200

position ready to access in the next

5221

07:46:14,868 --> 07:46:03,830

we're now a little over six hours into

5222

07:46:34,310 --> 07:46:17,350

thank you in a second

5223

07:46:34,320 --> 07:46:46,868

actually that might be

5224

07:46:50,948 --> 07:46:49,030

all right frank i have

5225

07:46:55,110 --> 07:46:50,958

second long duration type another two

5226  
07:47:00,468 --> 07:46:57,350  
copy five three four nine that's a good

5227  
07:47:03,350 --> 07:47:02,230  
would you like us to cinch these

5228  
07:47:05,190 --> 07:47:03,360  
together

5229  
07:47:08,310 --> 07:47:05,200  
uh simultaneously

5230  
07:47:11,910 --> 07:47:09,830  
affirmative kate uh cinching them

5231  
07:47:13,190 --> 07:47:11,920  
together will work best to cinch it down

5232  
07:47:14,150 --> 07:47:13,200  
properly

5233  
07:47:17,830 --> 07:47:14,160  
okay

5234  
07:47:21,510 --> 07:47:19,830  
and ike you may also have to close the

5235  
07:48:45,270 --> 07:47:21,520  
bag before you cinch it down to get

5236  
07:48:45,280 --> 07:49:00,468  
wrap around your left foot

5237  
07:49:04,708 --> 07:49:03,190  
so your feet are kind of not bad if you

5238  
07:49:18,388 --> 07:49:04,718

swing them inward

5239

07:49:22,708 --> 07:49:20,310

okay i've got the strap in hand and

5240

07:49:24,468 --> 07:49:22,718

we're in a good orientation okay when

5241

07:49:28,548 --> 07:49:24,478

you're ready to pinch i'm ready to

5242

07:49:32,868 --> 07:49:30,310

before you guys cinch down we will need

5243

07:49:34,868 --> 07:49:32,878

that bag closed and so you'll have to

5244

07:49:36,388 --> 07:49:34,878

you have the best uh essay there whether

5245

07:49:40,388 --> 07:49:36,398

you need to do that before or after you

5246

07:49:43,510 --> 07:49:41,910

uh

5247

07:49:45,030 --> 07:49:43,520

i'm not sure what you said if it's about

5248

07:49:47,670 --> 07:49:45,040

to bag lead i'll get there in a minute

5249

07:49:54,150 --> 07:49:47,680

i'm allowed by the very glee

5250

07:50:02,788 --> 07:49:57,350

okay we got a lot of slides

5251  
07:50:02,798 --> 07:50:30,468  
a bit more

5252  
07:50:36,150 --> 07:50:32,788  
i think if we go at the same time

5253  
07:50:51,430 --> 07:50:36,160  
you can get it down pretty tight

5254  
07:50:51,440 --> 07:51:02,468  
i don't think we wanna

5255  
07:51:02,478 --> 07:51:23,670  
okay

5256  
07:51:27,270 --> 07:51:25,110  
hey kate from what we're seeing on the

5257  
07:51:29,350 --> 07:51:27,280  
heka it looks like the strap might have

5258  
07:51:32,708 --> 07:51:29,360  
come out of the

5259  
07:51:34,548 --> 07:51:32,718  
alignment on the top metal there

5260  
07:51:36,948 --> 07:51:34,558  
on the bottom side of the buckle you'll

5261  
07:51:39,670 --> 07:51:36,958  
have to feed that

5262  
07:51:39,680 --> 07:51:51,350  
92.

5263  
07:51:55,510 --> 07:51:53,350

both rubens and glover working with long

5264

07:51:57,190 --> 07:51:55,520

duration tied down tethers

5265

07:51:59,030 --> 07:51:57,200

this will help secure that upper

5266

07:52:01,110 --> 07:51:59,040

triangle to the integrated electronics

5267

07:52:02,230 --> 07:52:01,120

assembly right on top of the lithium-ion

5268

07:52:04,150 --> 07:52:02,240

batteries

5269

07:52:05,830 --> 07:52:04,160

that will be its stowed position for the

5270

07:52:08,310 --> 07:52:05,840

next few days until they're able to go

5271

07:52:10,468 --> 07:52:08,320

out again on march 5th uh rubens will

5272

07:52:12,948 --> 07:52:10,478

head out the hatch with uh suichi

5273

07:52:15,030 --> 07:52:12,958

naguchi uh to conduct the next spacewalk

5274

07:52:17,270 --> 07:52:15,040

this will be the one of the first items

5275

07:52:18,788 --> 07:52:17,280

on their agenda to uh

5276  
07:52:20,788 --> 07:52:18,798  
dismount the

5277  
07:52:22,150 --> 07:52:20,798  
upper triangle and install it onto the

5278  
07:52:33,350 --> 07:52:22,160  
mast canister

5279  
07:52:38,310 --> 07:52:35,670  
nice job good good hand just dexterity

5280  
07:52:49,750 --> 07:52:40,788  
hey threaded how many bolts by hand

5281  
07:52:52,628 --> 07:52:50,868  
all right guys so while you're working

5282  
07:52:54,388 --> 07:52:52,638  
on that just wanna let you know we are

5283  
07:52:56,548 --> 07:52:54,398  
at six hours and

5284  
07:53:00,868 --> 07:52:56,558  
eleven minutes of pet

5285  
07:53:03,270 --> 07:53:00,878  
uh ev2 battery is still the uh

5286  
07:53:09,590 --> 07:53:03,280  
limiting consumable at 7 hours and 52

5287  
07:53:13,430 --> 07:53:10,868  
close 4b

5288  
07:53:19,350 --> 07:53:13,440

pick up the bag at 2b and then head back

5289

07:53:23,510 --> 07:53:21,430

for this feather do you need it

5290

07:53:25,190 --> 07:53:23,520

small eye over the buckle i'm using the

5291

07:53:32,230 --> 07:53:25,200

strap

5292

07:53:36,548 --> 07:53:34,708

it goes on the outside of the fire

5293

07:53:38,628 --> 07:53:36,558

yep okay so you'll want to close the

5294

07:53:41,110 --> 07:53:38,638

thermal cover fold up the

5295

07:54:06,948 --> 07:53:41,120

strap on top of it and then use the wire

5296

07:54:06,958 --> 07:54:22,948

uh

5297

07:54:26,150 --> 07:54:24,070

so again

5298

07:54:28,628 --> 07:54:26,160

securing the upper triangle to the

5299

07:54:30,310 --> 07:54:28,638

integrated electronics assembly uh this

5300

07:54:32,310 --> 07:54:30,320

was constructed ahead of time in

5301

07:54:34,788 --> 07:54:32,320

preparation for spacewalk

5302

07:54:36,708 --> 07:54:34,798

next friday to continue the work of the

5303

07:54:38,468 --> 07:54:36,718

installing the modification kits for

5304

07:54:41,670 --> 07:54:38,478

future solar array upgrades this is the

5305

07:54:43,110 --> 07:54:41,680

last last item on the task list today

5306

07:54:45,670 --> 07:54:43,120

after this they'll clean up their work

5307

07:54:47,830 --> 07:54:45,680

site on the 4b channel wrap around to

5308

07:54:49,590 --> 07:54:47,840

the other side on the 2b channel where

5309

07:54:51,350 --> 07:54:49,600

they spend most of their time today pick

5310

07:54:54,070 --> 07:54:51,360

up the strut bag

5311

07:54:56,388 --> 07:54:54,080

that carried the struts needed to

5312

07:54:57,910 --> 07:54:56,398

install the modification kit they'll

5313

07:55:01,270 --> 07:54:57,920

pick that up and bring it back to the

5314

07:55:03,830 --> 07:55:01,280

air lock to complete today's spacewalk

5315

07:55:36,230 --> 07:55:03,840

now six hours 13 minutes into today's

5316

07:55:40,948 --> 07:55:38,868

and frank big picture

5317

07:55:50,948 --> 07:55:40,958

uh

5318

07:55:52,948 --> 07:55:50,958

down on the upper triangle and so you'll

5319

07:55:57,910 --> 07:55:52,958

translate back

5320

07:56:02,868 --> 07:56:00,310

we'll finish uh closing up the bag up

5321

07:56:04,628 --> 07:56:02,878

here on the full bravo side and then ike

5322

07:56:06,708 --> 07:56:04,638

will translate down to the two bravo

5323

07:56:07,510 --> 07:56:06,718

side and fold up the bag

5324

07:56:12,388 --> 07:56:07,520

there

5325

07:56:17,990 --> 07:56:14,150

okay you want us to both work on one bag

5326

07:56:26,150 --> 07:56:19,750

the strap is disconnected because so

5327

07:56:29,350 --> 07:56:27,830

uh it's your preference at this point

5328

07:56:31,030 --> 07:56:29,360

but yeah we think

5329

07:56:33,270 --> 07:56:31,040

kate if you're okay with it finish

5330

07:56:37,830 --> 07:56:33,280

closing up this bag i can head down and

5331

07:56:47,350 --> 07:56:41,590

did you do that yep okay

5332

07:56:51,590 --> 07:56:49,910

so that wraps up the tasks for today

5333

07:56:53,030 --> 07:56:51,600

they completed the tie down of that

5334

07:56:54,788 --> 07:56:53,040

upper bracket to the integrated

5335

07:56:55,830 --> 07:56:54,798

electronics assembly now it's ready to

5336

07:56:57,910 --> 07:56:55,840

access

5337

07:56:59,590 --> 07:56:57,920

for the next spacewalk now they'll just

5338

07:57:01,670 --> 07:56:59,600

divide and conquer

5339

07:57:04,070 --> 07:57:01,680

you can see victor glover already on his

5340

07:57:05,350 --> 07:57:04,080

way to the other side to the 2b

5341

07:57:07,750 --> 07:57:05,360

channel

5342

07:57:09,190 --> 07:57:07,760

already at the empty bag this carried

5343

07:57:11,430 --> 07:57:09,200

the struts needed to install the

5344

07:57:13,030 --> 07:57:11,440

modification kit on the two

5345

07:57:15,190 --> 07:57:13,040

b power channel

5346

07:57:17,510 --> 07:57:15,200

which they completed uh earlier in the

5347

07:57:19,270 --> 07:57:17,520

space walk

5348

07:57:21,430 --> 07:57:19,280

rubens will remain on the other side and

5349

07:57:24,948 --> 07:57:21,440

just wrap up and close the bag

5350

07:57:26,468 --> 07:57:24,958

on the 4b side that bag will remain

5351  
07:57:28,388 --> 07:57:26,478  
on the truss

5352  
07:57:30,388 --> 07:57:28,398  
glover will go ahead and close up this

5353  
07:57:31,910 --> 07:57:30,398  
bag on the 2b side since it is empty and

5354  
07:57:40,310 --> 07:57:31,920  
take it back in

5355  
07:57:44,468 --> 07:57:42,468  
the modification kit on the 2b power

5356  
07:57:46,548 --> 07:57:44,478  
channel is in a good configuration they

5357  
07:57:49,030 --> 07:57:46,558  
may go back and just take a look at some

5358  
07:57:50,788 --> 07:57:49,040  
of the bolts on a later spacewalk but

5359  
07:57:52,868 --> 07:57:50,798  
for now it's in a good configuration can

5360  
07:57:54,468 --> 07:57:52,878  
handle the loads given on the space

5361  
07:57:55,510 --> 07:57:54,478  
station with attitude control and all of

5362  
07:57:56,788 --> 07:57:55,520  
that

5363  
07:57:59,110 --> 07:57:56,798

in the meantime they'll just wrap up

5364

07:58:19,350 --> 07:57:59,120

today's activities and head back in to

5365

07:58:24,628 --> 07:58:22,388

and i got just for usa

5366

07:58:25,910 --> 07:58:24,638

pgt number eight should be in

5367

07:58:27,430 --> 07:58:25,920

b um

5368

07:58:35,270 --> 07:58:27,440

bag number two we just want to make sure

5369

07:58:38,548 --> 07:58:37,190

it is off

5370

07:59:57,990 --> 07:58:38,558

street

5371

07:59:58,000 --> 08:00:27,830

uh

5372

08:00:27,840 --> 08:01:00,548

you

5373

08:01:29,350 --> 08:01:25,030

uh

5374

08:01:31,110 --> 08:01:29,360

bravo bag we got a really good inventory

5375

08:01:32,708 --> 08:01:31,120

three here wvs

5376  
08:01:36,230 --> 08:01:32,718  
but we only see one camera i just want

5377  
08:01:37,670 --> 08:01:36,240  
to verify you see two cameras

5378  
08:01:40,948 --> 08:01:37,680  
okay we'll do those with the opposite

5379  
08:01:40,958 --> 08:01:48,388  
okay probably understand thanks

5380  
08:01:51,350 --> 08:01:50,230  
i think i got strep alpha through

5381  
08:01:56,628 --> 08:01:51,360  
filters

5382  
08:02:02,070 --> 08:01:58,230  
copycat and that looks like a good

5383  
08:02:02,080 --> 08:02:07,190  
okay

5384  
08:02:07,200 --> 08:02:13,190  
yes survey

5385  
08:02:17,030 --> 08:02:15,030  
okay and so kate that looks like a good

5386  
08:02:31,180 --> 08:02:17,040  
config on the four bottle bag you can

5387  
08:03:00,708 --> 08:02:33,030  
[Music]

5388  
08:03:00,718 --> 08:04:19,750

see ya

5389

08:04:26,948 --> 08:04:23,750

so a quick recap the astronauts are

5390

08:04:29,270 --> 08:04:26,958

are completing their tasks for today

5391

08:04:30,708 --> 08:04:29,280

you see from the helmet camera of victor

5392

08:04:32,788 --> 08:04:30,718

glover

5393

08:04:36,468 --> 08:04:32,798

your space bag folding skills are pretty

5394

08:04:36,478 --> 08:04:38,868

thank you

5395

08:04:43,270 --> 08:04:40,310

this is the empty bag that carried out

5396

08:04:44,948 --> 08:04:43,280

the struts where uh he and uh nasa

5397

08:04:47,670 --> 08:04:44,958

astronaut kate rubins constructed the

5398

08:04:49,270 --> 08:04:47,680

modification kit on the two uh b power

5399

08:04:52,388 --> 08:04:49,280

channel he's going to take that empty

5400

08:04:54,388 --> 08:04:52,398

bag back with him uh to the airlock

5401  
08:04:55,830 --> 08:04:54,398  
rubens is already on her way she checked

5402  
08:04:57,910 --> 08:04:55,840  
out the portable foot restraint looked

5403  
08:04:59,190 --> 08:04:57,920  
good in a good configuration the bag was

5404  
08:05:01,750 --> 08:04:59,200  
all closed with all the tools that

5405  
08:05:03,270 --> 08:05:01,760  
they'll need for the next spacewalk

5406  
08:05:04,788 --> 08:05:03,280  
now they're just going to go ahead and

5407  
08:05:08,150 --> 08:05:04,798  
head back to the airlock and conclude

5408  
08:05:11,590 --> 08:05:10,310  
and uh wait for ike

5409  
08:05:14,230 --> 08:05:11,600  
you'll be leading on the way back to the

5410  
08:06:27,670 --> 08:05:16,948  
property i will head hater got my safety

5411  
08:06:27,680 --> 08:06:47,510  
um

5412  
08:06:47,520 --> 08:07:05,030  
yes

5413  
08:07:05,040 --> 08:07:44,388

coffee

5414

08:07:48,708 --> 08:07:47,270

all right fruit by the flex is done

5415

08:07:52,628 --> 08:07:48,718

i'm going to get this pumped up on my

5416

08:07:52,638 --> 08:08:19,430

looks good

5417

08:08:23,110 --> 08:08:21,270

a great view of the port truss on the

5418

08:08:25,430 --> 08:08:23,120

far left side you can see victor glover

5419

08:08:27,110 --> 08:08:25,440

wrapping up his procedures he's just

5420

08:08:29,750 --> 08:08:27,120

folding up the bag he's going to tie it

5421

08:08:31,910 --> 08:08:29,760

to his body restraint tether and take it

5422

08:08:33,910 --> 08:08:31,920

with him all the way back to the airlock

5423

08:08:35,190 --> 08:08:33,920

in the meantime kate rubins you see off

5424

08:08:36,708 --> 08:08:35,200

to the right she's in the suit with the

5425

08:08:39,590 --> 08:08:36,718

red stripes

5426

08:08:41,270 --> 08:08:39,600

she's just uh hanging on waiting for

5427

08:08:43,590 --> 08:08:41,280

victor glover to finish up she's already

5428

08:08:45,430 --> 08:08:43,600

finished her tasks making sure the foot

5429

08:08:48,230 --> 08:08:45,440

restraint is secured and

5430

08:08:49,990 --> 08:08:48,240

as well as the triangle bracket the

5431

08:08:52,150 --> 08:08:50,000

upper triangle secured to the

5432

08:08:53,830 --> 08:08:52,160

international space station both of them

5433

08:08:55,990 --> 08:08:53,840

have completed their tasks for today and

5434

08:08:58,310 --> 08:08:56,000

are heading back to the airlock to

5435

08:09:02,070 --> 08:08:58,320

wrap up today's activities

5436

08:09:04,468 --> 08:09:02,080

the two of them successfully installed

5437

08:09:06,468 --> 08:09:04,478

a modification kit to the 2b power

5438

08:09:08,468 --> 08:09:06,478

channel you can see it on the mass

5439

08:09:09,670 --> 08:09:08,478

canister over there on the far side kind

5440

08:09:11,430 --> 08:09:09,680

of where

5441

08:09:13,430 --> 08:09:11,440

victor glover is it's the white

5442

08:09:15,350 --> 08:09:13,440

structure in front of the mast canister

5443

08:09:17,190 --> 08:09:15,360

that's the soda can looking

5444

08:09:19,510 --> 08:09:17,200

structure at the base of the solar

5445

08:09:21,670 --> 08:09:19,520

arrays

5446

08:09:25,190 --> 08:09:21,680

that modification kit

5447

08:09:28,388 --> 08:09:25,200

will house a future solar array upgrade

5448

08:09:32,868 --> 08:09:28,398

irosa solar arrays will be deployed from

5449

08:09:36,548 --> 08:09:34,708

right now that modification kit is in a

5450

08:09:38,708 --> 08:09:36,558

good configuration teams on the ground

5451  
08:09:40,070 --> 08:09:38,718  
will assess to make sure it's it's good

5452  
08:09:42,070 --> 08:09:40,080  
to go uh

5453  
08:09:44,708 --> 08:09:42,080  
they can also address it on a later

5454  
08:09:48,230 --> 08:09:44,718  
space walk if needed but the primary

5455  
08:09:50,230 --> 08:09:48,240  
task for the next spacewalk on march 5th

5456  
08:09:52,150 --> 08:09:50,240  
will be to duplicate the efforts that we

5457  
08:09:53,830 --> 08:09:52,160  
saw today on the 2b power channel

5458  
08:09:55,590 --> 08:09:53,840  
they'll just do it on the other side on

5459  
08:09:57,270 --> 08:09:55,600  
the 4b power channel

5460  
08:09:58,548 --> 08:09:57,280  
sort of at the bottom left of your

5461  
08:09:59,830 --> 08:09:58,558  
screen

5462  
08:10:15,190 --> 08:09:59,840  
you'll be heading to

5463  
08:10:19,510 --> 08:10:17,110

and uh kate we lost the heck if you're

5464

08:10:34,070 --> 08:10:19,520

able to recycle power

5465

08:10:38,628 --> 08:10:35,590

okay

5466

08:10:52,468 --> 08:10:40,708

found it

5467

08:11:07,270 --> 08:10:54,310

okay we copied and we're checking the

5468

08:11:11,270 --> 08:11:08,868

and ike after you pick up your green

5469

08:11:12,708 --> 08:11:11,280

hook if you can check on that glove real

5470

08:11:38,628 --> 08:11:12,718

quick and then you guys can initiate

5471

08:11:38,638 --> 08:11:48,548

all right

5472

08:11:48,558 --> 08:12:03,990

okay we copy

5473

08:12:12,948 --> 08:12:05,510

we have about 10 minutes left on this

5474

08:12:17,990 --> 08:12:16,150

and with that their work is done

5475

08:12:20,388 --> 08:12:18,000

you see uh victor glover on the left

5476

08:12:22,150 --> 08:12:20,398

there with an empty bag in tow

5477

08:12:23,750 --> 08:12:22,160

that bag carried the struts you see off

5478

08:12:25,990 --> 08:12:23,760

to the left there

5479

08:12:28,070 --> 08:12:26,000

at the mast canister at the base of the

5480

08:12:33,030 --> 08:12:28,080

solar arrays the white structure covered

5481

08:12:37,430 --> 08:12:35,030

they completed their tasks for today and

5482

08:12:39,830 --> 08:12:37,440

kate rubins and victor glover both

5483

08:12:41,510 --> 08:12:39,840

making their way along the port truss

5484

08:12:43,670 --> 08:12:41,520

back to the quest airlock to wrap up

5485

08:12:45,350 --> 08:12:43,680

today's activities they have about 10

5486

08:12:47,670 --> 08:12:45,360

minutes of daylight left we might see

5487

08:13:23,670 --> 08:12:47,680

the sunset as they enter the quest

5488

08:13:28,788 --> 08:13:26,230

reuben's taking the lead as glover

5489

08:13:30,628 --> 08:13:28,798

trails back to the quest airlock

5490

08:13:32,510 --> 08:13:30,638

the two spacewalking astronauts in the

5491

08:13:35,590 --> 08:13:32,520

international space station are flying

5492

08:13:37,670 --> 08:13:35,600

270 statute miles over the south

5493

08:13:51,830 --> 08:13:37,680

atlantic ocean about to cross into an

5494

08:13:57,110 --> 08:13:54,468

okay yeah nevermind i can get it for you

5495

08:14:07,030 --> 08:13:57,120

i think this is your stick each other

5496

08:14:07,040 --> 08:14:20,788

okay

5497

08:14:20,798 --> 08:15:15,590

nice catch on that egg

5498

08:15:46,468 --> 08:15:18,230

you got the brake pedal sick

5499

08:15:49,830 --> 08:15:48,150

okay thanks talking under the fourth cd

5500

08:15:51,030 --> 08:15:49,840

card

5501  
08:15:54,150 --> 08:15:51,040  
on the inboard side i'll hit those

5502  
08:16:15,430 --> 08:15:54,160  
brakes for you okay copy good work and

5503  
08:16:15,440 --> 08:16:23,190  
a lot better than in the pool

5504  
08:16:23,200 --> 08:16:48,708  
rodriguez

5505  
08:16:53,910 --> 08:16:51,670  
all right inboard of this part

5506  
08:16:58,948 --> 08:16:53,920  
across the ut

5507  
08:16:58,958 --> 08:17:08,150  
and then my safety pillar

5508  
08:17:27,030 --> 08:17:10,230  
tad easier without easy three and eighty

5509  
08:17:27,040 --> 08:17:43,590  
thanks

5510  
08:17:47,830 --> 08:17:45,590  
and like before you head down the ceta

5511  
08:18:08,468 --> 08:17:47,840  
spur we want you to verify that both

5512  
08:18:08,478 --> 08:18:37,750  
foreign

5513  
08:18:37,760 --> 08:19:09,510

the top of the city

5514

08:19:13,750 --> 08:19:11,830

okay thanks

5515

08:19:16,230 --> 08:19:13,760

the safety covers are

5516

08:19:18,150 --> 08:19:16,240

made of phase one

5517

08:19:19,910 --> 08:19:18,160

and when we both go down the heaters for

5518

08:19:21,750 --> 08:19:19,920

an lps

5519

08:19:23,110 --> 08:19:21,760

kind of smoke up like a little clearly

5520

08:19:25,510 --> 08:19:23,120

off the um

5521

08:19:27,830 --> 08:19:25,520

covered live stress

5522

08:19:30,788 --> 08:19:27,840

and i believe that keeps them clear

5523

08:19:33,590 --> 08:19:31,590

key

5524

08:19:35,990 --> 08:19:33,600

operations up

5525

08:19:37,590 --> 08:19:36,000

we caught the i can reconcur and as a

5526  
08:19:41,830 --> 08:19:37,600  
reminder you will be ingressing the

5527  
08:19:49,510 --> 08:19:43,110  
i'm going to just head

5528  
08:19:53,270 --> 08:19:51,350  
great views as the two astronauts make

5529  
08:19:55,270 --> 08:19:53,280  
their way to the quest airlock you see

5530  
08:19:56,548 --> 08:19:55,280  
on the right there rubens is already

5531  
08:19:58,388 --> 08:19:56,558  
there she's the suit with the red

5532  
08:20:01,910 --> 08:19:58,398  
stripes uh

5533  
08:20:03,270 --> 08:20:01,920  
glover trailing very uh shortly behind

5534  
08:20:04,708 --> 08:20:03,280  
rubens will need to move out of the way

5535  
08:20:07,670 --> 08:20:04,718  
to make sure

5536  
08:20:10,548 --> 08:20:07,680  
glover ingresses first he's got the task

5537  
08:20:14,308 --> 08:20:10,558  
as the ev2 position to enter this

5538  
08:20:19,430 --> 08:20:17,030

rubens will

5539

08:20:23,190 --> 08:20:19,440

enter shortly after glover and she has

5540

08:20:25,868 --> 08:20:23,200

the task of of closing the hatch

5541

08:20:31,190 --> 08:20:25,878

the space walk will officially end when

5542

08:20:42,230 --> 08:20:33,350

you guys have a go for opening the hatch

5543

08:21:12,070 --> 08:20:44,230

and ike you can store the strut bag

5544

08:21:12,080 --> 08:21:38,708

um

5545

08:21:38,718 --> 08:21:54,628

thank you ladies and gentlemen

5546

08:21:57,990 --> 08:21:56,548

first one gate closed slider locked

5547

08:22:00,628 --> 08:21:58,000

black on black

5548

08:22:02,388 --> 08:22:00,638

second eight clothes lighter locks

5549

08:22:04,708 --> 08:22:02,398

black on black

5550

08:22:12,150 --> 08:22:04,718

and white extender

5551  
08:22:23,670 --> 08:22:13,830  
and kate that is a good load path for

5552  
08:22:26,308 --> 08:22:25,350  
see from the helmet camera of victor

5553  
08:22:28,868 --> 08:22:26,318  
glover

5554  
08:22:31,510 --> 08:22:28,878  
as the ev2 position it's his job to work

5555  
08:22:33,190 --> 08:22:31,520  
on this interface

5556  
08:22:35,590 --> 08:22:33,200  
well they'll connect themselves to

5557  
08:22:38,628 --> 08:22:35,600  
station power and water once again

5558  
08:22:41,670 --> 08:22:38,638  
and uh switch some valves to

5559  
08:22:48,150 --> 08:22:41,680  
not rely on station on the suit's

5560  
08:22:56,788 --> 08:22:52,150  
and the bag is on the airlock

5561  
08:23:00,708 --> 08:22:58,708  
okay that is a good config for you right

5562  
08:23:04,308 --> 08:23:00,718  
uh kate you can turn off your heka and

5563  
08:23:06,548 --> 08:23:04,318

verify green led is off

5564

08:23:14,308 --> 08:23:06,558

sorry i should have read you that my

5565

08:23:21,990 --> 08:23:15,830

all right heck is off

5566

08:23:22,000 --> 08:23:25,590

we got the cake

5567

08:23:30,548 --> 08:23:27,750

all right kate uh

5568

08:23:35,990 --> 08:23:30,558

once you get a go for mike you can move

5569

08:23:36,000 --> 08:23:50,468

okay here we go

5570

08:23:50,478 --> 08:24:12,468

my god

5571

08:24:21,910 --> 08:24:14,548

okay i see my red

5572

08:24:21,920 --> 08:24:31,350

lock back on left full test you'll go

5573

08:24:31,360 --> 08:24:55,590

um

5574

08:25:00,150 --> 08:24:58,468

on ev1 red reel

5575

08:25:02,708 --> 08:25:00,160

yellow gate closed spider lock block

5576  
08:25:07,190 --> 08:25:04,628  
copy that's a good secondary load pass

5577  
08:25:12,230 --> 08:25:07,200  
okay now you can move ev2 green hook to

5578  
08:25:12,240 --> 08:25:15,350  
okay

5579  
08:25:46,548 --> 08:25:42,948  
and

5580  
08:25:48,388 --> 08:25:46,558  
in about 10 seconds so

5581  
08:25:50,708 --> 08:25:48,398  
ike's green hook will go to the aft

5582  
08:26:04,230 --> 08:25:50,718  
external d-ring your green hook will go

5583  
08:26:08,628 --> 08:26:06,468  
another short handover in video and

5584  
08:26:10,708 --> 08:26:08,638  
audio coming from station we should be

5585  
08:26:12,070 --> 08:26:10,718  
regaining that shortly in these final

5586  
08:26:15,830 --> 08:26:12,080  
moments uh

5587  
08:26:17,990 --> 08:26:15,840  
glover is already in the uh airlock he's

5588  
08:26:20,230 --> 08:26:18,000

ready to switch some of the valves to

5589

08:26:23,430 --> 08:26:20,240

and and connect the suits back to

5590

08:26:25,830 --> 08:26:23,440

station power water and air

5591

08:26:27,270 --> 08:26:25,840

rubens is busy reconfiguring those

5592

08:26:29,590 --> 08:26:27,280

tethers making sure they're all in a

5593

08:26:32,468 --> 08:26:29,600

good configuration before she

5594

08:26:34,628 --> 08:26:32,478

enters the airlock as well it'll be her

5595

08:26:36,388 --> 08:26:34,638

job to close the hatch and seal it make

5596

08:26:38,070 --> 08:26:36,398

sure everything's good before they begin

5597

08:26:40,388 --> 08:26:38,080

the repressurization and conclude

5598

08:26:42,388 --> 08:26:40,398

today's spacewalk upon the start of

5599

08:26:45,030 --> 08:26:42,398

repressurization that will officially

5600

08:26:50,948 --> 08:26:45,040

end today's spacewalk

5601  
08:26:54,708 --> 08:26:53,110  
okay i copy kate and that is a good

5602  
08:26:56,308 --> 08:26:54,718  
config

5603  
08:27:04,788 --> 08:26:56,318  
as you ingress can you please verify

5604  
08:27:10,308 --> 08:27:08,468  
and then you will move your ev1

5605  
08:27:20,230 --> 08:27:10,318  
yellow hook to the mini workstation and

5606  
08:27:20,240 --> 08:27:35,670  
um

5607  
08:27:38,948 --> 08:27:37,430  
eb1

5608  
08:27:45,430 --> 08:27:38,958  
yellow hook

5609  
08:27:45,440 --> 08:28:00,628  
copy

5610  
08:28:00,638 --> 08:28:19,350  
uh

5611  
08:28:23,910 --> 08:28:20,948  
and that is not a good do you think i

5612  
08:28:27,190 --> 08:28:23,920  
have ev2 yellow my many workstations

5613  
08:28:35,910 --> 08:28:30,230

there's five here and i need a

5614

08:28:35,920 --> 08:28:39,990

you just let it go to me i'll take it

5615

08:28:44,948 --> 08:28:41,430

i've got to get safety chain and i'll

5616

08:28:46,708 --> 08:28:44,958

come in with my red reel okay yeah i got

5617

08:29:01,750 --> 08:28:46,718

it so once you're good you have to go to

5618

08:29:01,760 --> 08:29:14,628

yes

5619

08:29:19,590 --> 08:29:16,948

okay we copied all of that um

5620

08:29:22,230 --> 08:29:19,600

good catch uh you do have your own load

5621

08:29:24,708 --> 08:29:22,240

path to the

5622

08:29:29,430 --> 08:29:24,718

airlock and so we uh you still are a

5623

08:29:33,190 --> 08:29:31,110

and i've got my

5624

08:29:35,270 --> 08:29:33,200

yellow hook on

5625

08:29:42,230 --> 08:29:35,280

i'm in workstation like if you can see

5626  
08:29:46,788 --> 08:29:44,628  
as the sun sets on the international

5627  
08:29:48,948 --> 08:29:46,798  
space station kate rubin's entering the

5628  
08:30:28,468 --> 08:29:48,958  
quest airlock getting ready to conclude

5629  
08:30:28,478 --> 08:30:41,830  
huh

5630  
08:30:41,840 --> 08:30:44,308  
okay

5631  
08:30:51,830 --> 08:30:45,190  
all right

5632  
08:30:57,190 --> 08:30:53,670  
i've got a good

5633  
08:31:24,628 --> 08:30:57,200  
pin check getting the thermal cover

5634  
08:31:32,868 --> 08:31:27,030  
okay we see the thermal cover closed and

5635  
08:31:32,878 --> 08:32:20,230  
thank you

5636  
08:32:20,240 --> 08:32:31,270  
thermal cover is closed

5637  
08:32:31,280 --> 08:32:35,190  
ready for your next

5638  
08:32:40,548 --> 08:32:37,910

okay for both of you you will remove as

5639

08:32:43,270 --> 08:32:40,558

you use from storage pouch remove dcm

5640

08:33:07,670 --> 08:32:43,280

covers and velcro to dcm and connect the

5641

08:33:12,548 --> 08:33:10,070

with the thermal cover to

5642

08:33:15,190 --> 08:33:12,558

the station's airlock closed

5643

08:33:17,190 --> 08:33:15,200

frank rubio will finish up his role as

5644

08:33:20,030 --> 08:33:17,200

the ground iv by walking the crew

5645

08:33:28,708 --> 08:33:20,040

through the initial pre pre

5646

08:33:34,150 --> 08:33:31,830

we'll do this until handing back over to

5647

08:33:35,510 --> 08:33:34,160

suichi naguchi who's standing by in the

5648

08:33:39,350 --> 08:33:35,520

station's

5649

08:33:43,110 --> 08:33:40,868

naguchi will walk them through the

5650

08:33:44,548 --> 08:33:43,120

repressurization sequence

5651  
08:33:46,948 --> 08:33:44,558  
after this

5652  
08:33:50,708 --> 08:33:46,958  
this set of pre-repressurization

5653  
08:33:50,718 --> 08:33:55,510  
copy sus locked for both

5654  
08:34:00,788 --> 08:33:58,468  
for both switch water off

5655  
08:34:10,308 --> 08:34:00,798  
which is forward expect h2o is off

5656  
08:34:15,430 --> 08:34:12,388  
okay caution do not close hatch until

5657  
08:34:30,628 --> 08:34:15,440  
emu water off for two minutes we started

5658  
08:34:30,638 --> 08:34:34,948  
it's

5659  
08:34:34,958 --> 08:34:40,468  
go back the other way okay

5660  
08:34:43,350 --> 08:34:41,750  
okay which way are you going to rotate

5661  
08:34:44,388 --> 08:34:43,360  
your cliff because that's i can avoid

5662  
08:34:56,948 --> 08:34:44,398  
your clear

5663  
08:35:01,750 --> 08:34:58,868

yeah that's what a good handrail is

5664

08:35:05,670 --> 08:35:01,760

okay

5665

08:35:09,910 --> 08:35:08,708

my feet out of the way yep and my purse

5666

08:35:13,430 --> 08:35:09,920

is venus

5667

08:35:32,868 --> 08:35:13,440

okay my place is rotated station forward

5668

08:35:32,878 --> 08:35:45,510

uh

5669

08:35:49,830 --> 08:35:48,308

for you i can verify spools and tethers

5670

08:35:51,750 --> 08:35:49,840

are clear at the left

5671

08:35:53,270 --> 08:35:51,760

flat eyes on my depress refresh key

5672

08:35:58,388 --> 08:35:53,280

first

5673

08:35:58,398 --> 08:36:17,750

coffee

5674

08:36:21,270 --> 08:36:19,350

all right kate two minutes is up you

5675

08:36:36,230 --> 08:36:21,280

have a go for closing and locking the

5676

08:36:40,468 --> 08:36:38,948

there at the hatch window

5677

08:36:42,868 --> 08:36:40,478

looking at his crewmates on the other

5678

08:36:44,628 --> 08:36:42,878

side who are concluding their spacewalk

5679

08:36:46,270 --> 08:36:44,638

he'll take the lead as the suit iv

5680

08:36:48,548 --> 08:36:46,280

guiding them through the

5681

08:36:49,910 --> 08:36:48,558

repressurization procedures and

5682

08:36:51,590 --> 08:36:49,920

eventually opening the hatch and

5683

08:36:53,750 --> 08:36:51,600

bringing them in the equipment lock to

5684

08:36:55,350 --> 08:36:53,760

doff or take off their suits

5685

08:36:56,230 --> 08:36:55,360

you see mike hopkins in the foreground

5686

08:36:57,670 --> 08:36:56,240

there

5687

08:37:00,468 --> 08:36:57,680

checking over some of the upcoming

5688

08:37:04,468 --> 08:37:00,478

procedures he'll be aiding naguchi

5689

08:37:06,308 --> 08:37:04,478

through some of these next tasks

5690

08:37:09,030 --> 08:37:06,318

frank rubio taking the lead as the

5691

08:37:11,590 --> 08:37:09,040

pre-repressurization

5692

08:37:38,708 --> 08:37:11,600

tasks he'll be handing over to naguchi

5693

08:37:38,718 --> 08:37:59,430

that's myself

5694

08:38:03,990 --> 08:38:01,430

still getting a little bit of video from

5695

08:38:05,190 --> 08:38:04,000

inside of the crew lock this is uh kate

5696

08:38:07,190 --> 08:38:05,200

rubins

5697

08:38:15,270 --> 08:38:07,200

working through her procedures to close

5698

08:38:15,280 --> 08:38:33,430

this goes

5699

08:38:33,440 --> 08:39:38,150

can you move your feet

5700

08:39:42,070 --> 08:39:40,468

feels close

5701  
08:39:43,910 --> 08:39:42,080  
i can only get about half a turn on the

5702  
08:39:44,708 --> 08:39:43,920  
handle yeah that handle does not turn

5703  
08:39:45,510 --> 08:39:44,718  
far

5704  
08:39:47,110 --> 08:39:45,520  
okay

5705  
08:39:48,868 --> 08:39:47,120  
uh if you can pull it up though it's not

5706  
08:39:50,150 --> 08:39:48,878  
closed but you got to make sure to make

5707  
08:39:51,830 --> 08:39:50,160  
sure it's flush

5708  
08:39:53,590 --> 08:39:51,840  
before you rotate

5709  
08:39:58,070 --> 08:39:53,600  
it flush and you have a mechanism that

5710  
08:40:01,830 --> 08:39:59,270  
so make sure it's all the way in the

5711  
08:40:13,590 --> 08:40:01,840  
unless it only travels like one turn

5712  
08:40:34,788 --> 08:40:15,590  
make sure it's flush

5713  
08:40:34,798 --> 08:40:46,308

yep

5714

08:40:50,628 --> 08:40:48,070

all right great job guys

5715

08:40:53,350 --> 08:40:50,638

okay hike on the uia

5716

08:40:58,548 --> 08:40:53,360

check oxygen emu one and two valves two

5717

08:40:58,558 --> 08:41:04,308

oxygen emu one open austrian u2 open

5718

08:41:12,150 --> 08:41:06,548

switch power ev one and two two switches

5719

08:41:12,160 --> 08:41:21,270

emu one power on good led in u2 power

5720

08:41:25,030 --> 08:41:23,590

good leds check power ev one and two

5721

08:41:28,388 --> 08:41:25,040

volts

5722

08:41:31,190 --> 08:41:28,398

18 decimal zero to 19 decimal zero

5723

08:41:34,150 --> 08:41:31,200

eighteen point six ten

5724

08:41:35,590 --> 08:41:34,160

18.6 times two

5725

08:41:38,230 --> 08:41:35,600

copy

5726

08:41:49,030 --> 08:41:38,240

for both switch power to scu

5727

08:41:49,040 --> 08:41:52,788

all right i see you cb2

5728

08:41:58,628 --> 08:41:55,990

all right guys great job out there

5729

08:42:00,708 --> 08:41:58,638

i'll turn you over to

5730

08:42:01,910 --> 08:42:00,718

soichi and i really appreciate your hard

5731

08:42:07,030 --> 08:42:01,920

work i know there's a lot of challenges

5732

08:42:10,468 --> 08:42:09,030

hey frank you were awesome

5733

08:42:13,510 --> 08:42:10,478

it's been a pleasure

5734

08:42:16,548 --> 08:42:13,520

thank you very much and thanks to the uh

5735

08:42:18,230 --> 08:42:16,558

entire irish team

5736

08:42:21,190 --> 08:42:18,240

thanks for watching great work with you

5737

08:42:24,788 --> 08:42:23,510

and sorry i do have one delta

5738

08:42:26,468 --> 08:42:24,798

uh

5739

08:42:28,788 --> 08:42:26,478

not like just when you said that frank i

5740

08:42:46,230 --> 08:42:28,798

lost tom and my left

5741

08:42:51,030 --> 08:42:48,628

i hear you and frank thanks for the

5742

08:42:53,110 --> 08:42:51,040

great work uh from here so it will take

5743

08:42:53,990 --> 08:42:53,120

over for crew of repress

5744

08:42:57,110 --> 08:42:54,000

uh

5745

08:42:58,708 --> 08:42:57,120

eb1 eb2 how do you hear me

5746

08:43:02,070 --> 08:42:58,718

richie i've got you loud and clear in my

5747

08:43:02,080 --> 08:43:15,670

okay uh eb2 eb1 eb2 dcm autof2 press

5748

08:43:15,680 --> 08:43:57,990

yes

5749

08:43:58,000 --> 08:44:10,468

i can

5750

08:44:10,478 --> 08:44:33,110

and that thing works

5751

08:44:33,120 --> 08:44:37,270

ev hatch mpeg closed

5752

08:44:42,788 --> 08:44:40,708

dv hatch and test is closed

5753

08:44:44,548 --> 08:44:42,798

and both vb and eb2 we're going to start

5754

08:44:48,150 --> 08:44:44,558

decoding the pressure

5755

08:44:49,590 --> 08:44:48,160

if you feel the speed is too fast

5756

08:44:51,910 --> 08:44:49,600

please say so

5757

08:44:53,990 --> 08:44:51,920

yeah absolutely for your awareness i've

5758

08:44:56,150 --> 08:44:54,000

got already an ear block

5759

08:45:03,110 --> 08:44:56,160

in my left ear i think

5760

08:45:23,030 --> 08:45:04,628

i'm good with going ahead and bringing

5761

08:45:28,230 --> 08:45:25,670

media db2 just started

5762

08:45:30,948 --> 08:45:28,240

opening the throttle at the zeros uh

5763

08:45:34,388 --> 08:45:30,958

1840

5764

08:45:56,070 --> 08:45:34,398

18 16.

5765

08:45:56,080 --> 08:46:38,788

coffee

5766

08:46:38,798 --> 08:47:28,548

oh

5767

08:47:31,190 --> 08:47:30,150

this is actually feeling a little better

5768

08:47:32,308 --> 08:47:31,200

with the

5769

08:47:34,948 --> 08:47:32,318

increased pressure we're going in the

5770

08:47:34,958 --> 08:47:51,590

happy birthday

5771

08:47:55,430 --> 08:47:53,190

this is mission control houston we do

5772

08:47:57,190 --> 08:47:55,440

have confirmation repressurization is

5773

08:47:59,510 --> 08:47:57,200

underway

5774

08:48:01,830 --> 08:47:59,520

the clock stopped for uh today's

5775

08:48:11,750 --> 08:48:01,840

spacewalk at seven hours four minutes

5776

08:48:19,830 --> 08:48:13,910

repressurization is slow and steady

5777

08:48:24,150 --> 08:48:22,388

they will climb up to 5 psi before

5778

08:48:25,990 --> 08:48:24,160

performing a hold and a check to make

5779

08:48:28,628 --> 08:48:26,000

sure the pressure is holding before

5780

08:48:30,628 --> 08:48:28,638

resuming pressurization up to equalize

5781

08:49:03,910 --> 08:48:30,638

with the international space station

5782

08:49:03,920 --> 08:49:14,868

uh

5783

08:49:18,708 --> 08:49:17,030

maybe on eb2 all these feel comfortable

5784

08:49:19,670 --> 08:49:18,718

i can increase the

5785

08:49:21,510 --> 08:49:19,680

weight

5786

08:49:24,308 --> 08:49:21,520

how do you say

5787

08:49:31,910 --> 08:49:24,318

go for a moderate increase youtube so

5788

08:49:31,920 --> 08:52:11,510

is it okay to increase the rate

5789

08:52:28,150 --> 08:52:14,308

just passed two psi we're going to

5790

08:52:28,160 --> 08:53:05,990

let's just

5791

08:53:10,548 --> 08:53:08,708

again repressurization is underway it's

5792

08:53:12,230 --> 08:53:10,558

slow and steady we're at about three

5793

08:53:15,350 --> 08:53:12,240

pounds per square inch and we'll pause

5794

08:53:16,948 --> 08:53:15,360

at five hold pressure and make sure that

5795

08:53:19,350 --> 08:53:16,958

the inside of the crew lock is holding

5796

08:53:20,868 --> 08:53:19,360

pressure before resuming up to uh

5797

08:53:22,230 --> 08:53:20,878

equalize with the international space

5798

08:53:24,070 --> 08:53:22,240

station

5799

08:53:26,070 --> 08:53:24,080

in the meantime we do have statistics

5800

08:53:27,910 --> 08:53:26,080

for you based on today's seven hour four

5801  
08:53:31,190 --> 08:53:27,920  
minute spacewalk

5802  
08:53:33,830 --> 08:53:31,200  
this was the 235th spacewalk in support

5803  
08:53:36,468 --> 08:53:33,840  
of station uh assembly maintenance and

5804  
08:53:39,590 --> 08:53:36,478  
upgrades it was the third conducted in

5805  
08:53:40,868 --> 08:53:39,600  
2021 the fourth spacewalk for expedition

5806  
08:53:42,868 --> 08:53:40,878  
64.

5807  
08:53:45,110 --> 08:53:42,878  
for kate rubins this is the third

5808  
08:53:47,910 --> 08:53:45,120  
spacewalk in her career her career total

5809  
08:53:50,230 --> 08:53:47,920  
is now 19 hours 50 minutes five zero

5810  
08:53:52,628 --> 08:53:50,240  
minutes this is also the third spacewalk

5811  
08:53:55,270 --> 08:53:52,638  
of victor glover's career his total 19

5812  
08:53:57,910 --> 08:53:55,280  
hours 20 minutes

5813  
08:54:00,230 --> 08:53:57,920

today's fast walk lasted seven hours

5814

08:54:06,388 --> 08:54:00,240

four minutes beginning 5 20 12 a.m

5815

08:54:09,030 --> 08:54:06,398

central ending uh 12 16 p.m central time

5816

08:54:12,070 --> 08:54:09,040

and the total spacewalking time

5817

08:54:14,948 --> 08:54:12,080

for all 235 spacewalks aboard the

5818

08:54:22,230 --> 08:54:14,958

international space station come out at

5819

08:54:27,510 --> 08:54:25,110

this is also the first time an hd camera

5820

08:54:29,750 --> 08:54:27,520

was used on a spacewalk some of those

5821

08:54:32,788 --> 08:54:29,760

views provided from the helmet camera of

5822

08:54:34,468 --> 08:54:32,798

uh kate rubins the new heka camera we'll

5823

08:54:37,030 --> 08:54:34,478

be seeing those again

5824

08:54:38,948 --> 08:54:37,040

in the near future

5825

08:54:41,430 --> 08:54:38,958

also the two spacewalking astronauts

5826  
08:54:46,308 --> 08:54:41,440  
today kate rubins and victor glover are

5827  
08:54:50,948 --> 08:54:49,030  
they're part of a crew of 18 astronauts

5828  
08:54:53,990 --> 08:54:50,958  
selected to help pave the way for the

5829  
08:55:14,300 --> 08:54:54,000  
next astronaut missions to and around

5830  
08:55:14,310 --> 08:55:39,590  
[Applause]

5831  
08:55:43,350 --> 08:55:41,750  
repressurization has reached five pounds

5832  
08:55:44,308 --> 08:55:43,360  
per square inch we'll just hold here for

5833  
08:55:45,750 --> 08:55:44,318  
a second

5834  
08:55:47,670 --> 08:55:45,760  
make sure it's holding pressure before

5835  
08:55:50,070 --> 08:55:47,680  
resuming up to equalize with the

5836  
08:55:52,070 --> 08:55:50,080  
international space station which is a

5837  
08:56:01,590 --> 08:55:52,080  
little bit more than 14 pounds per

5838  
08:56:04,948 --> 08:56:03,190

we'll continue to provide coverage

5839

08:56:07,270 --> 08:56:04,958

throughout the duration of this

5840

08:56:08,628 --> 08:56:07,280

repressurization sequence uh the hatch

5841

08:56:10,388 --> 08:56:08,638

will open and we'll bring both of our

5842

08:56:12,948 --> 08:56:10,398

astronauts inside and we'll continue our

5843

08:56:14,468 --> 08:56:12,958

coverage until they start

5844

08:56:16,788 --> 08:56:14,478

doffing their suits taking off their

5845

08:56:35,110 --> 08:56:16,798

helmets and gloves and concluding

5846

08:56:42,868 --> 08:56:38,628

houston station on one step seven the p1

5847

08:56:42,878 --> 08:57:15,750

happy 258 sweetie

5848

08:57:18,708 --> 08:57:17,430

are we still going from the crew lock

5849

08:57:20,388 --> 08:57:18,718

down to the ground

5850

08:57:23,990 --> 08:57:20,398

you are still hawk bike

5851  
08:57:25,910 --> 08:57:24,000  
nana good to hear your voice

5852  
08:57:31,030 --> 08:57:25,920  
hey kate great to hear yours too nice

5853  
08:57:35,510 --> 08:57:32,868  
i was going to have uh

5854  
08:57:40,868 --> 08:57:35,520  
high for us to see her

5855  
08:57:45,670 --> 08:57:43,430  
the houston station on one uh step seven

5856  
08:57:50,230 --> 08:57:45,680  
p two is also two five eight we're going

5857  
08:57:50,240 --> 08:57:56,308  
we copy and conquer

5858  
08:58:01,270 --> 08:57:59,030  
okay eb1 eb2 check

5859  
08:58:03,110 --> 08:58:01,280  
glove heaters off

5860  
08:58:04,948 --> 08:58:03,120  
ev1 osf

5861  
08:58:07,190 --> 08:58:04,958  
v2

5862  
08:58:09,190 --> 08:58:07,200  
and even eb2 check gloves for

5863  
08:58:15,110 --> 08:58:09,200

contamination

5864

08:58:18,388 --> 08:58:17,030

okay and there was warning i assume

5865

08:58:20,388 --> 08:58:18,398

there's no

5866

08:58:23,350 --> 08:58:20,398

calcium terms today

5867

08:58:28,070 --> 08:58:23,360

that's correct no cost symptoms

5868

08:58:42,388 --> 08:58:28,080

okay great next is action eb1 eb2 auto

5869

08:58:47,110 --> 08:58:44,548

happy next we're gonna bring the uh

5870

08:59:25,920 --> 08:58:47,120

equalization to norm but uh let me show

5871

08:59:25,930 --> 08:59:29,830

[Applause]

5872

08:59:35,190 --> 08:59:32,230

that sound you're hearing now is the uh

5873

08:59:37,830 --> 08:59:35,200

resuming of repressurization we had a

5874

08:59:39,750 --> 08:59:37,840

good hold at five psi did a leak check

5875

08:59:42,308 --> 08:59:39,760

and uh everything looked good we're now

5876  
08:59:43,750 --> 08:59:42,318  
uh resuming that uh repressurization

5877  
08:59:46,230 --> 08:59:43,760  
back up to equalize with the

5878  
08:59:49,750 --> 08:59:46,240  
international space station just about

5879  
08:59:54,090 --> 08:59:49,760  
above 14 psi we're now passing six and a

5880  
09:00:37,110 --> 09:00:01,590  
[Applause]

5881  
09:00:37,120 --> 09:01:28,628  
foreign

5882  
09:01:32,948 --> 09:01:30,308  
repressurization is still looking good

5883  
09:01:35,510 --> 09:01:32,958  
we're a little more than 12 psi

5884  
09:02:01,430 --> 09:01:35,520  
at this point

5885  
09:02:01,440 --> 09:02:28,230  
uh

5886  
09:02:32,628 --> 09:02:30,830  
and for suicide houston i am only

5887  
09:02:34,788 --> 09:02:32,638  
hearing a

5888  
09:02:36,708 --> 09:02:34,798

breaking box out of your side turns in

5889

09:02:38,868 --> 09:02:36,718

my right ear

5890

09:02:44,628 --> 09:02:38,878

your block's pretty much resolved and so

5891

09:02:44,638 --> 09:03:10,810

and we copy

5892

09:03:10,820 --> 09:03:25,270

[Applause]

5893

09:03:53,750 --> 09:03:27,430

and the eb 182 let me know if you hear

5894

09:03:53,760 --> 09:04:01,030

okay thank you

5895

09:04:01,040 --> 09:04:45,750

got you

5896

09:04:57,590 --> 09:04:48,150

this station on one uh looks like a

5897

09:04:57,600 --> 09:05:18,708

copy and we are go for that

5898

09:05:21,590 --> 09:05:20,230

all right pressure is equalized on the

5899

09:05:23,590 --> 09:05:21,600

other side of the hatch just a little

5900

09:05:25,750 --> 09:05:23,600

bit more than 14 psi

5901

09:05:30,788 --> 09:05:25,760

so ichinoguchi going to work uh the

5902

09:05:35,110 --> 09:05:32,230

he'll bring

5903

09:05:36,468 --> 09:05:35,120

both rubens and glover back into the

5904

09:05:38,070 --> 09:05:36,478

positions we saw them in at the

5905

09:05:40,948 --> 09:05:38,080

beginning of the spacewalk on either

5906

09:05:42,708 --> 09:05:40,958

side the left and the right of this

5907

09:06:15,510 --> 09:05:42,718

equipment lock and start doffing or

5908

09:06:19,670 --> 09:06:17,588

another handover of our satellite

5909

09:06:23,510 --> 09:06:19,680

coverage providing video feeds from the

5910

09:06:27,350 --> 09:06:25,190

in the meantime the crew aboard will

5911

09:06:29,030 --> 09:06:27,360

continue to work through the procedures

5912

09:06:32,868 --> 09:06:29,040

to get both of the crew members kate

5913

09:06:34,228 --> 09:06:32,878

rubins and victor glover back inside the

5914

09:06:36,548 --> 09:06:34,238

equipment lock back inside the

5915

09:06:38,388 --> 09:06:36,558

international space station and begin

5916

09:06:40,228 --> 09:06:38,398

taking off or doffing their suits the

5917

09:06:42,630 --> 09:06:40,238

helmets the gloves

5918

09:06:44,868 --> 09:06:42,640

and give them the much-needed break

5919

09:06:46,548 --> 09:06:44,878

after a seven hour and four minute

5920

09:06:47,990 --> 09:06:46,558

spacewalk

5921

09:06:49,428 --> 09:06:48,000

the teams that you're seeing here in the

5922

09:06:51,268 --> 09:06:49,438

international space station flight

5923

09:06:53,670 --> 09:06:51,278

control room have been

5924

09:06:56,228 --> 09:06:53,680

watching the duration throughout the

5925

09:06:57,990 --> 09:06:56,238

duration of today's spacewalk coming in

5926

09:07:06,228 --> 09:06:58,000

at the beginning of the orbit 2 shift

5927

09:07:09,670 --> 09:07:08,310

teams here will continue to remain on

5928

09:07:10,790 --> 09:07:09,680

console through some of the next

5929

09:07:12,630 --> 09:07:10,800

procedures

5930

09:07:15,908 --> 09:07:12,640

we'll continue to provide coverage until

5931

09:07:17,748 --> 09:07:15,918

we start seeing the doffing of both of

5932

09:07:19,670 --> 09:07:17,758

the crew member suits the helmets that

5933

09:07:23,908 --> 09:07:19,680

come off and we'll go ahead and wrap up

5934

09:07:42,548 --> 09:07:26,548

and my fb was rather

5935

09:07:42,558 --> 09:07:53,112

i think you may want to turn me that way

5936

09:07:57,268 --> 09:07:55,748

airlock station on one when convenient

5937

09:07:59,030 --> 09:07:57,278

just so you know we had a brief handover

5938

09:08:00,630 --> 09:07:59,040

and now we are down ku so we're not

5939

09:08:09,990 --> 09:08:00,640

seeing uh what y'all are doing let us

5940

09:08:15,030 --> 09:08:12,228

yeah houston station one now please take

5941

09:08:16,548 --> 09:08:15,040

care of a step forward

5942

09:08:19,112 --> 09:08:16,558

uh

5943

09:08:21,510 --> 09:08:19,122

can you see my cd running what else

5944

09:09:26,708 --> 09:08:21,520

i can't tell which way it should go

5945

09:09:29,670 --> 09:09:28,068

now we're gaining some of those views

5946

09:09:31,428 --> 09:09:29,680

from the international space station

5947

09:09:32,708 --> 09:09:31,438

after a short handover you can already

5948

09:09:34,470 --> 09:09:32,718

see

5949

09:09:36,630 --> 09:09:34,480

victor glover is already inside the

5950

09:09:39,510 --> 09:09:36,640

equipment lock and that safer unit same

5951

09:09:41,510 --> 09:09:39,520

simplified aid for eva rescue

5952

09:09:43,428 --> 09:09:41,520

is already off

5953

09:09:51,830 --> 09:09:43,438

one no response required the crew is no

5954

09:09:56,150 --> 09:09:53,908

that simplified aid for eva rescue the

5955

09:09:57,030 --> 09:09:56,160

safer unit provides a propulsion should

5956

09:10:00,790 --> 09:09:57,040

the

5957

09:10:02,868 --> 09:10:00,800

today's spacewalk but

5958

09:10:04,630 --> 09:10:02,878

as you all tuned in

5959

09:10:06,228 --> 09:10:04,640

you notice the tether checks throughout

5960

09:10:08,470 --> 09:10:06,238

the duration of the spacewalk to

5961

09:10:10,068 --> 09:10:08,480

maintain that connection to the

5962

09:10:12,310 --> 09:10:10,078

international space station save it was

5963

09:10:16,708 --> 09:10:12,320

not needed but can be used as an extra

5964

09:10:21,428 --> 09:10:18,548

with the safer

5965

09:10:23,908 --> 09:10:21,438

unit removed and stowed

5966

09:10:28,388 --> 09:10:23,918

they'll connect a glover to

5967

09:10:30,228 --> 09:10:28,398

one of the wall units there and begin uh

5968

09:10:31,908 --> 09:10:30,238

uh the suit

5969

09:10:36,950 --> 09:10:31,918

that includes taking off the helmet and

5970

09:10:40,868 --> 09:10:39,112

now repeat the same steps for rubens

5971

09:10:43,748 --> 09:10:40,878

first removing

5972

09:10:48,470 --> 09:10:43,758

her a safer unit and stowing it and then

5973

09:10:52,630 --> 09:10:51,268

today's seven hour and uh four minutes

5974

09:10:54,630 --> 09:10:52,640

spacewalk

5975

09:10:57,990 --> 09:10:54,640

uh included the installation of a

5976  
09:10:59,748 --> 09:10:58,000  
modification kit to the 2b power channel

5977  
09:11:01,830 --> 09:10:59,758  
this is the power channel

5978  
09:11:04,388 --> 09:11:01,840  
that faces the earth on the far port

5979  
09:11:07,268 --> 09:11:04,398  
side of the international space station

5980  
09:11:14,470 --> 09:11:07,278  
that modification kit meant to uh

5981  
09:11:18,630 --> 09:11:16,630  
just communicating to rubens that his

5982  
09:11:21,112 --> 09:11:18,640  
next steps will be to remove her safer

5983  
09:11:24,630 --> 09:11:23,030  
but of course today's seven hour four

5984  
09:11:26,790 --> 09:11:24,640  
minute space waka included the

5985  
09:11:29,588 --> 09:11:26,800  
installation of that modification kit

5986  
09:11:34,310 --> 09:11:29,598  
uh it will eventually house solar arrays

5987  
09:11:39,990 --> 09:11:38,150  
uh on the two uh channels that

5988  
09:11:44,790 --> 09:11:40,000

our crew members worked on today they of

5989

09:11:51,030 --> 09:11:47,190

they may readdress some components

5990

09:11:53,268 --> 09:11:51,040

of that channel on a later spacewalk

5991

09:11:55,268 --> 09:11:53,278

but the modification kit itself is

5992

09:11:57,990 --> 09:11:55,278

structurally sound and in a safe

5993

09:12:00,630 --> 09:11:58,000

configuration

5994

09:12:02,950 --> 09:12:00,640

4b power channel they got started

5995

09:12:05,112 --> 09:12:02,960

by building the first element of the

5996

09:12:07,670 --> 09:12:05,122

modification kit the upper

5997

09:12:09,990 --> 09:12:07,680

triangle this is the bracket that goes

5998

09:12:12,068 --> 09:12:10,000

at the very top of the configuration

5999

09:12:21,908 --> 09:12:12,078

towards the top of the mast canister

6000

09:12:26,228 --> 09:12:24,068

rubens is scheduled to uh continue that

6001  
09:12:28,310 --> 09:12:26,238  
work next friday

6002  
09:12:31,268 --> 09:12:28,320  
you see suici on the left there who's

6003  
09:12:32,868 --> 09:12:31,278  
the suit iv the lead for uh

6004  
09:12:34,950 --> 09:12:32,878  
walking our astronauts through the

6005  
09:12:37,990 --> 09:12:34,960  
depressurization and now just recently

6006  
09:12:39,428 --> 09:12:38,000  
repressurization uh sequences of course

6007  
09:12:41,830 --> 09:12:39,438  
mike hopkins off to the right helping

6008  
09:12:43,990 --> 09:12:41,840  
him and some of the russian cosmonaut

6009  
09:12:46,068 --> 09:12:44,000  
colleagues are coming uh in the back

6010  
09:12:47,428 --> 09:12:46,078  
there you can see

6011  
09:12:51,588 --> 09:12:47,438  
helping

6012  
09:12:53,428 --> 09:12:51,598  
suicinaguchi stow that safer unit off of

6013  
09:12:55,510 --> 09:12:53,438

kate rubin's suit

6014

09:12:59,428 --> 09:12:55,520

kate rubens being the astronaut in the

6015

09:13:04,310 --> 09:13:01,350

we also were able to see some of the

6016

09:13:06,150 --> 09:13:04,320

first high definition views from a

6017

09:13:08,068 --> 09:13:06,160

space station

6018

09:13:10,228 --> 09:13:08,078

from a spacesuit today

6019

09:13:12,548 --> 09:13:10,238

using that new heka camera you can see

6020

09:14:18,470 --> 09:13:12,558

mounted on the left

6021

09:14:18,480 --> 09:14:55,030

employment

6022

09:14:59,908 --> 09:14:57,350

sergey kuzkov coming into frame on the

6023

09:15:03,670 --> 09:15:01,908

russian cosmonaut that flew with kate

6024

09:15:06,470 --> 09:15:03,680

rubins on the soyuz to the international

6025

09:15:10,630 --> 09:15:08,790

taking some photos as a suichi naguchi

6026

09:15:12,868 --> 09:15:10,640

there the lead suit iv

6027

09:15:15,190 --> 09:15:12,878

uh works with uh mike hopkins in the

6028

09:15:18,228 --> 09:15:15,200

background there

6029

09:15:20,790 --> 09:15:18,238

both working to uh remove the tools and

6030

09:15:22,228 --> 09:15:20,800

tethers that they uh that our two space

6031

09:15:26,950 --> 09:15:22,238

walking astronauts used throughout the

6032

09:15:31,588 --> 09:15:28,630

and again they'll

6033

09:15:33,830 --> 09:15:31,598

continue to uh

6034

09:15:35,510 --> 09:15:33,840

doff or remove the suits including the

6035

09:15:36,950 --> 09:15:35,520

helmets and gloves we'll continue to

6036

09:17:11,830 --> 09:15:36,960

provide coverage

6037

09:17:11,840 --> 09:19:14,068

i'm gonna pop your rust

6038

09:19:17,426 --> 09:19:15,990

another handover between satellites

6039

09:19:19,746 --> 09:19:17,436

providing video from the international

6040

09:19:24,790 --> 09:19:19,756

space station you saw victor glover's

6041

09:19:30,150 --> 09:19:26,870

naguchi and hop and

6042

09:19:32,150 --> 09:19:30,160

mike hopkins will continue to work on

6043

09:19:33,426 --> 09:19:32,160

kate rubin's suit doing the same

6044

09:19:35,266 --> 09:19:33,436

removing her

6045

09:19:36,950 --> 09:19:35,276

tethers and tools

6046

09:19:38,950 --> 09:19:36,960

and then eventually her helmet and

6047

09:19:40,790 --> 09:19:38,960

gloves

6048

09:20:36,550 --> 09:19:40,800

after that we'll conclude today's space

6049

09:20:36,560 --> 09:21:16,870

you want to put the o2 off

6050

09:21:22,470 --> 09:21:19,426

as we near the end of uh today's

6051  
09:21:24,710 --> 09:21:22,480  
coverage of uh this spacewalk to install

6052  
09:21:27,906 --> 09:21:24,720  
the first modification kit

6053  
09:21:29,990 --> 09:21:27,916  
on one of the station's solar panels

6054  
09:21:32,230 --> 09:21:30,000  
that is the first of six planned

6055  
09:21:34,470 --> 09:21:32,240  
modification kits

6056  
09:21:36,310 --> 09:21:34,480  
uh this is uh in preparation for some of

6057  
09:21:38,150 --> 09:21:36,320  
the upcoming solar arrays there will be

6058  
09:21:40,550 --> 09:21:38,160  
a set of six arrays

6059  
09:21:42,550 --> 09:21:40,560  
that will be mounted on in front of some

6060  
09:21:45,190 --> 09:21:42,560  
of the existing arrays and simply

6061  
09:21:49,030 --> 09:21:45,200  
augment the power and continue to

6062  
09:21:51,350 --> 09:21:49,040  
provide power uh for the uh research and

6063  
09:21:53,030 --> 09:21:51,360

uh commercial activities planned

6064

09:21:55,350 --> 09:21:53,040

aboard the international space station

6065

09:21:57,266 --> 09:21:55,360

for years to come

6066

09:21:59,426 --> 09:21:57,276

now as we near the conclusion of our

6067

09:22:03,510 --> 09:21:59,436

coverage we do have more

6068

09:22:05,426 --> 09:22:03,520

for you to tune into on nasa tv

6069

09:22:06,550 --> 09:22:05,436

tomorrow we will conduct a series of

6070

09:22:08,390 --> 09:22:06,560

briefings

6071

09:22:10,790 --> 09:22:08,400

to preview some of the upcoming

6072

09:22:13,350 --> 09:22:10,800

activities for the next spacex crew

6073

09:22:16,310 --> 09:22:13,360

rotation mission this is nasa's spacex

6074

09:22:18,310 --> 09:22:16,320

crew 2 mission aboard as nasa's shane

6075

09:22:22,070 --> 09:22:18,320

kimrow and megan mcarthur

6076

09:22:25,190 --> 09:22:22,080

aki hoshide of jaxa and

6077

09:22:26,390 --> 09:22:25,200

of the european space agency isa

6078

09:22:29,906 --> 09:22:26,400

we'll have a series of briefings

6079

09:22:32,870 --> 09:22:29,916

starting at 11 30 a.m central time 12 30

6080

09:22:35,510 --> 09:22:32,880

p.m eastern uh first is an overview of

6081

09:22:37,110 --> 09:22:35,520

the crew 2 mission uh with a few of our

6082

09:22:38,630 --> 09:22:37,120

uh

6083

09:22:41,906 --> 09:22:38,640

with a few directors representing our

6084

09:22:43,510 --> 09:22:41,916

various agencies as well as spacex

6085

09:22:46,230 --> 09:22:43,520

and then we'll have a chance to speak

6086

09:22:47,746 --> 09:22:46,240

with that crew crew 2 at 2 p.m eastern

6087

09:22:49,426 --> 09:22:47,756

time the crew news conference again

6088

09:22:53,030 --> 09:22:49,436

shane kimbrough megan

6089

09:22:54,870 --> 09:22:53,040

aki hoshide and tomah pesquet

6090

09:22:56,310 --> 09:22:54,880

we'll then have a series of round robin

6091

09:22:58,070 --> 09:22:56,320

interviews in the afternoon starting at

6092

09:23:01,350 --> 09:22:58,080

3 30 pm eastern

6093

09:23:05,746 --> 09:23:03,670

then of course this spacewalk is uh set

6094

09:23:07,510 --> 09:23:05,756

up for the next upcoming spacewalk we

6095

09:23:09,906 --> 09:23:07,520

did a little bit of the work on the 4b

6096

09:23:10,950 --> 09:23:09,916

channel of course completing the 2b

6097

09:23:13,030 --> 09:23:10,960

channel

6098

09:23:15,746 --> 09:23:13,040

but we start at that upper triangle

6099

09:23:16,710 --> 09:23:15,756

bracket and kate rubins will go out the

6100

09:23:18,470 --> 09:23:16,720

hatch

6101  
09:23:20,150 --> 09:23:18,480  
and finish some of that work this time

6102  
09:23:21,190 --> 09:23:20,160  
with suichi naguchi who's currently

6103  
09:23:23,266 --> 09:23:21,200  
helping

6104  
09:23:25,990 --> 09:23:23,276  
to remove the gloves and eventually the

6105  
09:23:27,990 --> 09:23:26,000  
helmet of kate rubens

6106  
09:23:29,830 --> 09:23:28,000  
that's scheduled for friday march 5th

6107  
09:23:32,390 --> 09:23:29,840  
and the coverage for that will start one

6108  
09:23:35,746 --> 09:23:32,400  
hour later at 4 00 am central time

6109  
09:23:45,190 --> 09:23:35,756  
4 30 rather am central time 5 30 a.m

6110  
09:23:49,990 --> 09:23:47,350  
now again that will be to finish the

6111  
09:23:52,790 --> 09:23:50,000  
installation of the modification kit

6112  
09:23:55,030 --> 09:23:52,800  
the tasks for that spacewalk are set to

6113  
09:23:57,266 --> 09:23:55,040

look somewhat identical to what we just

6114

09:24:02,550 --> 09:23:57,276

saw today they may even squeeze in a few

6115

09:24:08,070 --> 09:24:05,426

and of course uh march 5th or perhaps uh

6116

09:24:11,030 --> 09:24:08,080

a spacewalk in the future after march

6117

09:24:13,670 --> 09:24:11,040

5th uh the crew may uh address some of

6118

09:25:55,746 --> 09:24:13,680

the work done on the 2b power channel

6119

09:25:59,746 --> 09:25:57,586

suicina gucci and mike hopkins will

6120

09:26:01,350 --> 09:25:59,756

continue to work with uh victor glover

6121

09:26:03,350 --> 09:26:01,360

off to the left and kate rubins who

6122

09:26:05,350 --> 09:26:03,360

successfully conducted a seven hour and

6123

09:26:07,670 --> 09:26:05,360

four minute spacewalk today installing

6124

09:26:09,906 --> 09:26:07,680

the modification kit on the 2b power

6125

09:26:11,670 --> 09:26:09,916

channel in preparation for some future

6126

09:26:13,906 --> 09:26:11,680

upgrades new solar arrays are coming to

6127

09:26:15,670 --> 09:26:13,916

the international space station

6128

09:26:17,586 --> 09:26:15,680

with their helmets off and the suit

6129

09:26:20,390 --> 09:26:17,596

doffing continuing we'll go ahead and

6130

09:26:21,990 --> 09:26:20,400

wrap up our coverage for today

6131

09:26:24,310 --> 09:26:22,000

of course tune in to the next spacewalk

6132

09:26:49,580 --> 09:26:24,320

next friday until then this is mission