



1
00:00:04,550 --> 00:00:24,790

[Music]

2
00:00:28,550 --> 00:00:26,390

good morning and thanks for joining us

3
00:00:30,390 --> 00:00:28,560

this monday morning february 1st for

4
00:00:32,630 --> 00:00:30,400

live coverage of today's spacewalk

5
00:00:34,709 --> 00:00:32,640

aboard the international space station

6
00:00:37,270 --> 00:00:34,719

i'm Leah Cheshire and we are here live

7
00:00:39,830 --> 00:00:37,280

in mission control Houston at the NASA

8
00:00:41,750 --> 00:00:39,840

Johnson Space Center this is a live feed

9
00:00:43,430 --> 00:00:41,760

from the space station's Quest airlock

10
00:00:45,750 --> 00:00:43,440

where astronauts are continuing

11
00:00:47,750 --> 00:00:45,760

procedures to prepare themselves for the

12
00:00:48,950 --> 00:00:47,760

airlock for today's extra-vehicular

13
00:00:51,910 --> 00:00:48,960

activity

14

00:00:54,549 --> 00:00:51,920
the 234th spacewalk in the history of

15

00:00:56,069 --> 00:00:54,559
station assembly and maintenance today's

16

00:00:59,510 --> 00:00:56,079
facebook is scheduled to last

17

00:01:01,830 --> 00:00:59,520
approximately six and a half hours

18

00:01:04,310 --> 00:01:01,840
today spacewalkers are nasa astronauts

19

00:01:06,310 --> 00:01:04,320
michael hopkins and victor glover it's

20

00:01:08,789 --> 00:01:06,320
hopkins fourth spacewalk and he'll be

21

00:01:11,109 --> 00:01:08,799
ev1 wearing red stripes around the legs

22

00:01:13,990 --> 00:01:11,119
on his spacesuit and it's the second

23

00:01:16,149 --> 00:01:14,000
space walk for victor glover who is ev2

24

00:01:18,230 --> 00:01:16,159
or extravehicular crew member number two

25

00:01:21,030 --> 00:01:18,240
and will have no stripes at the bottom

26
00:01:23,910 --> 00:01:21,040
of his spacesuit this is as we mentioned

27
00:01:27,749 --> 00:01:23,920
the 234th spacewalk in the history of

28
00:01:29,749 --> 00:01:27,759
station assembly and maintenance

29
00:01:31,830 --> 00:01:29,759
it's the second spacewalk in the last

30
00:01:34,149 --> 00:01:31,840
week for this duo who ventured outside

31
00:01:36,630 --> 00:01:34,159
the hatch last wednesday

32
00:01:39,030 --> 00:01:36,640
as you can see inside the crew lock

33
00:01:41,510 --> 00:01:39,040
portion of the quest airlock

34
00:01:43,109 --> 00:01:41,520
nasa astronaut kate rubins helping the

35
00:01:46,149 --> 00:01:43,119
crew members get suited up today

36
00:01:49,030 --> 00:01:46,159
assisted by jaxa astronaut or japanese

37
00:01:52,789 --> 00:01:49,040
aerospace exploration agency astronaut

38
00:01:57,030 --> 00:01:54,630

today hopkins and glover will address a

39

00:01:59,510 --> 00:01:57,040

variety of tasks including install

40

00:02:02,230 --> 00:01:59,520

installation of a final lithium-ion

41

00:02:03,910 --> 00:02:02,240

battery adapter plate on the p4 truss

42

00:02:07,429 --> 00:02:03,920

that will wrap up battery replacement

43

00:02:09,109 --> 00:02:07,439

work begun in january 2017.

44

00:02:10,949 --> 00:02:09,119

hopkins and glover will remove another

45

00:02:13,510 --> 00:02:10,959

grapple fixture bracket on the same

46

00:02:15,750 --> 00:02:13,520

truss segment replace an external camera

47

00:02:17,510 --> 00:02:15,760

on the starboard truss install a new

48

00:02:19,350 --> 00:02:17,520

high definition camera on the destiny

49

00:02:21,830 --> 00:02:19,360

laboratory and replace components for

50

00:02:23,910 --> 00:02:21,840

the japanese robotic arms camera system

51
00:02:26,309 --> 00:02:23,920
outside the kibo module

52
00:02:33,830 --> 00:02:26,319
let's take a look in more detail of what

53
00:02:38,070 --> 00:02:36,070
translate to the four alpha integrated

54
00:02:40,949 --> 00:02:38,080
equipment assembly

55
00:02:42,869 --> 00:02:40,959
where ev1 installs a scoop on the direct

56
00:02:44,390 --> 00:02:42,879
current switching unit

57
00:02:47,390 --> 00:02:44,400
and ev2

58
00:02:48,710 --> 00:02:47,400
stows a tool bag onto the adapter plate

59
00:02:50,630 --> 00:02:48,720
[Music]

60
00:02:53,030 --> 00:02:50,640
the crew worked together to remove the

61
00:02:56,310 --> 00:02:53,040
adapter plate from slot 2

62
00:03:02,710 --> 00:02:56,320
and bring it to slot 6.

63
00:03:05,430 --> 00:03:02,720

[Music]

64

00:03:07,990 --> 00:03:05,440

to install the adapter plate

65

00:03:10,380 --> 00:03:08,000

the ev crew drive two bolts on the

66

00:03:11,910 --> 00:03:10,390

adapter plate

67

00:03:15,110 --> 00:03:11,920

[Music]

68

00:03:16,830 --> 00:03:15,120

ev1 drives one bolt on the lithium-ion

69

00:03:20,949 --> 00:03:16,840

battery in slot

70

00:03:22,949 --> 00:03:20,959

5. ev2 uses a ratchet wrench to break

71

00:03:24,149 --> 00:03:22,959

torque on the direct current switching

72

00:03:26,390 --> 00:03:24,159

unit

73

00:03:32,390 --> 00:03:26,400

and then resets the torque at a lower

74

00:03:37,430 --> 00:03:35,350

ev2 connects the adapter plate to the

75

00:03:39,589 --> 00:03:37,440

lithium ion battery

76
00:03:41,020 --> 00:03:39,599
completing the circuit for the four

77
00:03:45,190 --> 00:03:41,030
alpha 3 power channel

78
00:03:50,710 --> 00:03:48,229
ev1 translates to the four alpha beta

79
00:03:53,830 --> 00:03:50,720
gimbal assembly

80
00:03:57,110 --> 00:03:53,840
ev1 removes the h fixture in preparation

81
00:04:03,429 --> 00:03:57,120
for a future eva

82
00:04:08,390 --> 00:04:06,229
ev2 previously returned to the airlock

83
00:04:10,710 --> 00:04:08,400
and now goes to the external stowage

84
00:04:13,830 --> 00:04:10,720
platform too

85
00:04:16,629 --> 00:04:13,840
ev2 removes a portable foot restraint

86
00:04:18,870 --> 00:04:16,639
installs it onto the robotic arm

87
00:04:22,710 --> 00:04:18,880
and then ingresses

88
00:04:27,110 --> 00:04:22,720

the robotic arm takes ev2 to the camera

89

00:04:28,710 --> 00:04:27,120

port 3 worksite at the s1 lower outboard

90

00:04:30,230 --> 00:04:28,720

location

91

00:04:32,629 --> 00:04:30,240

ev1

92

00:04:38,550 --> 00:04:32,639

brings out the replacement camera group

93

00:04:44,629 --> 00:04:41,030

with both crew at the worksite

94

00:04:49,590 --> 00:04:44,639

ev2 releases three bolts

95

00:04:54,830 --> 00:04:51,830

the crew swap out the failed and

96

00:05:07,270 --> 00:04:58,870

units then ev2 installs and drives three

97

00:05:13,749 --> 00:05:10,710

ev1 then returns the failed unit to the

98

00:05:19,110 --> 00:05:17,110

the arm flies ev2 over to the us

99

00:05:23,510 --> 00:05:19,120

laboratory module

100

00:05:27,510 --> 00:05:23,520

and the camera port 13 worksite

101
00:05:31,450 --> 00:05:27,520
ev2 installs an external high definition

102
00:05:32,790 --> 00:05:31,460
camera onto the current camera group

103
00:05:35,110 --> 00:05:32,800
[Music]

104
00:05:37,990 --> 00:05:35,120
ev2 mates connections

105
00:05:41,590 --> 00:05:38,000
and installs a strap before returning to

106
00:05:43,430 --> 00:05:41,600
the external platform too

107
00:05:46,710 --> 00:05:43,440
since there are no further arm

108
00:05:49,749 --> 00:05:46,720
operations during this eva

109
00:06:11,430 --> 00:05:49,759
ev2 will egress the arm

110
00:06:17,350 --> 00:06:15,029
after ev1 stows the failed camera group

111
00:06:19,110 --> 00:06:17,360
3 in the airlock

112
00:06:20,390 --> 00:06:19,120
he retrieves the new wrist vision

113
00:06:23,909 --> 00:06:20,400

equipment box

114

00:06:26,550 --> 00:06:23,919

and translates along the u.s laboratory

115

00:06:28,629 --> 00:06:26,560

in node 2 module

116

00:06:30,230 --> 00:06:28,639

then under the japanese experiment

117

00:06:39,160 --> 00:06:30,240

module

118

00:06:44,070 --> 00:06:40,390

[Music]

119

00:06:47,270 --> 00:06:44,080

at the base of the japanese robotic arm

120

00:06:49,670 --> 00:06:47,280

ev1 stows a tool bag carrying the risk

121

00:06:52,070 --> 00:06:49,680

vision equipment

122

00:06:57,909 --> 00:06:52,080

this box provides a camera view and

123

00:07:02,550 --> 00:06:59,189

ev1

124

00:07:05,029 --> 00:07:02,560

installs a scoop which is a handling aid

125

00:07:07,189 --> 00:07:05,039

onto the failed wrist vision equipment

126

00:07:11,029 --> 00:07:07,199

box

127

00:07:17,430 --> 00:07:12,950

then installs

128

00:07:20,469 --> 00:07:17,440

the new wrist vision equipment box

129

00:07:27,189 --> 00:07:20,479

and removes the handling aid from that

130

00:07:31,749 --> 00:07:29,589

ev1 retrieves

131

00:07:34,469 --> 00:07:31,759

the tool bag with the failed wrist

132

00:07:37,749 --> 00:07:34,479

vision equipment

133

00:07:42,469 --> 00:07:37,759

and then retraces his path

134

00:07:45,189 --> 00:07:42,479

along the japanese experiment module

135

00:07:47,430 --> 00:07:45,199

the node 2 module

136

00:07:50,309 --> 00:07:47,440

to the us laboratory

137

00:07:53,589 --> 00:07:50,319

ev1 goes to the base of the camera port

138

00:07:57,270 --> 00:07:53,599

13 stanchion and will mate the ethernet

139

00:07:59,510 --> 00:07:57,280

cable to the wireless access port cable

140

00:08:01,330 --> 00:07:59,520

of the newly installed external high

141

00:08:03,670 --> 00:08:01,340

definition camera

142

00:08:07,110 --> 00:08:03,680

[Music]

143

00:08:10,469 --> 00:08:07,120

both crew return to the airlock ev2

144

00:08:13,430 --> 00:08:10,479

ingresses followed by ev1

145

00:08:22,550 --> 00:08:13,440

completing the plan test for iss

146

00:08:26,550 --> 00:08:24,710

you and kate can pick up and step

147

00:08:27,990 --> 00:08:26,560

forward and that was another look at

148

00:08:32,870 --> 00:08:28,000

what we can expect to see our

149

00:08:32,880 --> 00:08:38,230

we will pick up step 4 through 14.

150

00:08:57,269 --> 00:08:53,110

um

151
00:08:58,310 --> 00:08:57,279
in the surface module and with like your

152
00:08:59,750 --> 00:08:58,320
go to

153
00:09:02,949 --> 00:08:59,760
re-enable

154
00:09:04,870 --> 00:09:02,959
a fire and smoke

155
00:09:07,590 --> 00:09:04,880
detection system

156
00:09:10,389 --> 00:09:07,600
and re-enable the

157
00:09:12,710 --> 00:09:10,399
smoke detectors

158
00:09:15,910 --> 00:09:12,720
i also would like to get your go to

159
00:09:17,030 --> 00:09:15,920
start my velo exercise early

160
00:09:19,350 --> 00:09:17,040
so that

161
00:09:21,590 --> 00:09:19,360
it doesn't clash with

162
00:09:22,949 --> 00:09:21,600
the eva prep

163
00:09:26,150 --> 00:09:22,959

activities

164

00:09:29,269 --> 00:09:26,160

and then after i'm finished and

165

00:09:31,829 --> 00:09:29,279

with my velo exercises in its entirety

166

00:09:49,030 --> 00:09:31,839

we'll go back to

167

00:09:52,870 --> 00:09:50,630

the crew is running a little bit behind

168

00:09:53,990 --> 00:09:52,880

schedule today about an hour on today's

169

00:09:57,509 --> 00:09:54,000

timeline

170

00:10:00,070 --> 00:09:57,519

uh eva prep is very complex

171

00:10:03,030 --> 00:10:00,080

eva standing for

172

00:10:04,710 --> 00:10:03,040

external vehic extravehicular activity

173

00:10:07,030 --> 00:10:04,720

or space walk

174

00:10:08,470 --> 00:10:07,040

and sometimes we run early on those uh

175

00:10:10,389 --> 00:10:08,480

steps and sometimes you run a little

176
00:10:12,710 --> 00:10:10,399
behind so the crew is a little bit

177
00:10:25,030 --> 00:10:12,720
behind today's schedule but everything

178
00:10:25,040 --> 00:10:33,110
foreign

179
00:10:33,120 --> 00:10:56,470
thank you

180
00:11:01,430 --> 00:10:58,630
you have four astronauts in the frame

181
00:11:08,230 --> 00:11:01,440
currently they are in the equipment lock

182
00:11:13,110 --> 00:11:10,230
but there are total

183
00:11:15,269 --> 00:11:13,120
of the four nasa astronauts one jaxa

184
00:11:18,230 --> 00:11:15,279
astronaut or japanese aerospace

185
00:11:19,910 --> 00:11:18,240
exploration agency and two rose cosmos

186
00:11:22,310 --> 00:11:19,920
cosmonauts aboard the international

187
00:11:24,870 --> 00:11:22,320
space station currently perform step

188
00:11:30,630 --> 00:11:24,880

eight out in node one to help with any

189

00:11:30,640 --> 00:11:35,190

houston copies

190

00:11:38,710 --> 00:11:37,110

our current nasa astronauts on board are

191

00:11:41,350 --> 00:11:38,720

michael hopkins and victor glover

192

00:11:44,150 --> 00:11:41,360

today's two space walkers kate rubins

193

00:11:48,069 --> 00:11:44,160

who you just heard speaking with houston

194

00:11:50,550 --> 00:11:48,079

and nasa's shannon walker

195

00:11:52,790 --> 00:11:50,560

also on board are suicidal gucci of jaxa

196

00:11:55,269 --> 00:11:52,800

who is just out of frame and sergey

197

00:11:58,949 --> 00:11:55,279

rizhikov and sergey kuzkov of roast

198

00:12:02,710 --> 00:12:00,710

while hopkins and glover will be today's

199

00:12:04,870 --> 00:12:02,720

crew members outside the hatch rubens

200

00:12:10,550 --> 00:12:04,880

will command the canada arm 2 during the

201
00:12:15,190 --> 00:12:12,150
the international space station itself

202
00:12:17,590 --> 00:12:15,200
is currently flying about 266 statute

203
00:12:22,069 --> 00:12:17,600
miles an hour over the

204
00:12:26,150 --> 00:12:23,990
and we're live from mission control at

205
00:12:29,110 --> 00:12:26,160
nasa's johnson space center in houston

206
00:12:32,629 --> 00:12:30,629
teams have been walking the crew through

207
00:12:34,710 --> 00:12:32,639
their suit up in pre-breathe and other

208
00:12:36,389 --> 00:12:34,720
spacewalk preparations this morning

209
00:12:38,230 --> 00:12:36,399
today's flight director is vincent

210
00:12:39,670 --> 00:12:38,240
lacourt he is leading all of the flag

211
00:12:41,190 --> 00:12:39,680
controllers on the ground through

212
00:12:43,670 --> 00:12:41,200
today's spacewalk

213
00:12:45,509 --> 00:12:43,680

and the capcom is drew feustel he's on

214

00:12:47,430 --> 00:12:45,519

hand to speak with the astronauts and

215

00:12:50,310 --> 00:12:47,440

will hand over communications to the

216

00:12:53,910 --> 00:12:50,320

ground iv once the quest hatch is closed

217

00:12:56,629 --> 00:12:53,920

and depressurization is underway

218

00:12:58,629 --> 00:12:56,639

the ground iv or the person relaying the

219

00:13:01,030 --> 00:12:58,639

information to the two spacewalkers as

220

00:13:04,550 --> 00:13:01,040

they move throughout their tasks is nasa

221

00:13:09,190 --> 00:13:06,550

and the lead spacewalk officer for today

222

00:13:11,350 --> 00:13:09,200

is sandy fletcher she'll be overseeing

223

00:13:13,430 --> 00:13:11,360

the team monitoring the suit information

224

00:13:15,430 --> 00:13:13,440

and walking through the procedures and

225

00:13:55,670 --> 00:13:15,440

feeding information to the teams on the

226

00:13:59,509 --> 00:13:57,269

the astronauts are currently in the

227

00:14:04,389 --> 00:13:59,519

pre-breathe portion of their

228

00:14:10,069 --> 00:14:06,069

at nominal pressure the suit is about

229

00:14:11,829 --> 00:14:10,079

4.3 psi or pounds per square inch and to

230

00:14:13,430 --> 00:14:11,839

put that into context the atmospheric

231

00:14:16,949 --> 00:14:13,440

pressure we're used to on earth's

232

00:14:18,949 --> 00:14:16,959

surface is about 14.7 psi

233

00:14:20,790 --> 00:14:18,959

that's also similar to the pressure of

234

00:14:23,350 --> 00:14:20,800

the inside of the international space

235

00:14:24,790 --> 00:14:23,360

station with a mixed oxygen nitrogen

236

00:14:27,030 --> 00:14:24,800

environment again

237

00:14:28,790 --> 00:14:27,040

much like on earth

238

00:14:30,949 --> 00:14:28,800

to put that into context

239

00:14:33,030 --> 00:14:30,959

4.3 psi is similar to what you'd

240

00:14:34,230 --> 00:14:33,040

experience at about 30 000 feet

241

00:14:36,069 --> 00:14:34,240

elevation

242

00:14:38,150 --> 00:14:36,079

that low pressure in the spacewalk

243

00:14:39,990 --> 00:14:38,160

allows much more flexibility which is

244

00:15:06,230 --> 00:14:40,000

crucial when flexing the rigid gloves

245

00:15:10,389 --> 00:15:08,470

as we mentioned the crew members are in

246

00:15:12,230 --> 00:15:10,399

their pre-breathe portion of

247

00:15:14,870 --> 00:15:12,240

preparations you can see some flashes on

248

00:15:19,189 --> 00:15:14,880

your screen looks like soichino gucci is

249

00:15:24,389 --> 00:15:21,430

but the pre-breathing consists of two

250

00:15:26,550 --> 00:15:24,399

phases in the first the crew breeds 100

251
00:15:28,870 --> 00:15:26,560
oxygen through a mask to begin purging

252
00:15:31,110 --> 00:15:28,880
the nitrogen from their bodies

253
00:15:33,509 --> 00:15:31,120
if you have ever scuba dived or you're

254
00:15:35,670 --> 00:15:33,519
familiar with it this uh can help you

255
00:15:37,509 --> 00:15:35,680
prevent the bends

256
00:15:39,110 --> 00:15:37,519
in the second phase the crew gets in

257
00:15:41,910 --> 00:15:39,120
their spacesuits and conducts something

258
00:15:44,310 --> 00:15:41,920
called the in-suit light exercise or

259
00:15:46,470 --> 00:15:44,320
aisle moving their arms and legs ever so

260
00:15:49,189 --> 00:15:46,480
slightly raising their metabolic rate to

261
00:17:15,669 --> 00:15:49,199
help speed up getting rid of that excess

262
00:17:20,069 --> 00:17:17,669
some information about the spacesuits

263
00:17:22,390 --> 00:17:20,079

that our astronauts are wearing today

264

00:17:24,069 --> 00:17:22,400

the astronauts refit their suits once

265

00:17:26,309 --> 00:17:24,079

they're in space to account for any

266

00:17:28,390 --> 00:17:26,319

spinal elongation or fluid shifting that

267

00:17:30,789 --> 00:17:28,400

has occurred since they arrived in

268

00:17:33,350 --> 00:17:30,799

microgravity

269

00:17:35,669 --> 00:17:33,360

the spacesuit itself is called an emu or

270

00:17:37,990 --> 00:17:35,679

an extra vehicular mobility unit it's

271

00:17:40,390 --> 00:17:38,000

essentially an individual human-sized

272

00:17:44,470 --> 00:17:40,400

spacecraft and each contains its own

273

00:17:48,549 --> 00:17:46,710

the suit has six layers and provides

274

00:17:51,029 --> 00:17:48,559

atmospheric containment thermal

275

00:17:53,590 --> 00:17:51,039

insulation cooling solar radiation

276

00:17:55,990 --> 00:17:53,600

protection and micro meteoroid or

277

00:17:57,510 --> 00:17:56,000

orbital debris protection

278

00:17:59,590 --> 00:17:57,520

because the space station orbits the

279

00:18:00,950 --> 00:17:59,600

earth about 16 times a day there are

280

00:18:03,029 --> 00:18:00,960

points throughout the space walk when

281

00:18:05,190 --> 00:18:03,039

the astronauts are in direct light of

282

00:18:07,270 --> 00:18:05,200

the sun and other times when they are in

283

00:18:08,870 --> 00:18:07,280

complete darkness these cooling and

284

00:18:10,710 --> 00:18:08,880

thermal units help regulate their

285

00:19:07,990 --> 00:18:10,720

temperature as their environment

286

00:19:08,000 --> 00:19:23,909

airlock houston stop exercise

287

00:19:27,830 --> 00:19:25,590

that call from the ground to the

288

00:19:30,870 --> 00:19:27,840

astronauts as they continued that in

289

00:19:32,950 --> 00:19:30,880

suit light exercise or aisle pre-breathe

290

00:19:35,029 --> 00:19:32,960

portion of their preparations today

291

00:19:36,950 --> 00:19:35,039

helping to purge that excess nitrogen

292

00:19:52,630 --> 00:19:36,960

from their bodies ever so slightly

293

00:19:57,510 --> 00:19:55,029

we're in a brief expected handover of

294

00:19:59,430 --> 00:19:57,520

our satellite system called the tdrs or

295

00:20:01,590 --> 00:19:59,440

tracking data and relay satellite

296

00:20:03,990 --> 00:20:01,600

systems and we can expect to regain

297

00:20:15,830 --> 00:20:04,000

communications and video of the crew

298

00:20:15,840 --> 00:20:23,350

airlock houston begin exercise

299

00:20:30,070 --> 00:20:25,029

and that call to remind the astronauts

300

00:20:47,510 --> 00:20:32,149

that cycle includes four minutes of the

301
00:20:51,350 --> 00:20:48,870
in the center of your screen you can see

302
00:20:53,110 --> 00:20:51,360
astronaut bob hines that's whose voice

303
00:20:55,750 --> 00:20:53,120
you will hear speaking with the space

304
00:20:57,750 --> 00:20:55,760
walkers once depressurization begins

305
00:21:00,149 --> 00:20:57,760
when they are inside the crew lock

306
00:21:20,470 --> 00:21:00,159
portion of the quest airlock preparing

307
00:21:24,470 --> 00:21:21,909
the crew member at the top of your

308
00:21:26,230 --> 00:21:24,480
screen in the spacesuit is victor glover

309
00:21:27,830 --> 00:21:26,240
you can see him holding a tool that

310
00:21:32,390 --> 00:21:27,840
we'll see use throughout the day today

311
00:21:34,310 --> 00:21:32,400
that's the pgt or pistol grip tool

312
00:21:36,549 --> 00:21:34,320
it's essentially a drill that will help

313
00:22:37,029 --> 00:21:36,559

the astronauts remove bolts and install

314

00:22:37,039 --> 00:22:40,950

go ahead

315

00:22:45,590 --> 00:22:43,110

so now the step up we complete it up to

316

00:22:47,270 --> 00:22:45,600

step 14 and understand the meat looks

317

00:22:49,750 --> 00:22:47,280

and the safe becomes much later in the

318

00:22:49,760 --> 00:23:04,549

that's affirmative

319

00:23:09,350 --> 00:23:06,630

you may have heard soichinoguchi mention

320

00:23:11,830 --> 00:23:09,360

the safer that is the simplified aid for

321

00:23:13,669 --> 00:23:11,840

eva rescue

322

00:23:15,669 --> 00:23:13,679

it's a compressed nitrogen-powered

323

00:23:17,990 --> 00:23:15,679

backpack essentially that would allow a

324

00:23:20,070 --> 00:23:18,000

crew member to maneuver independently of

325

00:23:22,070 --> 00:23:20,080

the space station it's primarily

326
00:23:23,909 --> 00:23:22,080
intended for use if a spacewalker became

327
00:23:25,190 --> 00:23:23,919
detached from the station and needed to

328
00:23:27,270 --> 00:23:25,200
maneuver back

329
00:24:09,269 --> 00:23:27,280
however being tethered at all times we

330
00:24:09,279 --> 00:24:56,950
airlock houston stop exercise

331
00:25:00,950 --> 00:24:59,190
this view into the airlock you can see

332
00:25:03,750 --> 00:25:00,960
our two astronauts michael hawkins on

333
00:25:06,070 --> 00:25:03,760
the left and victor glover on the right

334
00:25:08,549 --> 00:25:06,080
and behind them is the crew lock portion

335
00:25:10,070 --> 00:25:08,559
of the airlock you can also see some of

336
00:25:12,149 --> 00:25:10,080
their tools that they'll need throughout

337
00:28:35,830 --> 00:25:12,159
the day and other equipment are already

338
00:28:41,029 --> 00:28:37,669

the spacesuits you see our crew members

339

00:28:42,630 --> 00:28:41,039

wearing today weigh approximately 315

340

00:28:44,070 --> 00:28:42,640

pounds on earth

341

00:28:48,070 --> 00:28:44,080

of course that number is reduced to

342

00:28:49,510 --> 00:28:48,080

nearly nothing when in microgravity

343

00:28:52,549 --> 00:28:49,520

but our space walkers do get the

344

00:28:54,789 --> 00:28:52,559

opportunity and have many of those to

345

00:28:57,190 --> 00:28:54,799

practice what it's like to participate

346

00:29:00,070 --> 00:28:57,200

in a space walk on earth and they use

347

00:29:03,430 --> 00:29:00,080

the neutral buoyancy laboratory here in

348

00:29:07,110 --> 00:29:05,669

the neutral buoyancy laboratory is a

349

00:29:09,350 --> 00:29:07,120

large pool

350

00:29:13,029 --> 00:29:09,360

40 feet deep

351
00:29:15,350 --> 00:29:13,039
and holds 6.2 million gallons of water

352
00:29:17,430 --> 00:29:15,360
inside the pool are mock-up portions of

353
00:29:19,590 --> 00:29:17,440
the international space station the

354
00:29:21,669 --> 00:29:19,600
astronauts get fully suited up

355
00:29:23,430 --> 00:29:21,679
and they get the opportunity to feel

356
00:29:26,070 --> 00:29:23,440
what it's like to be neutrally buoyant

357
00:29:28,470 --> 00:29:26,080
the closest thing you can get on earth

358
00:30:08,389 --> 00:29:28,480
to what it might be like to space walk

359
00:30:08,399 --> 00:32:57,750
sherlock houston begin exercise

360
00:33:01,190 --> 00:32:59,350
another feature of the suits that you

361
00:33:04,070 --> 00:33:01,200
can see clearly here

362
00:33:06,710 --> 00:33:04,080
on michael hawkins right arm you can see

363
00:33:07,830 --> 00:33:06,720

a wrist mirror the primary reason the

364

00:33:10,549 --> 00:33:07,840

crew

365

00:33:12,630 --> 00:33:10,559

wears wrist mirrors is to be able to see

366

00:33:15,590 --> 00:33:12,640

the switches and labeling on the front

367

00:33:17,830 --> 00:33:15,600

of the suit that is out of their view

368

00:33:21,669 --> 00:33:17,840

this includes the volume display

369

00:33:24,950 --> 00:33:23,029

labeling on the front of the suits is

370

00:34:09,909 --> 00:33:24,960

written in mirror image because it's

371

00:34:09,919 --> 00:35:16,630

airlock houston stop exercise

372

00:35:21,750 --> 00:35:20,150

airlock houston begin exercise and we're

373

00:35:46,870 --> 00:35:21,760

halfway through this is the start of

374

00:35:51,670 --> 00:35:48,550

the astronauts are continuing the

375

00:35:53,750 --> 00:35:51,680

pre-breathe portion of their steps today

376

00:35:57,030 --> 00:35:53,760

for the space walk the in-suit light

377

00:36:02,470 --> 00:35:57,040

exercise is scheduled to last 55-0

378

00:36:06,390 --> 00:36:04,230

and as we mentioned this

379

00:36:08,550 --> 00:36:06,400

spacewalk preparation is

380

00:36:11,270 --> 00:36:08,560

very complex and the astronauts are

381

00:36:13,670 --> 00:36:11,280

running a bit behind today sometimes you

382

00:36:15,589 --> 00:36:13,680

run early and sometimes late and so

383

00:36:17,510 --> 00:36:15,599

making sure that everyone is safe before

384

00:39:10,310 --> 00:36:17,520

they head out of the airlock is the main

385

00:39:10,320 --> 00:40:12,150

airlock houston stop exercise

386

00:40:12,160 --> 00:43:14,309

airwalk houston begin exercise

387

00:43:19,510 --> 00:43:15,829

the international space station is

388

00:43:22,630 --> 00:43:19,520

currently flying 262 statute miles over

389

00:43:24,309 --> 00:43:22,640

the south atlantic ocean

390

00:43:27,349 --> 00:43:24,319

our space walkers are suited up and

391

00:43:45,430 --> 00:43:27,359

continuing the pre-breathe process

392

00:43:48,630 --> 00:43:46,790

some more information about the

393

00:43:51,349 --> 00:43:48,640

spacesuits engineers on the ground take

394

00:43:53,750 --> 00:43:51,359

about 80 measurements 8-0

395

00:43:56,790 --> 00:43:53,760

to ensure each spacewalker has the best

396

00:43:58,550 --> 00:43:56,800

fitting spacesuit there are about 16

397

00:44:00,790 --> 00:43:58,560

major elements that compose this

398

00:44:03,829 --> 00:44:00,800

spacesuit that includes three different

399

00:44:06,390 --> 00:44:03,839

sizes of torsos eight sizes of elbow

400

00:44:09,589 --> 00:44:06,400

joint pieces two sizes of adjustable

401
00:44:13,109 --> 00:44:09,599
waists five sizes of knee joint pieces

402
00:44:20,550 --> 00:44:13,119
and 65 sizes of gloves or custom fitted

403
00:44:24,470 --> 00:44:22,630
the astronauts can also add padding as

404
00:45:09,030 --> 00:44:24,480
needed to various parts of the

405
00:49:07,910 --> 00:45:11,349
here like houston begin exercise and

406
00:49:07,920 --> 00:50:08,309
airlock houston stop exercise

407
00:50:08,319 --> 00:50:46,870
sherlock houston begin exercise

408
00:50:51,510 --> 00:50:49,109
nasa astronauts victor glover at the top

409
00:50:53,270 --> 00:50:51,520
of your screen and michael hopkins

410
00:50:56,069 --> 00:50:53,280
continue to step through their space

411
00:50:57,829 --> 00:50:56,079
walk prep procedures before it about six

412
00:51:03,349 --> 00:50:57,839
and a half hours outside of the hatch

413
00:51:09,270 --> 00:51:06,390

their first task will be the adapter

414

00:51:11,030 --> 00:51:09,280

plate relocation on the p4 truss

415

00:51:12,630 --> 00:51:11,040

this is the final work to complete the

416

00:51:13,829 --> 00:51:12,640

battery upgrades aboard the space

417

00:51:15,349 --> 00:51:13,839

station

418

00:51:16,870 --> 00:51:15,359

prior to today's spacewalk flight

419

00:51:18,870 --> 00:51:16,880

controllers on the ground robotically

420

00:51:21,750 --> 00:51:18,880

removed the final two nickel hydrogen

421

00:51:27,910 --> 00:51:21,760

batteries and installed the last lithium

422

00:51:31,109 --> 00:51:29,670

those nickel hydrogen batteries had

423

00:51:35,190 --> 00:51:31,119

originally been replaced with a

424

00:51:37,670 --> 00:51:35,200

lithium-ion battery on march 22 2019

425

00:51:39,750 --> 00:51:37,680

however that battery failed after

426
00:51:43,190 --> 00:51:39,760
installation

427
00:51:46,309 --> 00:51:43,200
and on the next spacewalk which was usa

428
00:51:49,190 --> 00:51:46,319
spacewalk 53 by christina cook and nick

429
00:51:51,670 --> 00:51:49,200
hague about a week later released the

430
00:51:54,309 --> 00:51:51,680
bolts on that new lithium-ion battery

431
00:52:01,030 --> 00:51:54,319
which was removed and replaced by those

432
00:52:05,030 --> 00:52:03,349
the adapter plate being installed today

433
00:52:06,710 --> 00:52:05,040
helps connect the new lithium ion

434
00:52:08,790 --> 00:52:06,720
batteries with the space station and

435
00:52:15,349 --> 00:52:08,800
completes the circuit needed for the

436
00:52:19,109 --> 00:52:17,109
the power stored in the batteries is

437
00:52:21,430 --> 00:52:19,119
gathered through the station's solar

438
00:52:22,630 --> 00:52:21,440

arrays when it is in sunlight which

439

00:52:25,030 --> 00:52:22,640

happens

440

00:52:28,230 --> 00:52:25,040

every 45 minutes it switches between

441

00:52:33,109 --> 00:52:28,240

sunlight and nighttime as it orbits the

442

00:52:35,430 --> 00:52:33,119

earth at 17 500 miles an hour

443

00:52:37,750 --> 00:52:35,440

the solar arrays gather that power which

444

00:52:40,470 --> 00:52:37,760

is then converted by a battery charge

445

00:52:42,710 --> 00:52:40,480

discharge unit and stored in the battery

446

00:54:08,309 --> 00:52:42,720

for usage when the space station is in

447

00:55:08,470 --> 00:54:11,349

caroline houston stop exercise that's

448

00:55:08,480 --> 00:57:33,670

airway houston begin exercise

449

00:57:38,309 --> 00:57:35,430

if you look closely you can spot another

450

00:57:41,190 --> 00:57:38,319

tool the astronauts will be using today

451
00:57:44,309 --> 00:57:41,200
and that is the

452
00:57:45,910 --> 00:57:44,319
procedures on their left arm you can see

453
00:57:47,750 --> 00:57:45,920
michael hopkins down at the bottom of

454
00:57:51,670 --> 00:57:47,760
your screen and victor glover's

455
00:57:54,710 --> 00:57:51,680
near the center and top of your screen

456
00:57:56,630 --> 00:57:54,720
that's essentially a playbook

457
00:58:29,109 --> 00:57:56,640
for the astronauts to reference during

458
00:58:32,789 --> 00:58:31,270
space walks are physically demanding

459
00:58:35,109 --> 00:58:32,799
tasks but astronauts on the

460
00:58:37,990 --> 00:58:35,119
international space station work out for

461
00:58:40,470 --> 00:58:38,000
approximately two hours every day in

462
00:59:09,030 --> 00:58:40,480
order to keep their bone and muscle

463
00:59:09,040 --> 00:59:50,150

airlock houston stop exercise

464

00:59:54,230 --> 00:59:52,150

station number one

465

00:59:56,470 --> 00:59:54,240

i understand exercise complete so we

466

01:00:00,789 --> 00:59:56,480

will pick up the mirox replacement

467

01:00:02,870 --> 01:00:00,799

shortly if you guys are

468

01:00:08,309 --> 01:00:02,880

yes luigi we're ready to pick up in step

469

01:00:12,950 --> 01:00:10,309

speaking of pacific c which is two

470

01:00:17,829 --> 01:00:12,960

decimal one two zero tetrox replacement

471

01:00:20,950 --> 01:00:17,839

crude we use uh three doses uh

472

01:00:21,990 --> 01:00:20,960

six and the three thirds are bad

473

01:00:23,430 --> 01:00:22,000

yep

474

01:00:36,390 --> 01:00:23,440

those are the numbers we expect and

475

01:00:40,870 --> 01:00:38,630

japanese aerospace exploration agency

476

01:00:43,109 --> 01:00:40,880

astronaut suici

477

01:00:47,109 --> 01:00:43,119

talking with nasa astronaut drew feustel

478

01:05:10,069 --> 01:00:49,670

with that the pre-breathe portion of the

479

01:05:13,349 --> 01:05:12,150

we're in another expected satellite

480

01:05:15,430 --> 01:05:13,359

handover

481

01:05:17,349 --> 01:05:15,440

with our tdrs satellite system and we

482

01:05:20,069 --> 01:05:17,359

expect to regain communications and

483

01:05:21,589 --> 01:05:20,079

video of the crew shortly

484

01:05:23,910 --> 01:05:21,599

in the meantime this is a live look

485

01:05:26,230 --> 01:05:23,920

inside mission control houston and the

486

01:08:17,749 --> 01:05:26,240

team that will be leading the space walk

487

01:08:17,759 --> 01:10:07,189

we see the serial number k thanks

488

01:10:12,709 --> 01:10:09,350

the international space station is

489

01:10:13,990 --> 01:10:12,719

currently flying 265 statute miles over

490

01:10:15,750 --> 01:10:14,000

kazakhstan

491

01:10:18,390 --> 01:10:15,760

that is where kate rubin's at the top of

492

01:10:19,750 --> 01:10:18,400

your screen and her cosmos cosmonaut

493

01:10:22,870 --> 01:10:19,760

colleagues

494

01:10:39,430 --> 01:10:22,880

sergey rzhikov and sergey kuz will land

495

01:12:11,990 --> 01:10:43,270

and the time is at 11 40.

496

01:12:16,790 --> 01:12:14,229

and we're in another satellite handover

497

01:12:19,669 --> 01:12:16,800

as our astronauts continue preparations

498

01:12:21,590 --> 01:12:19,679

for today's space walk you can see nasa

499

01:12:24,630 --> 01:12:21,600

astronaut bob hines

500

01:12:27,830 --> 01:12:24,640

there in the center of your screen

501

01:12:29,510 --> 01:12:27,840

he will serve as the ground iv

502

01:12:32,149 --> 01:12:29,520

and will be relaying procedures and

503

01:12:34,149 --> 01:12:32,159

tasks to the astronauts once they once

504

01:12:40,390 --> 01:12:34,159

depressurization begins

505

01:12:44,229 --> 01:12:42,870

standing in that photo and uh to the

506

01:12:46,070 --> 01:12:44,239

left of your screen now you can see

507

01:12:48,229 --> 01:12:46,080

vincent lacour he's today's flight

508

01:12:50,790 --> 01:12:48,239

director working with all of the flight

509

01:13:31,669 --> 01:12:50,800

controllers here in the mission control

510

01:13:35,030 --> 01:13:33,669

houston station on

511

01:13:38,470 --> 01:13:35,040

it's not one

512

01:13:39,910 --> 01:13:38,480

but 19 uh old tomatoes canisters that

513

01:13:42,630 --> 01:13:39,920

there's a one-eighth and there's a

514

01:13:43,669 --> 01:13:42,640
pretty temperature inside the uh

515

01:13:49,270 --> 01:13:43,679
cool-off

516

01:13:49,280 --> 01:14:32,470
good number suicide

517

01:14:37,669 --> 01:14:35,430
this is this one one step 21

518

01:14:44,229 --> 01:14:37,679
uh first clock restarted

519

01:14:48,870 --> 01:14:47,030
i mean we started the pd clock uh use of

520

01:17:02,310 --> 01:14:48,880
pd prayer

521

01:17:07,910 --> 01:17:05,510
sensational one the step 22 manual leak

522

01:17:09,669 --> 01:17:07,920
check is complete with a good leak check

523

01:17:16,149 --> 01:17:09,679
we're going back to the

524

01:17:21,430 --> 01:17:17,590
we copy good leak check and we're with

525

01:17:26,550 --> 01:17:23,030
okay we're going to start the safer

526

01:17:27,590 --> 01:17:26,560

doing from uh ev1 ike

527

01:17:41,990 --> 01:17:27,600

with

528

01:17:47,189 --> 01:17:44,950

confirmation of a good leak check of the

529

01:18:13,830 --> 01:17:47,199

suits coming from jaxa astronaut

530

01:18:17,750 --> 01:18:15,590

as we mentioned the first task for the

531

01:18:20,470 --> 01:18:17,760

astronauts today will be the

532

01:18:21,830 --> 01:18:20,480

installation of an adapter plate

533

01:18:24,830 --> 01:18:21,840

the final

534

01:18:27,510 --> 01:18:24,840

upgrade to the space station's battery

535

01:18:30,790 --> 01:18:27,520

system following that michael hopkins

536

01:18:33,990 --> 01:18:30,800

will move to the p4 truss and work to

537

01:18:46,709 --> 01:18:34,000

remove an h fixture this will be removed

538

01:18:51,510 --> 01:18:49,510

the crewmates will then work to

539

01:18:58,310 --> 01:18:51,520

upgrade or install

540

01:19:04,950 --> 01:19:01,030

one camera will be a replacement on the

541

01:19:09,669 --> 01:19:06,709

another camera will be

542

01:19:11,669 --> 01:19:09,679

installed on the destiny laboratory

543

01:19:13,590 --> 01:19:11,679

and the final is to

544

01:19:16,229 --> 01:19:13,600

remove and replace

545

01:21:53,590 --> 01:19:16,239

the camera on the japanese robotic arms

546

01:22:00,070 --> 01:21:56,709

the next major preparation in today's

547

01:22:02,229 --> 01:22:00,080

spacewalk is the donning of the safer

548

01:22:04,390 --> 01:22:02,239

you can see soichinoguchi is opening

549

01:22:09,510 --> 01:22:04,400

that right now that stands for

550

01:22:13,510 --> 01:22:11,510

that'll be attached to the back of the

551

01:22:17,669 --> 01:22:13,520

suit and it looks like victor glovers is

552

01:22:22,070 --> 01:22:19,910

it's essentially a backpack it's

553

01:22:24,629 --> 01:22:22,080

compressed nitrogen

554

01:22:25,830 --> 01:22:24,639

and it allows the crew member to move on

555

01:22:30,229 --> 01:22:25,840

their own

556

01:22:35,750 --> 01:22:32,870

we don't expect to see a safer be used

557

01:22:37,910 --> 01:22:35,760

because those are intended primarily in

558

01:22:39,669 --> 01:22:37,920

case a spacewalker were to become

559

01:22:40,629 --> 01:22:39,679

detached from the international space

560

01:22:42,870 --> 01:22:40,639

station

561

01:27:41,110 --> 01:22:42,880

however the spacewalkers are tethered at

562

01:27:45,350 --> 01:27:43,350

kate rubins and suicina gucci are

563

01:27:47,669 --> 01:27:45,360

finishing up

564

01:27:49,110 --> 01:27:47,679

installing that safer simplified aid for

565

01:27:51,270 --> 01:27:49,120

eva rescue

566

01:27:53,590 --> 01:27:51,280

backpack on glover and are now moving

567

01:28:04,070 --> 01:27:53,600

him into the crew lock portion of the

568

01:28:08,390 --> 01:28:05,990

once the space walkers are outside of

569

01:28:10,870 --> 01:28:08,400

the hatch today victor glover will be

570

01:28:13,830 --> 01:28:10,880

conducting part of today's work while on

571

01:28:15,910 --> 01:28:13,840

the end of the canada arm 2. kate rubens

572

01:32:04,070 --> 01:28:15,920

will be inside controlling the arms

573

01:32:08,870 --> 01:32:06,229

astronauts soichi naguchi and kate

574

01:32:11,669 --> 01:32:08,880

rubins preparing to put the simplified

575

01:32:14,870 --> 01:32:11,679

aid for eva rescue or safer

576

01:32:17,990 --> 01:32:14,880

backpack on mike hopkins he is today's

577

01:32:20,950 --> 01:32:18,000

lead spacewalker or ev1 that stands for

578

01:32:23,030 --> 01:32:20,960

extra vehicular crew member one and once

579

01:32:25,990 --> 01:32:23,040

outside you'll be able to

580

01:32:28,229 --> 01:32:26,000

distinguish who is who thanks to the red

581

01:32:30,149 --> 01:32:28,239

stripes on hopkins space suit you'll be

582

01:36:21,910 --> 01:32:30,159

able to see them around the legs on his

583

01:37:47,109 --> 01:36:25,990

hawkins and glover now both inside the

584

01:37:50,470 --> 01:37:48,790

once the crew members in the ground are

585

01:37:52,310 --> 01:37:50,480

satisfied

586

01:37:54,470 --> 01:37:52,320

the hatch will be closed between the

587

01:37:59,830 --> 01:37:54,480

crew lock and equipment lock portions of

588

01:38:10,310 --> 01:38:01,229

we'll wait for the call for

589

01:38:14,310 --> 01:38:12,229

once that occurs communication with the

590

01:38:16,550 --> 01:38:14,320

space walkers will change from

591

01:38:18,790 --> 01:38:16,560

nasa astronaut drew feustel who has been

592

01:38:21,510 --> 01:38:18,800

-serving as the capcom to nasa astronaut

593

01:38:23,990 --> 01:38:21,520

bob hines who will be the ground iv

594

01:38:42,870 --> 01:38:24,000

today and relay information and tasks to

595

01:38:46,470 --> 01:38:44,790

once depressurization of the crew lock

596

01:38:47,430 --> 01:38:46,480

portion is complete

597

01:38:49,669 --> 01:38:47,440

and

598

01:38:52,310 --> 01:38:49,679

down to nearly zero

599

01:38:55,030 --> 01:38:52,320

that will equate it to the

600

01:38:56,950 --> 01:38:55,040

outside environment of outer space

601
01:42:28,950 --> 01:38:56,960
glover is positioned to open the air

602
01:42:34,470 --> 01:42:31,350
rubens and naguchi are now moving one of

603
01:42:35,590 --> 01:42:34,480
the upgraded cameras into the airlock

604
01:42:37,350 --> 01:42:35,600
preparing

605
01:42:38,550 --> 01:42:37,360
the astronauts for today's spacewalk

606
01:42:40,870 --> 01:42:38,560
with this equipment that they'll be

607
01:42:43,189 --> 01:42:40,880
installing later in the day today's

608
01:44:59,669 --> 01:42:43,199
spacewalk is expected to last about six

609
01:45:03,189 --> 01:45:01,189
here in mission control houston at

610
01:45:07,189 --> 01:45:03,199
nasa's johnson space center flight

611
01:45:11,910 --> 01:45:09,270
flight director vincent lacourt just

612
01:45:14,870 --> 01:45:11,920
polled the team all reporting that they

613
01:45:17,590 --> 01:45:14,880

are go for today's space walk as you can

614

01:45:20,870 --> 01:45:17,600

see rubens and niguchi are working to

615

01:45:23,430 --> 01:45:20,880

move that new hd camera into the

616

01:45:24,790 --> 01:45:23,440

crew lock portion of the quest airlock

617

01:45:26,629 --> 01:45:24,800

where we currently have our space

618

01:48:48,629 --> 01:45:26,639

walkers michael hopkins and victor

619

01:48:52,470 --> 01:48:50,790

and with both space walkers and the

620

01:48:54,709 --> 01:48:52,480

tools and hardware they will need for

621

01:48:57,270 --> 01:48:54,719

today's tasks inside

622

01:48:58,390 --> 01:48:57,280

rubens and naguchi have closed the

623

01:49:00,709 --> 01:48:58,400

airlock

624

01:49:50,790 --> 01:49:00,719

hatch between the crew and equipment

625

01:49:50,800 --> 01:49:56,790

station spacecraft one for the uh

626
01:50:00,550 --> 01:49:58,790
good morning station on space to ground

627
01:50:04,149 --> 01:50:00,560
one we're here and ready to support go

628
01:50:10,870 --> 01:50:07,669
uh we completed up to step 73

629
01:50:19,189 --> 01:50:10,880
and you guys take care of our step 74

630
01:50:25,990 --> 01:50:22,070
station we copy you've completed 73 and

631
01:51:22,709 --> 01:50:26,000
we're in work for 74 75 and 76 and stand

632
01:51:22,719 --> 01:51:36,950
um

633
01:51:36,960 --> 01:51:46,460
do

634
01:51:46,470 --> 01:52:01,510
[Music]

635
01:52:07,189 --> 01:52:04,550
airlock houston space to ground one uh

636
01:52:09,589 --> 01:52:07,199
good morning hopper and ike just heads

637
01:52:16,470 --> 01:52:09,599
up you guys are now hot mike and uh for

638
01:52:16,480 --> 01:52:20,709

and offer copies guys

639

01:52:20,719 --> 01:52:36,790

like 77

640

01:52:40,390 --> 01:52:38,709

and uh

641

01:52:52,629 --> 01:52:40,400

in uia

642

01:52:57,030 --> 01:52:55,350

thank you and uh houston station's

643

01:52:59,350 --> 01:52:57,040

discipline one

644

01:53:01,669 --> 01:52:59,360

back to a step 80

645

01:53:04,070 --> 01:53:01,679

uh moving on to the deepest reverse cue

646

01:53:08,870 --> 01:53:06,550

hello houston on space gun one you have

647

01:53:10,709 --> 01:53:08,880

a go to move into step 80 for the uh

648

01:53:15,750 --> 01:53:10,719

crew life depressed repressed cue card

649

01:53:18,310 --> 01:53:17,030

thank you

650

01:53:20,629 --> 01:53:18,320

all right

651
01:53:24,550 --> 01:53:20,639
bb2 upper

652
01:53:28,470 --> 01:53:24,560
ura switch depress pump power to on wait

653
01:53:31,030 --> 01:53:30,149
press pump power

654
01:53:42,629 --> 01:53:31,040
on

655
01:53:48,629 --> 01:53:44,149
all right step two

656
01:53:56,790 --> 01:53:48,639
db2 deeper stopping manual iso open eb

657
01:53:56,800 --> 01:54:02,790
and monitor super gauge less than 5645

658
01:54:02,800 --> 01:54:11,260
everyone

659
01:54:11,270 --> 01:54:32,229
[Applause]

660
01:54:53,270 --> 01:54:37,589
um

661
01:54:53,280 --> 01:55:08,550
airlock p 12 decimal five

662
01:55:11,510 --> 01:55:10,629
your left foot is kind of right in that

663
01:55:14,310 --> 01:55:11,520

uh

664

01:55:15,910 --> 01:55:14,320

adjustable there you go

665

01:55:28,950 --> 01:55:15,920

just don't want it to get

666

01:55:32,070 --> 01:55:30,229

is that your leg

667

01:55:35,430 --> 01:55:32,080

yeah can you move them to you you know

668

01:55:37,750 --> 01:55:35,440

you possibly also remove the right

669

01:55:39,589 --> 01:55:37,760

are you all the way up against the wall

670

01:55:42,550 --> 01:55:39,599

i'm pretty much up against the wall but

671

01:56:07,430 --> 01:55:44,830

okay it's cool i feel like

672

01:56:07,440 --> 01:58:05,669

lxt 10.5

673

01:58:05,679 --> 01:58:18,830

ip

674

01:58:18,840 --> 01:58:51,430

9.0 okay

675

01:58:51,440 --> 01:59:15,430

number one

676

01:59:15,440 --> 01:59:21,830

and a 5.0 you will close the manual

677

01:59:21,840 --> 01:59:26,270

copy software problem

678

01:59:30,550 --> 01:59:28,550

depressurization continues of the crew

679

01:59:34,310 --> 01:59:30,560

lock portion of the quest airlock with

680

01:59:35,830 --> 01:59:34,320

michael hopkins and victor glover inside

681

01:59:37,270 --> 01:59:35,840

the crew is working to bring the

682

01:59:39,669 --> 01:59:37,280

pressure inside that portion of the

683

01:59:41,270 --> 01:59:39,679

airlock down to as close to a vacuum as

684

01:59:43,510 --> 01:59:41,280

possible that way when they open the

685

01:59:51,669 --> 01:59:43,520

hatch the environment is similar to that

686

01:59:55,589 --> 01:59:53,830

another quick satellite handover of the

687

01:59:57,990 --> 01:59:55,599

tracking data and relay satellite

688

02:00:11,510 --> 01:59:58,000

systems and this view in mission control

689

02:00:15,910 --> 02:00:13,189

meanwhile the international space

690

02:00:31,430 --> 02:00:15,920

station is flying about 270 statute

691

02:00:31,440 --> 02:00:41,589

uh

692

02:02:14,870 --> 02:01:29,350

um

693

02:02:31,270 --> 02:02:16,550

6.0

694

02:02:37,350 --> 02:02:32,950

mike hawkins reporting the

695

02:02:39,910 --> 02:02:37,360

pressurization of the airlock now at 6.0

696

02:02:43,030 --> 02:02:39,920

psi or pounds per square inch and the

697

02:02:45,030 --> 02:02:43,040

suit itself is about 4.3 pounds per

698

02:02:47,270 --> 02:02:45,040

square inch or what you would experience

699

02:02:58,870 --> 02:02:47,280

at around thirty thousand feet elevation

700

02:03:03,910 --> 02:03:00,550

the atmospheric pressure we're used to

701
02:03:06,149 --> 02:03:03,920
on earth is about 14.7 psi that would be

702
02:03:07,830 --> 02:03:06,159
at sea level and that's similar to the

703
02:03:09,990 --> 02:03:07,840
international space station so the

704
02:03:12,070 --> 02:03:10,000
inside of the suits pressure is much

705
02:03:16,070 --> 02:03:12,080
lower and that allows for more

706
02:03:16,080 --> 02:03:28,870
you will close the man iso at 5.00

707
02:03:33,189 --> 02:03:31,109
all of the work during a spacewalk is

708
02:03:35,270 --> 02:03:33,199
performed with the astronauts hands of

709
02:03:37,109 --> 02:03:35,280
course they use their hands to move

710
02:03:39,589 --> 02:03:37,119
along the space station and to do the

711
02:03:42,070 --> 02:03:39,599
work itself so that lower pressure

712
02:03:44,310 --> 02:03:42,080
inside the spacesuit allows for more

713
02:04:03,109 --> 02:03:44,320

flexibility inside their gloves during

714

02:04:03,119 --> 02:04:09,030

5.0 manual isolation valve is closed

715

02:04:17,109 --> 02:04:12,950

eb2 display to start us until leak check

716

02:04:21,750 --> 02:04:19,430

if you want to

717

02:04:22,790 --> 02:04:21,760

switch display to yes hold for two

718

02:05:30,790 --> 02:04:22,800

seconds

719

02:05:46,470 --> 02:05:32,470

eba

720

02:05:46,480 --> 02:05:55,189

eb2

721

02:05:55,199 --> 02:06:06,390

manual isolation valve is open

722

02:06:11,830 --> 02:06:08,790

and step eight i just opened the

723

02:06:15,109 --> 02:06:11,840

emergency update and eb1 eb2 monitor

724

02:06:15,350 --> 02:06:15,119

super gauge less than

725

02:06:19,510 --> 02:06:15,360

give 5.05

726
02:06:24,550 --> 02:06:22,069
your next session hopper when the cool

727
02:06:29,669 --> 02:06:24,560
off is 2.0

728
02:06:29,679 --> 02:06:45,910
beauty too

729
02:06:45,920 --> 02:07:17,189
hmm

730
02:07:22,229 --> 02:07:19,270
some quick backflips from japanese

731
02:07:24,629 --> 02:07:22,239
exploration aerospace agency astronaut

732
02:07:27,189 --> 02:07:24,639
suici who is no stranger to being in

733
02:07:29,430 --> 02:07:27,199
space he's actually one of only three

734
02:07:31,669 --> 02:07:29,440
people to have ever flown in more than

735
02:07:34,709 --> 02:07:31,679
in three different spacecraft that

736
02:08:14,310 --> 02:07:34,719
includes the space shuttle the soyuz and

737
02:08:47,750 --> 02:08:16,069
3.0

738
02:08:47,760 --> 02:09:58,870

huh

739

02:09:58,880 --> 02:10:13,430

2.0

740

02:10:18,229 --> 02:10:16,229

hey houston station on one the father

741

02:10:21,510 --> 02:10:18,239

this is a great time to

742

02:10:27,189 --> 02:10:21,520

hand over you take step 11 and

743

02:10:31,109 --> 02:10:29,669

and houston coffee station uh got you

744

02:10:35,189 --> 02:10:31,119

loud and clear uh hopper and ike how do

745

02:10:39,189 --> 02:10:37,510

one i can't you don't clear you too

746

02:10:40,709 --> 02:10:39,199

hopper how's it loading clear

747

02:10:43,830 --> 02:10:40,719

all right great beautiful day let's go

748

02:10:45,990 --> 02:10:43,840

for a walk outside

749

02:10:53,430 --> 02:10:46,000

ready for your ted ready for your tether

750

02:10:57,109 --> 02:10:55,030

all right

751
02:10:59,030 --> 02:10:57,119
dv1

752
02:11:02,790 --> 02:10:59,040
my waist tether

753
02:11:04,629 --> 02:11:02,800
is to hoppers safety tether anchor

754
02:11:06,310 --> 02:11:04,639
both gates are closed both are locked

755
02:11:08,790 --> 02:11:06,320
black on black

756
02:11:10,629 --> 02:11:08,800
a small hook

757
02:11:12,709 --> 02:11:10,639
from my waist feather

758
02:11:15,830 --> 02:11:12,719
is a closed shutter lock black on black

759
02:11:17,750 --> 02:11:15,840
to my right earring extender

760
02:11:19,510 --> 02:11:17,760
also on my right earring of cinder is my

761
02:11:22,629 --> 02:11:19,520
red hook

762
02:11:26,390 --> 02:11:22,639
it is closed and locked black on black

763
02:11:27,589 --> 02:11:26,400

that red reel is unlocked and it has a

764

02:11:29,510 --> 02:11:27,599

green hook

765

02:11:31,189 --> 02:11:29,520

locked to the reel

766

02:11:34,229 --> 02:11:31,199

sliders closed

767

02:11:36,950 --> 02:11:34,239

it closed fighter locks like on black

768

02:11:39,510 --> 02:11:36,960

the yellow hook from that reel is locked

769

02:11:40,870 --> 02:11:39,520

closed black on black to my

770

02:11:45,910 --> 02:11:40,880

green reel

771

02:11:51,589 --> 02:11:45,920

and that hook the safety tether anchor

772

02:11:57,990 --> 02:11:53,910

okay that sounds like a good config

773

02:12:02,790 --> 02:12:00,470

okay for hopper ev2

774

02:12:05,270 --> 02:12:02,800

attached to the airlock d-ring extender

775

02:12:07,510 --> 02:12:05,280

is the airlock waste tether small hook

776

02:12:09,270 --> 02:12:07,520

is

777

02:12:11,030 --> 02:12:09,280

a black on black

778

02:12:12,709 --> 02:12:11,040

no close letter lock black on black food

779

02:12:14,550 --> 02:12:12,719

pull test

780

02:12:16,550 --> 02:12:14,560

the large hook of that waste feather is

781

02:12:17,990 --> 02:12:16,560

attached to the large hook of my waste

782

02:12:19,430 --> 02:12:18,000

feather

783

02:12:21,270 --> 02:12:19,440

well for those

784

02:12:23,830 --> 02:12:21,280

are fail close lighter lock black on

785

02:12:25,910 --> 02:12:23,840

black good full chest

786

02:12:28,790 --> 02:12:25,920

small hook of my waist feather is

787

02:12:31,109 --> 02:12:28,800

attached to my right ceiling extender

788

02:12:33,430 --> 02:12:31,119

barrel closed slider lock black on black

789

02:12:35,750 --> 02:12:33,440

good pull

790

02:12:37,109 --> 02:12:35,760

i cell each other considering i've got a

791

02:12:39,510 --> 02:12:37,119

red hook

792

02:12:42,229 --> 02:12:39,520

that is attached to my right d-ring

793

02:12:48,069 --> 02:12:44,870

and that is fail clothes fly lock black

794

02:12:51,910 --> 02:12:48,079

on black full chest

795

02:12:53,830 --> 02:12:51,920

red reel is unlocked

796

02:12:56,229 --> 02:12:53,840

yellow hook

797

02:12:57,750 --> 02:12:56,239

and the red reel is attached to my green

798

02:12:59,990 --> 02:12:57,760

reel

799

02:13:01,750 --> 02:13:00,000

close lighter lock black on black good

800

02:13:04,310 --> 02:13:01,760

pull

801
02:13:06,629 --> 02:13:04,320
the green hook for my green reel is

802
02:13:08,950 --> 02:13:06,639
attached to the

803
02:13:11,669 --> 02:13:08,960
head wheel

804
02:13:12,950 --> 02:13:11,679
and it is still closed slider is not

805
02:13:14,790 --> 02:13:12,960
locked

806
02:13:17,669 --> 02:13:14,800
but it is attached

807
02:13:19,990 --> 02:13:17,679
and my anchor hook

808
02:13:22,390 --> 02:13:20,000
is attached to ike's

809
02:13:25,430 --> 02:13:22,400
waist feather large hook barrel closed

810
02:13:35,189 --> 02:13:25,440
slider lock black on black

811
02:13:39,990 --> 02:13:36,870
okay copy that that's a good tether

812
02:13:44,390 --> 02:13:42,790
on your dcm so when the dpdt is

813
02:13:46,310 --> 02:13:44,400

approximately zero you cannot you guys

814

02:13:48,229 --> 02:13:46,320

can expect an alert tone

815

02:13:51,109 --> 02:13:48,239

and then when the eb when the ev hatch

816

02:13:54,790 --> 02:13:51,119

is less than 0.5 psi like you can open

817

02:14:01,910 --> 02:13:58,709

happy farmer currently shows 1.5

818

02:14:05,910 --> 02:14:03,430

and i got one more for your phone i've

819

02:14:09,350 --> 02:14:05,920

got a rest for my brt to cool off right

820

02:14:14,310 --> 02:14:10,830

and we

821

02:14:15,990 --> 02:14:14,320

copy nasa astronauts michael hawkins and

822

02:14:18,629 --> 02:14:16,000

victor glover reporting their tether

823

02:14:20,069 --> 02:14:18,639

configurations as they are now

824

02:14:21,990 --> 02:14:20,079

inside the

825

02:14:24,310 --> 02:14:22,000

crew lock portion of the quest airlock

826

02:14:26,149 --> 02:14:24,320

continuing depressurization

827

02:14:28,229 --> 02:14:26,159

and they are reporting down here to

828

02:14:31,350 --> 02:14:28,239

houston and mission control

829

02:14:33,270 --> 02:14:31,360

and astronaut bob hines you may hear him

830

02:14:35,270 --> 02:14:33,280

referred to as farmer that is his call

831

02:14:37,910 --> 02:14:35,280

sign and you may hear him refer to the

832

02:14:52,390 --> 02:14:37,920

astronauts as hopper that's mike hopkins

833

02:14:56,629 --> 02:14:53,990

you'll also hear the voice of kate

834

02:14:58,709 --> 02:14:56,639

rubins today she will be the

835

02:15:00,550 --> 02:14:58,719

lead for the canada arm 2 controlling

836

02:15:03,270 --> 02:15:00,560

that robotically from inside the space

837

02:15:39,990 --> 02:15:03,280

station while victor glover is outside

838

02:15:44,390 --> 02:15:41,430

and farmer from

839

02:15:46,550 --> 02:15:44,400

hopper i also have my brt right here to

840

02:15:48,629 --> 02:15:46,560

crew like bag one

841

02:15:52,790 --> 02:15:48,639

and a small hook from that large

842

02:15:52,800 --> 02:16:08,149

okay copy that good config

843

02:16:18,790 --> 02:16:10,229

nice to see the air force test pilot

844

02:16:18,800 --> 02:16:21,990

nicely set

845

02:16:22,000 --> 02:17:09,830

180 super supra

846

02:17:09,840 --> 02:17:26,150

all right

847

02:17:31,509 --> 02:17:27,990

the form of the differential gauge is at

848

02:17:31,519 --> 02:18:39,990

copy that check

849

02:18:40,000 --> 02:19:33,270

um

850

02:19:33,280 --> 02:19:37,750

form of the gauge of 0.6

851

02:19:37,760 --> 02:19:41,589

copy that

852

02:19:45,509 --> 02:19:43,669

depressurization continues in the

853

02:19:47,270 --> 02:19:45,519

airlock ahead of today's spacewalk and

854

02:19:51,110 --> 02:19:47,280

the international space station is now

855

02:21:55,270 --> 02:19:51,120

flying 260 miles off the east coast of

856

02:21:55,280 --> 02:22:01,590

foreign

857

02:22:01,600 --> 02:22:05,910

copy that we're showing a slow decrease

858

02:22:05,920 --> 02:24:25,429

okay

859

02:24:29,670 --> 02:24:27,670

and like we're showing below 0.5 so you

860

02:24:33,590 --> 02:24:29,680

have a go to open the eevee hatch and

861

02:24:33,600 --> 02:24:37,590

okay high copy didn't work

862

02:24:44,389 --> 02:24:39,910

need to come a little bit towards you

863

02:24:48,070 --> 02:24:46,309

victor glover has received the go to

864

02:24:50,389 --> 02:24:48,080

open the hatch to the outside of the

865

02:24:52,150 --> 02:24:50,399

international space station

866

02:24:54,309 --> 02:24:52,160

however the spacewalk won't officially

867

02:25:21,750 --> 02:24:54,319

begin until the spacesuits are turned on

868

02:25:24,870 --> 02:25:23,670

you can see the hatch thermal cover now

869

02:25:26,710 --> 02:25:24,880

open

870

02:25:30,550 --> 02:25:26,720

with the hatch unlatched farmer i'm

871

02:25:32,630 --> 02:25:30,560

showing 23 on that differential gauge

872

02:25:34,230 --> 02:25:32,640

you know

873

02:25:36,870 --> 02:25:34,240

okay copy that ike

874

02:25:38,630 --> 02:25:36,880

and kate or suici whoever wants it we

875

02:25:45,990 --> 02:25:38,640

can go ahead and close the emergency

876

02:25:52,309 --> 02:25:49,910

my father empath is close emergency

877

02:25:54,790 --> 02:25:52,319

copy that thanks uh ike and hopper both

878

02:25:56,309 --> 02:25:54,800

of you uh switch power to battery and

879

02:25:59,429 --> 02:25:56,319

stagger your switch throws expect a

880

02:25:59,439 --> 02:26:14,630

by camera

881

02:26:21,270 --> 02:26:15,990

and once you've done that check your

882

02:26:21,280 --> 02:26:26,710

okay

883

02:26:26,720 --> 02:26:35,190

this hatch is open

884

02:26:35,200 --> 02:26:40,630

eb1 power to bat

885

02:26:40,640 --> 02:26:44,950

switch is functional

886

02:26:44,960 --> 02:26:55,590

f r

887

02:27:01,830 --> 02:26:58,790

voice which is functional

888

02:27:04,469 --> 02:27:01,840

copy that hopper on the uia switch power

889

02:27:08,389 --> 02:27:04,479

for both ev1 and eb2 to off and verify

890

02:27:08,399 --> 02:27:12,950

okay power ev1

891

02:27:17,030 --> 02:27:14,790

leds are off

892

02:27:20,389 --> 02:27:17,040

power ev2

893

02:27:25,510 --> 02:27:22,550

copy uh both of you can disconnect your

894

02:27:30,790 --> 02:27:25,520

scu from the dcm and install the dcm

895

02:27:51,830 --> 02:27:32,389

you want

896

02:27:51,840 --> 02:28:07,830

huh

897

02:28:15,110 --> 02:28:09,910

copy that hopper check the deep

898

02:28:15,120 --> 02:28:17,830

closed

899

02:28:24,710 --> 02:28:19,429

put your temperature control valves to

900

02:28:24,720 --> 02:28:37,110

work

901

02:28:37,120 --> 02:28:42,950

copy switch your water to on

902

02:28:48,870 --> 02:28:46,790

v1 water on beauty troop water on

903

02:28:51,910 --> 02:28:48,880

check your dcm's blank and the bite is

904

02:28:57,510 --> 02:28:53,990

and one blank right off give me two

905

02:29:00,870 --> 02:28:59,590

okay you can both set your tcps as

906

02:29:02,550 --> 02:29:00,880

desired

907

02:29:09,830 --> 02:29:02,560

and then check your suit pressure gauges

908

02:29:13,030 --> 02:29:11,590

and with the suit switched to internal

909

02:29:16,309 --> 02:29:13,040

battery power the spacewalk has

910

02:29:22,630 --> 02:29:16,319

officially begun at 6 56 a.m central

911

02:29:22,640 --> 02:29:29,830

and four point three on the gauge

912

02:29:33,590 --> 02:29:31,910

okay copy the pressures that all sounds

913

02:29:35,510 --> 02:29:33,600

good you guys are in a day pass i'm sure

914

02:30:08,070 --> 02:29:35,520

like you can see it so advisors as

915

02:30:13,030 --> 02:30:09,990

okay we can see the thermal cover open

916

02:30:15,990 --> 02:30:13,040

uh so if you can verify that that

917

02:30:17,110 --> 02:30:16,000

forward airlock hatch fit pin is engaged

918

02:30:32,389 --> 02:30:17,120

and then with that you have a go to

919

02:30:36,469 --> 02:30:34,550

as the astronauts prepare to egress and

920

02:30:39,590 --> 02:30:36,479

start today's tasks the international

921

02:30:41,830 --> 02:30:39,600

space station is flying 261 statute

922

02:30:47,510 --> 02:30:41,840

miles over the border between morocco

923

02:30:51,349 --> 02:30:49,270

either on the forward hinge there's a

924

02:30:54,870 --> 02:30:51,359

forward in the mouth and the forward and

925

02:30:56,630 --> 02:30:54,880

hip pins are both engaged

926
02:31:00,230 --> 02:30:56,640
copy that good words and you have a go

927
02:31:00,240 --> 02:31:26,950
e1

928
02:31:26,960 --> 02:31:50,950
ugh

929
02:31:50,960 --> 02:31:54,230
all right farmer

930
02:31:54,240 --> 02:31:59,429
i expect each other anchor hook

931
02:32:02,150 --> 02:32:00,389
locked

932
02:32:04,790 --> 02:32:02,160
on the forward

933
02:32:10,870 --> 02:32:04,800
harbored airlock circular

934
02:32:15,429 --> 02:32:12,710
copy that you said gates closed until

935
02:32:24,710 --> 02:32:18,469
stay closed it's locked black on black

936
02:32:36,830 --> 02:32:26,870
copy good words and then hoppers is

937
02:32:51,670 --> 02:32:41,590
four on the port side of that correct

938
02:32:55,830 --> 02:32:53,429

the work astronaut out of the hatch

939

02:32:58,389 --> 02:32:55,840

today is nasa's victor glover you can

940

02:33:01,429 --> 02:32:58,399

tell him apart because he has no red

941

02:33:05,030 --> 02:33:01,439

stripes on his spacesuit he is ev2 or

942

02:33:08,070 --> 02:33:05,040

extra vehicular crew member 2 for

943

02:33:11,349 --> 02:33:08,080

for today it is complete

944

02:33:13,590 --> 02:33:11,359

and hike the uh

945

02:33:24,790 --> 02:33:13,600

airlock weight tether the large hook is

946

02:33:28,230 --> 02:33:26,389

and we copy all that sounds like a good

947

02:33:29,750 --> 02:33:28,240

tether config and hopper when ready you

948

02:33:33,030 --> 02:33:29,760

got to go to egress with your crew lock

949

02:33:35,990 --> 02:33:34,870

you ready i'm asked and uh you have to

950

02:33:51,670 --> 02:33:36,000

go

951
02:33:56,630 --> 02:33:54,150
now egressing or exiting the hatch is

952
02:33:58,070 --> 02:33:56,640
mike hopkins ev1 extra vehicular

953
02:33:59,590 --> 02:33:58,080
crewmember one

954
02:34:01,510 --> 02:33:59,600
and you'll be able to spot him today

955
02:34:56,790 --> 02:34:01,520
thanks to those red stripes around the

956
02:34:56,800 --> 02:34:59,990
okay

957
02:35:06,790 --> 02:35:03,429
is uh now going with ev1

958
02:35:19,270 --> 02:35:09,429
one two

959
02:35:26,070 --> 02:35:22,710
the two safer handles are down

960
02:35:32,630 --> 02:35:26,080
they do not see a green light on the wps

961
02:35:36,070 --> 02:35:34,710
yeah negative we are not getting wvs so

962
02:35:39,030 --> 02:35:36,080
if you can double check that the button

963
02:35:42,550 --> 02:35:40,790

yeah for both of us

964

02:35:44,309 --> 02:35:42,560

yeah i'm a good green lighthouse yeah

965

02:35:48,870 --> 02:35:44,319

okay

966

02:35:51,429 --> 02:35:48,880

after that

967

02:35:52,870 --> 02:35:51,439

okay i'm looking at uh and i see a green

968

02:35:54,550 --> 02:35:52,880

light

969

02:35:56,790 --> 02:35:54,560

i see a good safety feather

970

02:35:58,710 --> 02:35:56,800

configuration

971

02:36:01,429 --> 02:35:58,720

and i see a good

972

02:36:06,389 --> 02:36:01,439

true lock bag

973

02:36:12,389 --> 02:36:10,070

all right oh so ev2 or ev1 are good to

974

02:36:14,550 --> 02:36:12,399

screen the wds lights

975

02:36:16,790 --> 02:36:14,560

new mini workstation tabs one brt tab

976

02:36:17,990 --> 02:36:16,800

for three tabs up

977

02:36:19,830 --> 02:36:18,000

see your

978

02:36:21,429 --> 02:36:19,840

left safer handle is down your right

979

02:36:23,190 --> 02:36:21,439

paper handles down in your hand control

980

02:36:25,270 --> 02:36:23,200

module doors closed

981

02:36:27,030 --> 02:36:25,280

you say together config

982

02:36:29,270 --> 02:36:27,040

from the anchor all the way to your load

983

02:36:36,070 --> 02:36:29,280

alleviated strap

984

02:36:42,870 --> 02:36:38,070

okay

985

02:36:42,880 --> 02:36:46,710

all right so it's been a good comparison

986

02:36:50,070 --> 02:36:48,150

yeah it sounds like a good config down

987

02:36:54,150 --> 02:36:50,080

here if we can get a baseline glove and

988

02:36:54,160 --> 02:37:01,170

everyone half is dry

989

02:37:05,510 --> 02:37:03,349

[Music]

990

02:37:06,630 --> 02:37:05,520

well it and like they did before it came

991

02:37:09,030 --> 02:37:06,640

out

992

02:37:16,870 --> 02:37:09,040

give you two dry hats same on the gloves

993

02:37:21,349 --> 02:37:18,469

you've heard the astronauts discussing

994

02:37:23,830 --> 02:37:21,359

their wvs that stands for wireless video

995

02:37:25,990 --> 02:37:23,840

system today we should expect to see

996

02:37:27,429 --> 02:37:26,000

some views from the astronauts helmets

997

02:37:29,670 --> 02:37:27,439

themselves those are their helmet

998

02:37:31,429 --> 02:37:29,680

cameras

999

02:37:33,590 --> 02:37:31,439

mike hawkins is wearing helmet camera

1000

02:37:50,950 --> 02:37:33,600

number 18 and victor glover is wearing

1001
02:37:50,960 --> 02:38:01,750
but the thermal cover is closed

1002
02:38:04,710 --> 02:38:03,190
and one more reminder for both of you

1003
02:38:17,110 --> 02:38:04,720
when you get up to phase one avoid

1004
02:38:21,830 --> 02:38:19,830
that's a handover of our tracking data

1005
02:38:26,230 --> 02:38:21,840
and relay satellite systems this view

1006
02:38:29,830 --> 02:38:27,830
the astronauts are going to be moving on

1007
02:38:32,550 --> 02:38:29,840
to their first task of today which is

1008
02:38:34,469 --> 02:38:32,560
the adapter plate relocation

1009
02:38:36,150 --> 02:38:34,479
the final work to complete the battery

1010
02:38:44,150 --> 02:38:36,160
upgrades aboard the station that began

1011
02:38:44,160 --> 02:38:48,710
thermal cover is closed

1012
02:38:51,910 --> 02:38:50,230
copy that good words and uh if you

1013
02:38:53,990 --> 02:38:51,920

missed it classic error on my part at

1014

02:39:01,429 --> 02:38:54,000

the os but avoid contact with the test

1015

02:39:01,439 --> 02:39:19,590

b2

1016

02:39:24,070 --> 02:39:20,950

the astronauts reporting that the

1017

02:39:42,950 --> 02:39:24,080

thermal clever cover is closed on the

1018

02:39:46,950 --> 02:39:45,110

the hatch itself stays open after the

1019

02:39:48,790 --> 02:39:46,960

astronauts egress in case they need to

1020

02:39:51,270 --> 02:39:48,800

quickly re-enter the space station in

1021

02:39:53,190 --> 02:39:51,280

event of emergency

1022

02:39:55,750 --> 02:39:53,200

but things moving smoothly today with

1023

02:40:13,349 --> 02:39:55,760

our spacewalk beginning at 6 56 a.m

1024

02:40:17,190 --> 02:40:15,269

the astronauts will both revisit the

1025

02:40:25,750 --> 02:40:17,200

airlock later today

1026

02:40:25,760 --> 02:40:32,070

offers greenhouses at 36.51

1027

02:40:36,790 --> 02:40:33,750

okay copy that you can go ahead and

1028

02:40:38,230 --> 02:40:36,800

continue out to the the four alpha iea

1029

02:40:58,950 --> 02:40:38,240

and then as you get to the sarge if you

1030

02:41:04,150 --> 02:41:00,870

astronauts now moving out to their first

1031

02:41:05,990 --> 02:41:04,160

work site of the day the 4a iea that's

1032

02:41:11,269 --> 02:41:06,000

the integrated electronics assembly to

1033

02:41:15,030 --> 02:41:13,269

82 is that

1034

02:41:18,309 --> 02:41:15,040

the green hook

1035

02:41:18,319 --> 02:41:34,550

three rail is left

1036

02:41:38,389 --> 02:41:36,469

the number 18 in the bottom right hand

1037

02:41:41,110 --> 02:41:38,399

view of your screen denotes that this is

1038

02:41:44,389 --> 02:41:41,120

helmet cam number 18 belonging to

1039

02:41:46,150 --> 02:41:44,399

michael hopkins today

1040

02:41:47,349 --> 02:41:46,160

okay copy that thanks mike uh i'll

1041

02:41:49,830 --> 02:41:47,359

progress before what's going on with

1042

02:41:51,990 --> 02:41:49,840

your employees copy good works hopper uh

1043

02:41:53,830 --> 02:41:52,000

you can go ahead and continue out to the

1044

02:41:59,510 --> 02:41:53,840

iea and same thing when you get to the

1045

02:42:06,630 --> 02:42:01,429

i'll be on the way and my green room is

1046

02:42:11,110 --> 02:42:08,790

copy the green reel and reminder at the

1047

02:42:13,269 --> 02:42:11,120

iea mostly applicable to huffer since

1048

02:42:34,150 --> 02:42:13,279

it's on your side just avoid contact

1049

02:42:37,910 --> 02:42:35,910

when you cross the sarge you're going to

1050

02:42:41,349 --> 02:42:37,920

go straight across to the non-radiator

1051
02:42:51,910 --> 02:42:41,359
side and set up at the slot 2 adapter

1052
02:42:56,469 --> 02:42:54,309
hopper you're going to head 51.24

1053
02:42:59,830 --> 02:42:56,479
putting my

1054
02:43:06,830 --> 02:43:02,469
yeah 5124 my uh

1055
02:43:10,469 --> 02:43:08,710
egg

1056
02:43:18,150 --> 02:43:10,479
perfect good words half a second ahead

1057
02:43:22,550 --> 02:43:20,070
a good look at those batteries from the

1058
02:43:24,389 --> 02:43:22,560
helmet camera of mike hopkins as you

1059
02:43:26,309 --> 02:43:24,399
heard on their way out to this work site

1060
02:43:36,070 --> 02:43:26,319
they pass the sarge that's the solar

1061
02:43:44,389 --> 02:43:38,790
all right farmer

1062
02:43:44,399 --> 02:43:49,510
you're ready to just temp stove bag

1063
02:43:54,710 --> 02:43:53,190

hey good work like and hopper for you uh

1064

02:43:56,790 --> 02:43:54,720

based on the timing we are going to go

1065

02:43:59,429 --> 02:43:56,800

ahead and proceed with doing the

1066

02:44:06,950 --> 02:43:59,439

lithium-ion bolt task

1067

02:44:10,150 --> 02:44:08,469

so your next step hopper is to retrieve

1068

02:44:11,910 --> 02:44:10,160

the square scoop and install it on the

1069

02:44:13,750 --> 02:44:11,920

dcsu

1070

02:44:44,710 --> 02:44:13,760

it's going to install the h2 bolt with

1071

02:44:49,429 --> 02:44:46,550

mike hopkins has received the go to

1072

02:45:01,990 --> 02:44:49,439

install a scoop which is a handling aid

1073

02:45:05,910 --> 02:45:03,910

this lithium-ion battery was previously

1074

02:45:07,269 --> 02:45:05,920

installed robotically but will need to

1075

02:45:26,389 --> 02:45:07,279

be tightened and secured to the

1076

02:45:31,830 --> 02:45:29,670

copy that then you can stow your pgt

1077

02:45:46,710 --> 02:45:31,840

on the bag right this should be the one

1078

02:45:50,790 --> 02:45:49,110

you've now got two astronauts i've used

1079

02:45:53,269 --> 02:45:50,800

on the left side that's helmet camera

1080

02:45:55,110 --> 02:45:53,279

number 18 and mike hopkins and on the

1081

02:46:08,950 --> 02:45:55,120

right side is helmet camera number 20

1082

02:46:08,960 --> 02:46:16,110

um

1083

02:46:16,120 --> 02:46:27,110

[Applause]

1084

02:46:34,630 --> 02:46:31,269

okay the square scoop is attached to the

1085

02:46:47,429 --> 02:46:36,950

and it's in the locked position i'm

1086

02:46:51,590 --> 02:46:49,030

this arm where the ppp is tim stowed

1087

02:46:53,429 --> 02:46:51,600

with the cool off bag on the adapter

1088

02:46:55,269 --> 02:46:53,439

okay copy that ike uh you they're going

1089

02:47:03,429 --> 02:46:55,279

to go ahead and then install the hex

1090

02:47:08,790 --> 02:47:05,110

works

1091

02:47:10,550 --> 02:47:08,800

and hoppy hopper coppery the uh scoop uh

1092

02:47:12,469 --> 02:47:10,560

installed you can go ahead translate

1093

02:47:13,190 --> 02:47:12,479

over to um

1094

02:47:14,150 --> 02:47:13,200

the

1095

02:47:21,750 --> 02:47:14,160

battery

1096

02:47:21,760 --> 02:47:28,710

good one

1097

02:47:31,510 --> 02:47:29,990

so hopper when we get over there it'll

1098

02:47:47,510 --> 02:47:31,520

be uh it's slot five and we're going to

1099

02:47:50,950 --> 02:47:49,590

all right farmer i've got the uh nine

1100

02:47:55,830 --> 02:47:50,960

inch on the

1101
02:48:00,550 --> 02:47:58,150
after that good words uh you can

1102
02:48:02,469 --> 02:48:00,560
retrieve that pgd and we're looking for

1103
02:48:08,150 --> 02:48:02,479
alpha seven counterclockwise

1104
02:48:08,160 --> 02:48:19,269
happy

1105
02:48:24,230 --> 02:48:21,990
and hopper's ready for his setting

1106
02:48:30,790 --> 02:48:24,240
okay hopper you're looking for alpha six

1107
02:48:35,590 --> 02:48:32,309
alpha 6

1108
02:48:39,110 --> 02:48:35,600
clockwise 2 copy

1109
02:48:40,630 --> 02:48:39,120
edwards and alpha 7 counter 2 for 82

1110
02:48:42,790 --> 02:48:40,640
sets

1111
02:48:45,110 --> 02:48:42,800
hey good words for both of you uh hopper

1112
02:48:46,950 --> 02:48:45,120
you're going to drive the h1 bolt to

1113
02:48:52,710 --> 02:48:46,960

torque should be approximately four to

1114

02:48:52,720 --> 02:48:58,710

everyone

1115

02:49:04,230 --> 02:49:01,269

hey ike before we drive the bolt uh if

1116

02:49:05,590 --> 02:49:04,240

you can find us the serial number for

1117

02:49:23,830 --> 02:49:05,600

the adapter plate and read that down

1118

02:49:30,790 --> 02:49:25,670

yeah you cut out right when you said it

1119

02:49:30,800 --> 02:49:35,590

nine triple zero niner

1120

02:49:40,150 --> 02:49:38,389

copy that uh good words uh we wanna just

1121

02:49:41,429 --> 02:49:40,160

uh double check then that your red is

1122

02:49:47,030 --> 02:49:41,439

attached to the bag and then we're going

1123

02:49:52,469 --> 02:49:49,830

into the bag locked out with flats

1124

02:49:55,429 --> 02:49:52,479

okay install the hex driver into the h1

1125

02:49:56,469 --> 02:49:55,439

bolt verify one line is visible and

1126

02:49:58,550 --> 02:49:56,479

flush

1127

02:50:06,389 --> 02:49:58,560

and then we're going to fully release h1

1128

02:50:16,950 --> 02:50:08,469

armor the h1

1129

02:50:33,429 --> 02:50:19,030

okay that's a good bolt and verify the

1130

02:50:33,439 --> 02:50:39,750

and started shows

1131

02:50:44,389 --> 02:50:42,230

okay that's a good config hopper you can

1132

02:50:46,550 --> 02:50:44,399

stow your ptt back on your swing arm and

1133

02:51:02,950 --> 02:50:46,560

then head back over to the adapter plate

1134

02:51:07,030 --> 02:51:05,269

copy that good words uh ike

1135

02:51:08,870 --> 02:51:07,040

uh once again verify that you're

1136

02:51:12,230 --> 02:51:08,880

tethered to the crew lock bag and then

1137

02:51:13,910 --> 02:51:12,240

we can uh release h2 bolt uh same thing

1138

02:51:15,670 --> 02:51:13,920

you're gonna insert it verify one line

1139

02:51:22,630 --> 02:51:15,680
of slush and then fully release it

1140

02:51:30,710 --> 02:51:26,230
to the bag and tethered to in the bag

1141

02:51:35,190 --> 02:51:32,950
a quick handover on our tdrs satellite

1142

02:51:37,349 --> 02:51:35,200
system

1143

02:51:38,870 --> 02:51:37,359
these handovers are tracked and expected

1144

02:51:41,429 --> 02:51:38,880
and will regain communications with the

1145

02:51:43,269 --> 02:51:41,439
crew shortly

1146

02:51:45,670 --> 02:51:43,279
mike hawkins just having completed his

1147

02:51:47,590 --> 02:51:45,680
first task for the day which was to

1148

02:51:49,590 --> 02:51:47,600
drive and secure

1149

02:51:51,830 --> 02:51:49,600
the final lithium-ion battery to the

1150

02:51:53,910 --> 02:51:51,840
international space station this battery

1151
02:51:57,590 --> 02:51:53,920
was previously robotically installed in

1152
02:52:03,190 --> 02:51:59,190
meanwhile victor glover is beginning the

1153
02:52:04,790 --> 02:52:03,200
relocation of the adapter plate

1154
02:52:06,550 --> 02:52:04,800
this will complete the circuit between

1155
02:52:12,630 --> 02:52:06,560
the international space station and the

1156
02:52:16,790 --> 02:52:14,870
yeah sorry ike we had a short loss there

1157
02:52:18,630 --> 02:52:16,800
alpha 7 counterclockwise two are your

1158
02:52:22,150 --> 02:52:18,640
pgt settings do you need anything else

1159
02:52:27,429 --> 02:52:25,510
and then one line flush trick

1160
02:52:47,590 --> 02:52:27,439
a firm single line flush

1161
02:52:51,990 --> 02:52:49,269
mike hawkins and victor glover both

1162
02:52:53,750 --> 02:52:52,000
using the pgt or the pistol grip tool

1163
02:53:02,070 --> 02:52:53,760

that drill that allows them to install

1164

02:53:05,510 --> 02:53:03,510

as you can see the international space

1165

02:53:07,590 --> 02:53:05,520

station has crossed into an orbital

1166

02:53:09,750 --> 02:53:07,600

night time

1167

02:53:11,830 --> 02:53:09,760

every 45 minutes the space station sees

1168

02:53:39,510 --> 02:53:11,840

a sunrise or a sunset and it's currently

1169

02:53:39,520 --> 02:53:42,950

i don't think i was engaged

1170

02:53:42,960 --> 02:53:56,070

i see two lines

1171

02:54:11,910 --> 02:53:58,950

and it looks like it

1172

02:54:16,469 --> 02:54:13,990

and just to clarify for you guys

1173

02:54:21,830 --> 02:54:16,479

once the once the bolt is released you

1174

02:54:25,510 --> 02:54:23,269

yeah i don't think i was engaged for the

1175

02:54:26,790 --> 02:54:25,520

first five turns but it looks released

1176

02:54:28,230 --> 02:54:26,800

now

1177

02:54:30,550 --> 02:54:28,240

you pull it towards you a little bit i

1178

02:54:47,269 --> 02:54:30,560

just want to unlock the red okay okay

1179

02:54:50,950 --> 02:54:49,349

yeah you're just going to stow the pgt

1180

02:54:53,190 --> 02:54:50,960

with the crew lock bag and then you guys

1181

02:54:55,429 --> 02:54:53,200

can translate the adapter blade over to

1182

02:54:57,750 --> 02:54:55,439

slot six and uh just a reminder that

1183

02:54:59,190 --> 02:54:57,760

you'll have to rotate it so that the h2

1184

02:55:11,910 --> 02:54:59,200

bolt is outboard when you get to the

1185

02:55:39,269 --> 02:55:13,269

get down a little bit and then i can

1186

02:55:39,279 --> 02:55:43,510

ready to pull out all right ready

1187

02:55:43,520 --> 02:55:47,110

not ready released

1188

02:55:51,269 --> 02:55:49,349

okay i have control okay you've got

1189

02:55:54,150 --> 02:55:51,279

control

1190

02:55:55,830 --> 02:55:54,160

and if you can uh

1191

02:55:57,110 --> 02:55:55,840

let me spin it

1192

02:55:58,710 --> 02:55:57,120

i do

1193

02:55:59,990 --> 02:55:58,720

you lower it back down to the ie a

1194

02:56:07,190 --> 02:56:00,000

little bit make it

1195

02:56:11,429 --> 02:56:09,190

okay i've got it if you want to change

1196

02:56:13,349 --> 02:56:11,439

hand position you have control of that

1197

02:56:17,590 --> 02:56:13,359

control

1198

02:56:29,349 --> 02:56:17,600

you want to do the full 180 now yeah

1199

02:56:33,670 --> 02:56:32,389

and while you guys are maneuvering here

1200

02:56:35,349 --> 02:56:33,680

we're also going to need inspection of

1201

02:56:42,230 --> 02:56:35,359

the blind main connector so if that is

1202

02:56:42,240 --> 02:56:55,190

i'm not right now

1203

02:56:59,910 --> 02:56:57,750

actually here you want to do that

1204

02:57:01,990 --> 02:56:59,920

yeah oh they're on my sides no they're

1205

02:57:04,230 --> 02:57:02,000

the barbie connectors are good there's a

1206

02:57:06,080 --> 02:57:04,240

good emi band

1207

02:57:08,070 --> 02:57:06,090

that's on my side

1208

02:57:11,269 --> 02:57:08,080

[Music]

1209

02:57:15,830 --> 02:57:11,279

and i've got some down here too

1210

02:57:20,389 --> 02:57:17,349

now on the other side of the adapter

1211

02:57:22,070 --> 02:57:20,399

plate you're seeing it you got them

1212

02:57:26,469 --> 02:57:22,080

i didn't realize there were ones on that

1213

02:57:26,479 --> 02:57:33,110

all right

1214

02:57:33,120 --> 02:57:39,110

do you have control

1215

02:57:43,349 --> 02:57:40,870

yeah i'm not

1216

02:57:44,790 --> 02:57:43,359

having trouble getting on my brt though

1217

02:57:47,510 --> 02:57:44,800

okay give me a second i'm just trying to

1218

02:57:52,389 --> 02:57:47,520

keep you stable okay

1219

02:57:57,110 --> 02:57:54,550

after releasing two bolts and removing

1220

02:57:59,190 --> 02:57:57,120

the adapter plate from soft dock

1221

02:58:01,910 --> 02:57:59,200

hopkins and glover are now moving the

1222

02:58:13,910 --> 02:58:01,920

adapter plate to slot six there they

1223

02:58:16,870 --> 02:58:15,990

okay it's going to be your key

1224

02:58:18,389 --> 02:58:16,880

okay

1225

02:58:20,150 --> 02:58:18,399

i'll meet jessa

1226
02:58:22,309 --> 02:58:20,160
and did you inspect the blind maze on

1227
02:58:25,590 --> 02:58:22,319
your side no you got too high for me so

1228
02:58:25,600 --> 02:58:32,230
worksite okay

1229
02:58:32,240 --> 02:58:58,790
um

1230
02:59:03,429 --> 02:59:01,030
and when you guys get over to uh slot

1231
02:59:06,309 --> 02:59:03,439
six we'll also need uh inspection of the

1232
02:59:08,550 --> 02:59:06,319
blind mate connectors on the iea side uh

1233
02:59:09,429 --> 02:59:08,560
also

1234
02:59:12,070 --> 02:59:09,439
okay

1235
02:59:12,830 --> 02:59:12,080
roger that i'm taking a look

1236
02:59:14,710 --> 02:59:12,840
right

1237
02:59:17,349 --> 02:59:14,720
now

1238
02:59:20,150 --> 02:59:17,359

okay on the sea side

1239

02:59:25,429 --> 02:59:20,160

i don't see any fog

1240

02:59:25,439 --> 02:59:33,830

the vmi vans

1241

02:59:33,840 --> 03:00:09,190

okay can you do these as well yeah

1242

03:00:09,200 --> 03:00:13,269

maybe you're my band

1243

03:00:18,230 --> 03:00:14,870

okay good words thanks a lot uh you guys

1244

03:00:20,070 --> 03:00:18,240

can soft stock to the uh two slot six

1245

03:00:25,110 --> 03:00:20,080

and then um you're going to lock out

1246

03:00:25,120 --> 03:00:29,910

happy everyone

1247

03:00:29,920 --> 03:00:47,670

okay coming off the beer team

1248

03:01:00,389 --> 03:00:49,269

you hold it for a second yep i have

1249

03:01:04,790 --> 03:01:02,389

the astronauts have just inspected the

1250

03:01:07,590 --> 03:01:04,800

adapter plate for any foreign object

1251
03:01:29,590 --> 03:01:07,600
debris or flood and are now preparing to

1252
03:01:34,389 --> 03:01:32,309
you're going to retrieve your pgt and

1253
03:01:37,830 --> 03:01:34,399
we're looking for the settings alpha six

1254
03:01:42,630 --> 03:01:39,110
so we also

1255
03:01:46,469 --> 03:01:42,640
first did let's stop talking first

1256
03:01:55,349 --> 03:01:49,910
i think i'm ready i'm ready

1257
03:02:03,830 --> 03:01:57,670
you tell what that stopped up

1258
03:02:08,469 --> 03:02:06,870
all right farmer now what was that

1259
03:02:10,630 --> 03:02:08,479
okay i think i heard you guys lock the

1260
03:02:13,030 --> 03:02:10,640
red out already so you're gonna retrieve

1261
03:02:32,150 --> 03:02:13,040
your pgt and we're looking for alpha six

1262
03:02:35,590 --> 03:02:33,990
all right before we start driving we're

1263
03:02:38,150 --> 03:02:35,600

at a bit of an angle so it looks like

1264

03:02:40,070 --> 03:02:38,160

i've got my end down

1265

03:02:42,630 --> 03:02:40,080

i'm gonna pull it up a little bit when

1266

03:02:47,349 --> 03:02:42,640

you start there you

1267

03:02:47,359 --> 03:02:56,550

i like that book

1268

03:03:00,230 --> 03:02:58,150

and just for awareness for you guys we

1269

03:03:05,429 --> 03:03:00,240

don't have either one of your wvs video

1270

03:03:05,439 --> 03:03:09,429

six clockwise two is set

1271

03:03:23,110 --> 03:03:11,750

once i get it in then we can make sure

1272

03:03:29,750 --> 03:03:25,269

okay

1273

03:03:29,760 --> 03:03:36,309

four looks level to me how about you

1274

03:03:41,830 --> 03:03:39,349

that looks level to me okay ready farmer

1275

03:03:44,070 --> 03:03:41,840

okay uh alpha six clockwise two uh

1276

03:03:46,150 --> 03:03:44,080

you're gonna drive the h2 bolt

1277

03:03:47,910 --> 03:03:46,160

uh you're gonna verify one line of slush

1278

03:03:53,429 --> 03:03:47,920

and drive it to torque should be about

1279

03:03:59,349 --> 03:03:56,230

okay just torque 16 17 turns and so it's

1280

03:04:02,469 --> 03:03:59,359

a flush to the second blind these the uh

1281

03:04:16,710 --> 03:04:02,479

only one line is showing flush

1282

03:04:16,720 --> 03:04:24,710

and i see movement

1283

03:04:42,230 --> 03:04:26,309

and hopper your next steps you're going

1284

03:04:42,240 --> 03:04:44,950

all right

1285

03:04:55,030 --> 03:04:47,670

and that is to torque

1286

03:04:55,040 --> 03:05:00,469

8.7 pounds actual torque

1287

03:05:03,990 --> 03:05:01,750

so here let me

1288

03:05:09,269 --> 03:05:04,000

drag this a little twisted ready for it

1289

03:05:13,429 --> 03:05:10,710

yeah i confirm you had a green light on

1290

03:05:18,790 --> 03:05:14,870

streamlight

1291

03:05:23,269 --> 03:05:20,550

okay that's a good bolt uh all right

1292

03:05:28,710 --> 03:05:23,279

setting for hopper okay hopper alpha six

1293

03:05:28,720 --> 03:05:32,630

six clockwise

1294

03:05:36,230 --> 03:05:34,630

okay you're driving the h1 bolt uh

1295

03:05:38,710 --> 03:05:36,240

you're gonna insert it you should have

1296

03:05:40,550 --> 03:05:38,720

two lines visible one flush

1297

03:05:59,429 --> 03:05:40,560

you're driving the torque should be only

1298

03:05:59,439 --> 03:06:04,230

interesting

1299

03:06:22,710 --> 03:06:06,230

we're going to get further in okay

1300

03:06:31,269 --> 03:06:26,389

okay farmer 5.12 turns 8.7 on the tour

1301

03:06:34,790 --> 03:06:33,030

okay copy that you can get the hex

1302

03:06:36,550 --> 03:06:34,800

driver back to ike

1303

03:06:38,550 --> 03:06:36,560

ike you can go ahead and remove the nine

1304

03:06:46,710 --> 03:06:38,560

inch socket and sew it on the crew lock

1305

03:06:59,190 --> 03:06:49,190

and you can also unlock and release the

1306

03:07:03,429 --> 03:07:00,950

with those two bolts driven that

1307

03:07:05,590 --> 03:07:03,439

completes the installation of the final

1308

03:07:09,110 --> 03:07:05,600

adapter plate aboard the international

1309

03:07:09,120 --> 03:07:16,469

on the 16th with a station full test

1310

03:07:16,479 --> 03:07:36,790

and the red is unlocked

1311

03:07:39,830 --> 03:07:38,309

and ike you can once you're done with

1312

03:07:41,030 --> 03:07:39,840

that then you can put the pgt on your

1313

03:07:42,710 --> 03:07:41,040

swing arm and then we're going to

1314

03:07:52,070 --> 03:07:42,720

retrieve the ratchet wrench out of

1315

03:07:52,080 --> 03:08:10,710

on the swing arm going for the ridge

1316

03:08:15,190 --> 03:08:12,309

so big picture here ike you're going to

1317

03:08:17,429 --> 03:08:15,200

break torque on the dcsu

1318

03:08:20,550 --> 03:08:17,439

and then hopper you're going to hand him

1319

03:08:23,510 --> 03:08:20,560

the your pgt and he'll use that to drive

1320

03:08:23,520 --> 03:08:58,950

everyone

1321

03:08:58,960 --> 03:09:08,630

all right one turn on each one

1322

03:09:12,550 --> 03:09:11,030

copy that once the one turn is done you

1323

03:09:14,070 --> 03:09:12,560

can send that back to the crew lock bag

1324

03:09:34,309 --> 03:09:14,080

or hand it off and then you're going to

1325

03:09:41,429 --> 03:09:36,229

okay the torch is broken

1326

03:09:45,429 --> 03:09:43,190

i'm giving this to you or is this back

1327

03:10:09,429 --> 03:09:45,439

now back to the bag so i'm giving you my

1328

03:10:18,070 --> 03:10:11,190

and like the pgd settings are going to

1329

03:10:18,080 --> 03:10:23,269

for me hopper didn't work

1330

03:10:28,710 --> 03:10:25,269

glover now installing the

1331

03:10:51,429 --> 03:10:28,720

final bolt into the dc su or the direct

1332

03:11:10,630 --> 03:10:54,550

all right we're driving the h1 bolt to

1333

03:11:18,550 --> 03:11:12,710

i did not get a good green light got an

1334

03:11:24,309 --> 03:11:20,790

let me try it again

1335

03:11:27,910 --> 03:11:26,389

it uh it went about uh three quarters of

1336

03:11:29,830 --> 03:11:27,920

a turn and it felt like it torqued out

1337

03:11:31,190 --> 03:11:29,840

with uh yeah i agree

1338

03:11:33,429 --> 03:11:31,200

and i thought i had a pretty good grip

1339

03:11:36,870 --> 03:11:33,439

on it so let me

1340

03:11:45,590 --> 03:11:38,150

looks good

1341

03:11:45,600 --> 03:11:52,950

now the trigger seems to not be working

1342

03:11:56,229 --> 03:11:54,469

oh color error

1343

03:11:59,030 --> 03:11:56,239

give that back to you

1344

03:12:01,190 --> 03:11:59,040

working with one hand over here

1345

03:12:30,070 --> 03:12:01,200

you might just can you just reset it

1346

03:12:30,080 --> 03:12:51,429

okay

1347

03:12:55,990 --> 03:12:53,030

a big green light

1348

03:13:01,110 --> 03:12:56,000

seven pounds torque and it was about

1349

03:13:04,309 --> 03:13:02,389

that's true

1350

03:13:06,070 --> 03:13:04,319

okay copy that that's a good bolt and if

1351

03:13:10,150 --> 03:13:06,080

you can verify that the status indicator

1352

03:13:14,070 --> 03:13:12,389

and farmer just uh that was a

1353

03:13:16,630 --> 03:13:14,080

total of three quarters of a turn not an

1354

03:13:19,030 --> 03:13:16,640

additional status indicator is involved

1355

03:13:21,190 --> 03:13:19,040

happy and understood uh you can hand

1356

03:13:22,469 --> 03:13:21,200

that pgt back to hopper hopper you can

1357

03:13:23,990 --> 03:13:22,479

put it on your swing arm and then we'll

1358

03:13:28,070 --> 03:13:24,000

take a glove and half check and a

1359

03:13:28,080 --> 03:13:31,269

okay

1360

03:13:37,750 --> 03:13:35,590

so half check for eb1 is dry

1361

03:13:39,750 --> 03:13:37,760

and on the gloves

1362

03:13:42,950 --> 03:13:39,760

only change is uh there's a little bit

1363

03:13:52,790 --> 03:13:42,960

of black smudging on the on the fingers

1364

03:13:57,830 --> 03:13:55,670

copy that that's uh

1365

03:13:59,349 --> 03:13:57,840

that is uh the black smudge is expected

1366

03:14:02,309 --> 03:13:59,359

from the adapter

1367

03:14:03,830 --> 03:14:02,319

the right hand on the left hand

1368

03:14:05,190 --> 03:14:03,840

touching on the right hand and the left

1369

03:14:08,550 --> 03:14:05,200

hand

1370

03:14:15,190 --> 03:14:10,309

hey copy those words and post that both

1371

03:14:29,110 --> 03:14:17,990

you want to go with that in place

1372

03:14:35,030 --> 03:14:31,990

one has the crew lock bag

1373

03:14:36,870 --> 03:14:35,040

into the h fixture

1374

03:14:38,389 --> 03:14:36,880

copy that reminder you're going to

1375

03:14:40,790 --> 03:14:38,399

attempt to sew that bag then on the

1376

03:14:44,229 --> 03:14:40,800

lower stanchion handrail five one six

1377

03:14:44,239 --> 03:14:47,110

three one

1378

03:14:51,590 --> 03:14:48,790

bike you're gonna you can sew the

1379

03:14:53,990 --> 03:14:51,600

ratchet wrench in the crew lock bag

1380

03:15:02,150 --> 03:14:54,000

and then on the adapter plate i get

1381

03:15:02,160 --> 03:15:10,950

youtube

1382

03:15:10,960 --> 03:15:14,550

i see three ta clamps

1383

03:15:18,630 --> 03:15:16,389

copy you got to go to release those and

1384

03:15:19,510 --> 03:15:18,640

remove the cable and then you can demate

1385

03:15:27,269 --> 03:15:19,520

the

1386

03:15:39,590 --> 03:15:29,830

okay ta claims released

1387

03:15:39,600 --> 03:16:11,510

okay

1388

03:16:16,469 --> 03:16:14,790

50 minutes into today's spacewalk 5-0

1389

03:16:18,710 --> 03:16:16,479

and the astronauts are moving smoothly

1390

03:16:20,870 --> 03:16:18,720

through their desks up next for nasa

1391

03:16:22,630 --> 03:16:20,880

astronaut victor glover whose helmet

1392

03:16:24,389 --> 03:16:22,640

camera you're looking through right now

1393

03:16:25,429 --> 03:16:24,399

will be uh

1394

03:16:27,830 --> 03:16:25,439

the

1395

03:16:29,269 --> 03:16:27,840

demating and remating of some cables on

1396

03:16:30,389 --> 03:16:29,279

the adapter plate that was just

1397

03:16:32,790 --> 03:16:30,399

installed

1398

03:16:35,349 --> 03:16:32,800

meanwhile nasa astronaut mike hawkins is

1399

03:16:37,590 --> 03:16:35,359

going to be moving down to remove an h

1400

03:16:44,790 --> 03:16:37,600

fixture this will prepare the space

1401

03:16:44,800 --> 03:16:58,630

okay

1402

03:17:03,190 --> 03:17:00,790

all right farmer

1403

03:17:08,630 --> 03:17:03,200

e4 j4 d-mated

1404

03:17:13,190 --> 03:17:10,790

copy good words uh you can close those

1405

03:17:15,910 --> 03:17:13,200

ta clamps and then you're going to read

1406

03:17:27,030 --> 03:17:15,920

to and remove the cap from the battery

1407

03:17:34,550 --> 03:17:30,790

i closed the ta clamps after i connected

1408

03:17:34,560 --> 03:18:14,070

yeah that's fine

1409

03:18:22,630 --> 03:18:15,590

okay the cap is off to my mini

1410

03:18:25,990 --> 03:18:24,150

the current cable memory looks like he

1411

03:18:27,269 --> 03:18:26,000

wants to keep it between the battery and

1412

03:18:28,630 --> 03:18:27,279

the idea

1413

03:18:32,309 --> 03:18:28,640

i'm going to read it like that twist

1414

03:18:35,429 --> 03:18:33,670

levers asked

1415

03:18:41,030 --> 03:18:35,439

see the pins on the battery side we're

1416

03:18:49,110 --> 03:18:43,269

okay that's uh that's a good inspection

1417

03:18:56,550 --> 03:18:51,349

they are mated lever act

1418

03:19:02,070 --> 03:18:59,429

never forward over center it is mated

1419

03:19:10,070 --> 03:19:02,080

and the cable is still over the battery

1420

03:19:13,750 --> 03:19:11,670

copy that sounds like a good config as

1421

03:19:15,910 --> 03:19:13,760

long as the pfcs is clear

1422

03:19:17,269 --> 03:19:15,920

and then uh if you're good with it we'll

1423

03:19:21,030 --> 03:19:17,279

go ahead and perform a checkout on the

1424

03:19:24,870 --> 03:19:22,710

perform the checkout i'm connecting the

1425

03:19:26,630 --> 03:19:24,880

ta clamps

1426

03:19:30,550 --> 03:19:26,640

and farmer i'm ready

1427

03:19:30,560 --> 03:19:35,030

o'clock wires one

1428

03:19:39,190 --> 03:19:37,110

a firm good words uh bravo seven

1429

03:19:41,030 --> 03:19:39,200

counterclockwise one uh you're gonna

1430

03:19:43,670 --> 03:19:41,040

release torque on four bolts it's gonna

1431

03:19:58,790 --> 03:19:43,680

be one to two turns only and report the

1432

03:20:03,269 --> 03:20:01,110

okay copy that and then

1433

03:20:05,110 --> 03:20:03,279

you can either install the connect the

1434

03:20:06,630 --> 03:20:05,120

battery connector cap on the adapter

1435

03:20:12,150 --> 03:20:06,640

plate or you can put it in your trash

1436

03:20:12,160 --> 03:20:17,590

it's on the adapter plate

1437

03:20:21,510 --> 03:20:19,750

nasa astronaut the scoop that's on the

1438

03:20:23,750 --> 03:20:21,520

dcsu you can put it back in the crew

1439

03:20:35,510 --> 03:20:23,760

lock bag and we'll get ready for a bag

1440

03:20:39,349 --> 03:20:37,750

nasa astronaut mike hawkins now working

1441

03:20:44,150 --> 03:20:39,359

to remove

1442

03:20:52,710 --> 03:20:47,510

all right i had one turn on one

1443

03:20:58,070 --> 03:20:54,830

copy two on

1444

03:21:05,429 --> 03:20:58,080

one he is first releasing torque on four

1445

03:21:05,439 --> 03:21:10,389

you want to

1446

03:21:27,030 --> 03:21:12,150

copy two on two and you got a day pass

1447

03:21:43,349 --> 03:21:30,469

one three

1448

03:21:52,550 --> 03:21:45,990

and i'm just going to keep going

1449

03:21:57,510 --> 03:21:55,349

okay copy two on four uh and

1450

03:22:00,150 --> 03:21:57,520

just want to confirm that we are ready

1451
03:22:02,550 --> 03:22:00,160
to the each picture before we continue

1452
03:22:11,990 --> 03:22:02,560
any further

1453
03:22:17,190 --> 03:22:14,389
hopkins has broken torque on the four

1454
03:22:19,429 --> 03:22:17,200
bolts on the h fixture confirming that

1455
03:22:21,030 --> 03:22:19,439
he is ready he has his retractable

1456
03:22:22,950 --> 03:22:21,040
equipment tether connected to the

1457
03:22:40,229 --> 03:22:22,960
fixture before fully releasing those

1458
03:22:44,790 --> 03:22:42,950
all right farmer the square scoop is

1459
03:22:46,150 --> 03:22:44,800
headed to uh

1460
03:22:52,550 --> 03:22:46,160
on in the crew lock bag ready for the

1461
03:22:57,910 --> 03:22:55,429
okay copy standby one ike hopper

1462
03:23:00,790 --> 03:22:57,920
your next steps once you're ready you're

1463
03:23:03,269 --> 03:23:00,800

going to drive all four bolts

1464

03:23:04,790 --> 03:23:03,279

10 additional turns only

1465

03:23:06,790 --> 03:23:04,800

so make sure we stop at the expected

1466

03:23:10,309 --> 03:23:06,800

turns so 10 additional turns on each

1467

03:23:10,319 --> 03:23:17,269

warm copy

1468

03:23:17,279 --> 03:23:21,190

hey ike we're ready for the inventory

1469

03:23:24,950 --> 03:23:22,950

okay you've got a square scoop on a

1470

03:23:26,469 --> 03:23:24,960

small small red

1471

03:23:28,870 --> 03:23:26,479

got a

1472

03:23:31,590 --> 03:23:28,880

connector cleaner

1473

03:23:33,990 --> 03:23:31,600

kit on an integral wreck

1474

03:23:36,550 --> 03:23:34,000

have a socket caddy

1475

03:23:38,150 --> 03:23:36,560

with a nine inch rigid hex driver on an

1476

03:23:40,710 --> 03:23:38,160

integral vector

1477

03:23:42,630 --> 03:23:40,720

we have a ratchet wrench with a palm

1478

03:23:45,349 --> 03:23:42,640

wheel and a seventh

1479

03:23:47,910 --> 03:23:45,359

16th six inch wobble

1480

03:23:49,990 --> 03:23:47,920

on an integral wreck

1481

03:23:52,790 --> 03:23:50,000

you have a

1482

03:23:54,389 --> 03:23:52,800

uh a red red in series

1483

03:23:56,309 --> 03:23:54,399

one of those reds have a fifth pin and

1484

03:23:59,110 --> 03:23:56,319

that fifth pin has a nine inch rigid

1485

03:24:07,030 --> 03:23:59,120

text driver and that's inside the bag

1486

03:24:10,469 --> 03:24:08,790

hey thanks mike that's a that's a good

1487

03:24:12,389 --> 03:24:10,479

inventory you can go ahead and button

1488

03:24:13,910 --> 03:24:12,399

that up put it on your brt and then

1489

03:24:16,710 --> 03:24:13,920

check your tethers and tools clear the

1490

03:24:16,720 --> 03:24:24,950

good work

1491

03:24:31,590 --> 03:24:27,750

victor glover performing an inventory of

1492

03:24:36,710 --> 03:24:33,910

having completed mating the adapter

1493

03:24:38,870 --> 03:24:36,720

plate to the lithium-ion battery in slot

1494

03:24:44,710 --> 03:24:38,880

5. that completes the circuit for the

1495

03:24:44,720 --> 03:24:48,950

you say that one more time hopper please

1496

03:24:48,960 --> 03:24:54,150

vote one eight turns

1497

03:24:54,160 --> 03:25:29,190

that

1498

03:25:32,870 --> 03:25:30,870

back on my brt

1499

03:25:35,429 --> 03:25:32,880

with a good wreck to it

1500

03:25:38,070 --> 03:25:35,439

open up my waist tether

1501
03:25:39,590 --> 03:25:38,080
i'm ready to get moving the worst site

1502
03:25:43,910 --> 03:25:39,600
is

1503
03:25:48,389 --> 03:25:46,630
are you still not getting wbs

1504
03:25:49,590 --> 03:25:48,399
uh we're we actually got it for both of

1505
03:25:52,710 --> 03:25:49,600
you right now so we're looking pretty

1506
03:26:04,710 --> 03:25:53,510
okay

1507
03:26:09,110 --> 03:26:07,429
and uh we got a good battery in the

1508
03:26:13,990 --> 03:26:09,120
cable we got a good check out on the

1509
03:26:14,000 --> 03:26:19,910
you got a good visual you see that

1510
03:26:19,920 --> 03:26:26,070
yep looks good from here

1511
03:26:26,080 --> 03:26:32,229
stand by one eye

1512
03:26:36,790 --> 03:26:34,710
great news relayed to the astronauts

1513
03:26:39,030 --> 03:26:36,800

from nasa astronaut bob hines the ground

1514

03:26:40,950 --> 03:26:39,040

iv you can go ahead then and get ready

1515

03:26:42,550 --> 03:26:40,960

to translate back pick up your green

1516

03:26:52,950 --> 03:26:42,560

hook and

1517

03:26:57,110 --> 03:26:55,190

now one hour into today's spacewalk and

1518

03:26:59,429 --> 03:26:57,120

we have confirmation that the final

1519

03:27:16,790 --> 03:26:59,439

lithium-ion battery installed

1520

03:27:20,469 --> 03:27:18,550

victor glover is heading back to the

1521

03:27:22,950 --> 03:27:20,479

airlock to stow one of his crew lock

1522

03:27:24,790 --> 03:27:22,960

bags he will then move to the external

1523

03:27:31,190 --> 03:27:24,800

stowage platform too to get into the

1524

03:27:54,389 --> 03:27:33,269

mike hawkins continues working to

1525

03:27:57,990 --> 03:27:56,710

okay farmer all uh all four bolts are

1526

03:28:01,910 --> 03:27:58,000

released all of them just took an

1527

03:28:06,389 --> 03:28:04,550

okay copy that uh then you can get ready

1528

03:28:08,309 --> 03:28:06,399

you can sew the pgt and then we'll get

1529

03:28:12,229 --> 03:28:08,319

ready to install the wedges into the uh

1530

03:28:12,239 --> 03:29:01,110

hey copy

1531

03:29:09,190 --> 03:29:02,790

i've got my green hook

1532

03:29:47,349 --> 03:29:10,950

okay copy that you can go ahead and

1533

03:29:52,229 --> 03:29:49,750

went right in oh seriously

1534

03:29:55,830 --> 03:29:52,239

yeah of course he did we'll see about

1535

03:30:01,349 --> 03:29:58,630

oh hey farmer

1536

03:30:06,070 --> 03:30:04,070

yeah i'm not i'm still on face one uh

1537

03:30:07,910 --> 03:30:06,080

at p1 did you i didn't look at that

1538

03:30:09,830 --> 03:30:07,920

piston

1539

03:30:13,429 --> 03:30:09,840

okay copy that yeah we'll have hopper

1540

03:30:13,439 --> 03:30:30,150

okay

1541

03:30:35,830 --> 03:30:32,469

oh my gosh

1542

03:30:38,070 --> 03:30:35,840

you guys can't believe how easy

1543

03:30:40,229 --> 03:30:38,080

what was

1544

03:30:42,150 --> 03:30:40,239

nice

1545

03:30:48,070 --> 03:30:42,160

i mean they kind of did

1546

03:30:48,080 --> 03:31:06,550

i am surprised though

1547

03:31:38,950 --> 03:31:07,670

all right up where i'm heading down to

1548

03:31:44,309 --> 03:31:41,030

copy that i can hopper just a reminder

1549

03:31:45,830 --> 03:31:44,319

uh when we're prying on the uh h fixture

1550

03:31:47,030 --> 03:31:45,840

we have to wait 30 seconds between the

1551
03:31:50,070 --> 03:31:47,040
temps but it looks like you got it off

1552
03:31:50,080 --> 03:32:04,870
it's off

1553
03:32:04,880 --> 03:32:13,510
nice tool

1554
03:32:18,630 --> 03:32:15,910
all right hopper as you stow the uh h

1555
03:32:20,469 --> 03:32:18,640
fixture if you moved any of the mli on

1556
03:32:21,349 --> 03:32:20,479
the vga make sure you reinstall that and

1557
03:32:23,030 --> 03:32:21,359
then

1558
03:32:31,510 --> 03:32:23,040
take some imagery of the gse pad when

1559
03:32:34,550 --> 03:32:33,030
okay so i'm ready to open the thermal

1560
03:32:35,910 --> 03:32:34,560
cover

1561
03:32:38,070 --> 03:32:35,920
copy that you have a go you're going to

1562
03:32:43,670 --> 03:32:38,080
put a crew lock bag 2 in the air lock

1563
03:32:47,590 --> 03:32:46,150

the ehct

1564

03:32:52,550 --> 03:32:47,600

will do

1565

03:32:52,560 --> 03:32:56,389

a farm already

1566

03:33:00,950 --> 03:32:58,150

already got a

1567

03:33:02,710 --> 03:33:00,960

small small wrap with it adjustable

1568

03:33:04,790 --> 03:33:02,720

one end's got an h fixture that has the

1569

03:33:06,389 --> 03:33:04,800

combo wrench

1570

03:33:07,670 --> 03:33:06,399

got an interval right

1571

03:33:10,309 --> 03:33:07,680

that's got the

1572

03:33:15,349 --> 03:33:10,319

wedge assembly

1573

03:33:15,359 --> 03:33:18,870

integral rest

1574

03:33:25,110 --> 03:33:20,630

with an adjustable

1575

03:33:29,670 --> 03:33:27,510

at an integral wrap

1576
03:33:30,710 --> 03:33:29,680
with the

1577
03:33:33,830 --> 03:33:30,720
hammer

1578
03:33:38,790 --> 03:33:33,840
on an unadjustable and the

1579
03:33:41,990 --> 03:33:40,309
another

1580
03:33:43,269 --> 03:33:42,000
integral rep it's got an adjustable with

1581
03:33:44,710 --> 03:33:43,279
the pry bar

1582
03:33:49,510 --> 03:33:44,720
and then the other end is empty that's

1583
03:33:49,520 --> 03:33:55,990
i've got two adjustables inside

1584
03:34:01,349 --> 03:33:58,309
and

1585
03:34:04,229 --> 03:34:01,359
there's two d-rings

1586
03:34:08,309 --> 03:34:04,239
then i also have a camera

1587
03:34:14,790 --> 03:34:10,870
that's inside on the outside i have one

1588
03:34:19,349 --> 03:34:17,429

and that's the inventory

1589

03:34:21,110 --> 03:34:19,359

okay copy that uh the only thing i

1590

03:34:23,590 --> 03:34:21,120

missed was the hammer you may have said

1591

03:34:27,429 --> 03:34:25,429

you could say it it's not adjustable

1592

03:34:31,269 --> 03:34:27,439

with the

1593

03:34:33,030 --> 03:34:31,279

the pls tool i think his name on it

1594

03:34:36,229 --> 03:34:33,040

correct copy that that's a good

1595

03:34:40,469 --> 03:34:38,070

roger

1596

03:34:41,910 --> 03:34:40,479

and i'm taking pictures now

1597

03:34:51,830 --> 03:34:41,920

the only thing that's coming out is the

1598

03:34:56,710 --> 03:34:53,990

that was nasa astronaut mike hopkins

1599

03:34:58,710 --> 03:34:56,720

after having completed removal of the h

1600

03:35:01,190 --> 03:34:58,720

fixture necessary for future power

1601
03:35:03,750 --> 03:35:01,200
upgrades he's taking some photos of the

1602
03:35:06,630 --> 03:35:03,760
work site and this camera view is that

1603
03:35:08,469 --> 03:35:06,640
of the helmet of victor glover

1604
03:35:10,550 --> 03:35:08,479
as you can see he's back at the airlock

1605
03:35:12,309 --> 03:35:10,560
stowing a crew lock bag and picking up

1606
03:35:31,750 --> 03:35:12,319
the camera to be installed later on the

1607
03:35:35,349 --> 03:35:34,070
and a big picture for both of you guys i

1608
03:35:36,870 --> 03:35:35,359
know we went out the door a little bit

1609
03:35:41,670 --> 03:35:36,880
late today but we've made up all that

1610
03:35:41,680 --> 03:35:45,830
you on youtube

1611
03:35:51,030 --> 03:35:47,150
all right farmer i've got the

1612
03:35:51,040 --> 03:36:06,469
oh uh

1613
03:36:06,479 --> 03:36:10,870

of course i don't

1614

03:36:10,880 --> 03:36:42,070

have the wrong or you guys

1615

03:36:46,630 --> 03:36:44,309

hey hopper we see uh

1616

03:36:47,990 --> 03:36:46,640

see the crew lock bag on your brt if we

1617

03:36:50,070 --> 03:36:48,000

get a glove and half check and a

1618

03:36:51,750 --> 03:36:50,080

gauntlet check and then

1619

03:37:02,710 --> 03:36:51,760

on the way back we'll need you to do

1620

03:37:07,590 --> 03:37:05,190

that quick satellite handover coming as

1621

03:37:08,469 --> 03:37:07,600

nasa astronaut bob hines today's grand

1622

03:37:10,309 --> 03:37:08,479

iv

1623

03:37:11,990 --> 03:37:10,319

was relaying next steps to our

1624

03:37:18,229 --> 03:37:12,000

astronauts that's his task throughout

1625

03:37:22,710 --> 03:37:20,229

so far the astronauts are performing

1626
03:37:24,550 --> 03:37:22,720
ahead of schedule

1627
03:37:26,070 --> 03:37:24,560
they have secured the final lithium-ion

1628
03:37:28,150 --> 03:37:26,080
battery to the international space

1629
03:37:30,070 --> 03:37:28,160
station and installed a final adapter

1630
03:37:36,389 --> 03:37:30,080
plate completing the battery upgrades

1631
03:37:39,910 --> 03:37:38,150
victor glover also installed a final

1632
03:37:42,790 --> 03:37:39,920
bolt in the direct current switching

1633
03:38:18,309 --> 03:37:42,800
unit while mike hawkins removed an h

1634
03:38:22,309 --> 03:38:20,550
hey guys we're back with you uh hopper

1635
03:38:23,830 --> 03:38:22,319
uh didn't get a chance to pass two

1636
03:38:25,750 --> 03:38:23,840
before the los but uh we're looking for

1637
03:38:28,870 --> 03:38:25,760
that pvr pit pin inspection on the way

1638
03:38:28,880 --> 03:38:46,070

that we'll get it

1639

03:38:46,080 --> 03:38:55,189

um

1640

03:38:59,030 --> 03:38:57,750

you're doing nice pretty good i've got

1641

03:39:02,469 --> 03:38:59,040

my uh

1642

03:39:04,070 --> 03:39:02,479

tp13 ru bag

1643

03:39:05,990 --> 03:39:04,080

all right farmer now i've got the right

1644

03:39:09,189 --> 03:39:06,000

overview bags

1645

03:39:10,710 --> 03:39:09,199

and this hand is installed farmer

1646

03:39:11,910 --> 03:39:10,720

excellent i've got that in the grocery

1647

03:39:14,150 --> 03:39:11,920

videos

1648

03:39:15,910 --> 03:39:14,160

yep we had it for a second um but it

1649

03:39:17,590 --> 03:39:15,920

looks uh looks good to us you can go

1650

03:39:29,030 --> 03:39:17,600

ahead head back to the airlock and pick

1651

03:39:33,910 --> 03:39:30,630

okay farmer should i leave the thermal

1652

03:39:44,790 --> 03:39:35,030

you can go ahead and close the thermal

1653

03:39:49,269 --> 03:39:46,150

the international space station is

1654

03:39:51,670 --> 03:39:49,279

currently flying 267 statute miles over

1655

03:39:54,389 --> 03:39:51,680

the south pacific ocean

1656

03:39:56,389 --> 03:39:54,399

this view from the helmet camera of nasa

1657

03:40:03,510 --> 03:39:56,399

astronaut victor glover on his second

1658

03:40:07,830 --> 03:40:05,670

glover is now going to be moving out to

1659

03:40:10,309 --> 03:40:07,840

the canada arm 2 where he will ingress

1660

03:40:16,550 --> 03:40:10,319

or enter the apfr that's the

1661

03:40:21,349 --> 03:40:18,309

inside the international space station

1662

03:40:30,630 --> 03:40:21,359

is nasa's kate rubins who will be

1663

03:40:37,349 --> 03:40:32,790

my hand control module

1664

03:40:40,550 --> 03:40:38,309

okay

1665

03:40:41,830 --> 03:40:40,560

back up on phase one in board of the

1666

03:40:46,630 --> 03:40:41,840

sarge

1667

03:40:46,640 --> 03:40:51,910

copy that let's take our handles down

1668

03:40:55,990 --> 03:40:53,429

hey copy that ike you can go ahead

1669

03:40:58,150 --> 03:40:56,000

translate to esp2 forward uh pharaoh

1670

03:41:17,189 --> 03:40:58,160

leading around the starboard side of

1671

03:41:17,199 --> 03:41:28,150

uh

1672

03:41:28,160 --> 03:42:25,590

um

1673

03:42:25,600 --> 03:42:41,750

ugh

1674

03:42:41,760 --> 03:42:49,429

farmer i got my green hook

1675

03:42:49,439 --> 03:43:03,590

copy that

1676

03:43:07,910 --> 03:43:05,670

all right ike we see at the apfr there

1677

03:43:10,630 --> 03:43:07,920

you're going to retrieve the apfr and

1678

03:43:12,389 --> 03:43:10,640

verify that the wire tie is uh installed

1679

03:43:16,710 --> 03:43:12,399

and intact on the base of the ingress

1680

03:43:22,150 --> 03:43:19,429

rsi is installed and in fact

1681

03:43:43,429 --> 03:43:22,160

place to be aggressive

1682

03:43:43,439 --> 03:43:55,670

um

1683

03:44:00,229 --> 03:43:58,309

all right once you've got the apfr next

1684

03:44:40,870 --> 03:44:00,239

is bringing the arm into the install in

1685

03:44:40,880 --> 03:44:43,510

ready

1686

03:44:48,469 --> 03:44:46,150

got a good view of the entire arm

1687

03:44:50,469 --> 03:44:48,479

okay before you get started

1688

03:44:52,870 --> 03:44:50,479

but i'm at the top of the seated spur

1689

03:44:55,189 --> 03:44:52,880

i'll go get uh put my trulock back in

1690

03:44:56,309 --> 03:44:55,199

and i'm getting the camera group

1691

03:44:59,269 --> 03:44:56,319

and

1692

03:45:01,189 --> 03:44:59,279

back out

1693

03:45:02,550 --> 03:45:01,199

happy and i've got a good visual of you

1694

03:45:04,229 --> 03:45:02,560

roger

1695

03:45:06,229 --> 03:45:04,239

all good words not for that good for me

1696

03:45:09,590 --> 03:45:06,239

farmer anything else

1697

03:45:18,950 --> 03:45:09,600

okay all right i'm good all right

1698

03:45:23,110 --> 03:45:20,469

great to hear you guys are doing great

1699

03:45:25,429 --> 03:45:23,120

we copy you are go for we're going to do

1700

03:45:40,710 --> 03:45:25,439

go for gca to publish a pfr install

1701
03:45:45,189 --> 03:45:42,710
coming up on an hour and 20 minutes into

1702
03:45:47,590 --> 03:45:45,199
today's spacewalk that's nasa astronaut

1703
03:45:50,550 --> 03:45:47,600
victor glover on your screen preparing

1704
03:45:52,550 --> 03:45:50,560
to install and ingress the apfr or the

1705
03:45:59,910 --> 03:45:52,560
articulating portable foot restraint on

1706
03:45:59,920 --> 03:46:03,030
stop watching it

1707
03:46:03,040 --> 03:46:11,269
okay copy uh

1708
03:46:11,279 --> 03:46:48,550
foreign

1709
03:46:48,560 --> 03:46:59,990
um

1710
03:47:08,630 --> 03:47:02,389
all right performer is installed

1711
03:47:25,189 --> 03:47:10,469
okay copy that and double check the

1712
03:47:27,990 --> 03:47:26,469
okay copy that and we're ready for

1713
03:47:31,510 --> 03:47:28,000

safety tether swap let me know if you

1714

03:48:05,590 --> 03:47:33,429

uh i've got it

1715

03:48:09,910 --> 03:48:07,830

as victor glover works to install that

1716

03:48:12,389 --> 03:48:09,920

articulating portable foot restraint to

1717

03:48:14,469 --> 03:48:12,399

the end of the canada arm 2 you've got

1718

03:48:17,750 --> 03:48:14,479

this view from the international space

1719

03:48:35,110 --> 03:48:17,760

station and his helmet specifically 262

1720

03:48:38,469 --> 03:48:37,429

my yellow hook is to the behind rail to

1721

03:48:39,990 --> 03:48:38,479

the point

1722

03:48:41,189 --> 03:48:40,000

a closed fighter is locked black on

1723

03:48:42,469 --> 03:48:41,199

block

1724

03:48:45,030 --> 03:48:42,479

the full test

1725

03:48:46,630 --> 03:48:45,040

my red reel is unlocked

1726
03:48:51,910 --> 03:48:46,640
the green hook is coming off and going

1727
03:48:51,920 --> 03:49:28,630
copy that

1728
03:49:32,790 --> 03:49:30,630
this view from the international space

1729
03:49:35,110 --> 03:49:32,800
station of nasa astronaut victor glover

1730
03:49:37,429 --> 03:49:35,120
as he prepares to ingress or enter the

1731
03:49:40,309 --> 03:49:37,439
articulating portable foot restraint

1732
03:49:41,910 --> 03:49:40,319
and in the distance you can see the moon

1733
03:49:47,910 --> 03:49:41,920
as the international space station is

1734
03:49:50,550 --> 03:49:47,920
now flying 262 statute miles over brazil

1735
03:49:52,710 --> 03:49:50,560
we are now one hour and 23 minutes into

1736
03:49:55,990 --> 03:49:52,720
today's spacewalk everything progressing

1737
03:50:01,510 --> 03:49:57,990
nasa astronaut mike hawkins is currently

1738
03:50:05,349 --> 03:50:03,429

all right kate uh

1739

03:50:08,550 --> 03:50:05,359

if you could i'd like you to go

1740

03:50:43,030 --> 03:50:08,560

later about a half a meter for ingress

1741

03:50:43,040 --> 03:51:13,189

split motion continue

1742

03:51:16,950 --> 03:51:15,189

okay i put your waste tether on the

1743

03:51:21,189 --> 03:51:16,960

ingredient or on the apfr and then you

1744

03:51:37,269 --> 03:51:23,830

i'm going to put it on the ingredient

1745

03:51:37,279 --> 03:51:46,870

uh

1746

03:51:50,870 --> 03:51:48,630

okay farmer i have the

1747

03:51:53,510 --> 03:51:50,880

camera group on my

1748

03:51:55,910 --> 03:51:53,520

crt

1749

03:51:56,830 --> 03:51:55,920

check my safer handles

1750

03:51:58,550 --> 03:51:56,840

ultra

1751
03:52:00,229 --> 03:51:58,560
down

1752
03:52:02,790 --> 03:52:00,239
and closing the

1753
03:52:04,630 --> 03:52:02,800
thermal cover

1754
03:52:06,710 --> 03:52:04,640
okay copy that that thing's uh pretty

1755
03:52:11,349 --> 03:52:06,720
big watching that get this watching that

1756
03:52:11,359 --> 03:52:19,590
it is

1757
03:52:23,590 --> 03:52:21,990
cover is closed copy that uh we get a

1758
03:52:25,510 --> 03:52:23,600
quick glove and hap check from you and

1759
03:52:32,389 --> 03:52:25,520
then you can translate up to the cp3

1760
03:52:38,630 --> 03:52:33,830
okay

1761
03:52:42,790 --> 03:52:40,790
and no change to the gloves other than

1762
03:52:48,229 --> 03:52:42,800
the smudges have kind of already worn

1763
03:52:48,239 --> 03:52:59,269

copy that thanks

1764

03:53:03,590 --> 03:53:01,030

in the distance you can now see the moon

1765

03:53:05,030 --> 03:53:03,600

setting behind the earth's limb nasa

1766

03:53:06,550 --> 03:53:05,040

astronaut victor glover in the

1767

03:53:15,510 --> 03:53:06,560

foreground

1768

03:53:19,750 --> 03:53:17,590

and just prior to that you could hear

1769

03:53:22,229 --> 03:53:19,760

nasa astronaut mike hopkins who is now

1770

03:53:24,630 --> 03:53:22,239

departing the airlock

1771

03:53:27,269 --> 03:53:24,640

give a good glove and hap check hap

1772

03:53:28,950 --> 03:53:27,279

stands for helmet absorption pad the

1773

03:53:30,630 --> 03:53:28,960

astronauts check that to ensure nothing

1774

03:53:36,469 --> 03:53:30,640

is leaking inside the suit and that

1775

03:53:39,990 --> 03:53:38,229

astronauts also regularly check their

1776
03:54:06,550 --> 03:53:40,000
gloves for any damage during the

1777
03:54:14,790 --> 03:54:08,870
all right ev2

1778
03:54:20,950 --> 03:54:18,229
okay copy that nice work uh

1779
03:54:22,790 --> 03:54:20,960
next is an arm maneuver to the esp2 back

1780
03:54:30,150 --> 03:54:22,800
off position and then continuing over to

1781
03:54:30,160 --> 03:54:41,830
you two

1782
03:54:41,840 --> 03:54:57,030
somewhere

1783
03:54:57,040 --> 03:55:03,990
huh

1784
03:55:04,000 --> 03:55:32,389
my arms emotion station forward

1785
03:55:36,870 --> 03:55:34,469
coming up on one hour and 30 minutes

1786
03:55:39,349 --> 03:55:36,880
into today's spacewalk which began at 6

1787
03:55:41,510 --> 03:55:39,359
56 a.m central time

1788
03:55:43,510 --> 03:55:41,520

you can see the canada arm 2 moving

1789

03:55:45,590 --> 03:55:43,520

slightly

1790

03:55:51,670 --> 03:55:45,600

taking victor glover to the next

1791

03:55:56,790 --> 03:55:53,910

the next task for glover and hopkins

1792

03:56:19,990 --> 03:55:56,800

will be to remove and replace the camera

1793

03:56:24,710 --> 03:56:22,309

the new hd camera being installed will

1794

03:56:26,710 --> 03:56:24,720

replace the pink hued camera you might

1795

03:56:28,950 --> 03:56:26,720

be familiar with whose color wheel has

1796

03:56:50,150 --> 03:56:28,960

failed and may be available for public

1797

03:56:50,160 --> 03:57:16,950

uh

1798

03:57:16,960 --> 03:57:24,469

wow

1799

03:57:24,479 --> 03:57:30,630

yeah farmer easy ones at the workshop

1800

03:57:35,030 --> 03:57:32,150

okay copy that we're just waiting on the

1801
03:57:38,790 --> 03:57:37,030
your next step once i gets over there is

1802
03:57:40,309 --> 03:57:38,800
you're going to receive that rhett in

1803
03:57:42,469 --> 03:57:40,319
series and you're going to be putting

1804
03:57:45,750 --> 03:57:42,479
that on handrail 3238 if you want to get

1805
03:57:51,269 --> 03:57:49,110
i am on it right now and i called the

1806
03:57:52,870 --> 03:57:51,279
motion that's uh the five-minute joke

1807
03:57:53,990 --> 03:57:52,880
has to cp3

1808
03:58:03,030 --> 03:57:54,000
emoji

1809
03:58:10,550 --> 03:58:04,710
okay while you're flying we got a couple

1810
03:58:14,389 --> 03:58:12,229
hey you're going to retrieve your pgt

1811
03:59:06,870 --> 03:58:14,399
and install the 9-inch rigid socket that

1812
03:59:11,670 --> 03:59:09,110
astronauts kate rubins and suicinaguchi

1813
03:59:14,790 --> 03:59:11,680

continue maneuvering the canada arm 2

1814

03:59:18,070 --> 03:59:14,800

with victor glover aboard and below him

1815

03:59:27,030 --> 03:59:18,080

is the atlantic ocean 260 statute miles

1816

03:59:29,990 --> 03:59:28,550

we have some questions coming in online

1817

03:59:32,229 --> 03:59:30,000

so if you're watching you can use the

1818

03:59:36,550 --> 03:59:32,239

hashtag asknasa on twitter and we'll do

1819

03:59:40,630 --> 03:59:38,389

the first comes from bob who wants to

1820

03:59:43,110 --> 03:59:40,640

know what is hopper or ike during the

1821

03:59:44,870 --> 03:59:43,120

spacewalk

1822

03:59:46,630 --> 03:59:44,880

you'll hear the names hopper ike and

1823

03:59:49,030 --> 03:59:46,640

farmer throughout the day those are all

1824

03:59:50,469 --> 03:59:49,040

call signs for three of the voices that

1825

03:59:52,309 --> 03:59:50,479

you hear

1826
03:59:54,469 --> 03:59:52,319
you're looking at ike right now that's

1827
03:59:56,630 --> 03:59:54,479
the call sign for nasa astronaut victor

1828
03:59:59,750 --> 03:59:56,640
glover

1829
04:00:02,070 --> 03:59:59,760
hopper is the call sign for mike hopkins

1830
04:00:04,229 --> 04:00:02,080
and farmer is the call sign for bob

1831
04:00:10,790 --> 04:00:04,239
hines who is here on the ground

1832
04:00:10,800 --> 04:00:26,630
full testing

1833
04:00:30,950 --> 04:00:28,070
and uh can you guys repeat your last

1834
04:00:35,269 --> 04:00:32,790
the nine inch receivers on the pgt with

1835
04:00:36,790 --> 04:00:35,279
a good tool test

1836
04:00:38,469 --> 04:00:36,800
okay copy that and then you're going to

1837
04:00:41,030 --> 04:00:38,479
configure the pgt

1838
04:00:58,870 --> 04:00:41,040

bravo one counterclockwise two and then

1839

04:01:44,389 --> 04:01:09,429

uh

1840

04:01:44,399 --> 04:01:47,670

wow

1841

04:01:47,680 --> 04:02:00,870

level one counterclockwise two sets

1842

04:02:04,389 --> 04:02:02,469

okay copy that like you can put that

1843

04:02:06,389 --> 04:02:04,399

back on your swing arm and then you're

1844

04:02:07,670 --> 04:02:06,399

going to retrieve the cp3 hardware out

1845

04:03:42,710 --> 04:02:07,680

of the bag and then you can close the

1846

04:03:42,720 --> 04:03:46,790

okay farmer i have a

1847

04:03:46,800 --> 04:03:51,510

round scoop in the cover

1848

04:03:55,750 --> 04:03:53,510

okay great let's get a quick glove and

1849

04:03:58,070 --> 04:03:55,760

half check and then

1850

04:04:19,670 --> 04:03:58,080

you guys can work on moving the arm into

1851

04:04:30,630 --> 04:04:22,469

easy to hack is

1852

04:04:35,750 --> 04:04:33,110

yeah guys so it's we are ready for gcf

1853

04:04:37,750 --> 04:04:35,760

for published cp3 camera group hour

1854

04:04:40,630 --> 04:04:37,760

positions whenever you're ready

1855

04:04:44,550 --> 04:04:43,349

and i got a small bit of the rtb lifting

1856

04:04:47,189 --> 04:04:44,560

off the

1857

04:04:49,349 --> 04:04:47,199

bottom digit of my right pinky

1858

04:04:50,309 --> 04:04:49,359

it's still in place it's just lifting

1859

04:04:51,750 --> 04:04:50,319

about a

1860

04:04:54,550 --> 04:04:51,760

quarter of an inch wide and an eighth of

1861

04:04:54,560 --> 04:05:03,269

other than that they look brand new

1862

04:05:03,279 --> 04:05:19,349

hey copy that egg

1863

04:05:22,950 --> 04:05:21,269

and ike we're we're good to continue

1864

04:05:25,670 --> 04:05:22,960

with that and then over to you and

1865

04:05:43,030 --> 04:05:25,680

soichi to bring the arm to the r r

1866

04:05:47,990 --> 04:05:46,309

gca to the cp3 camera group rnr position

1867

04:05:59,189 --> 04:05:48,000

hopefully

1868

04:05:59,199 --> 04:06:22,950

um

1869

04:06:33,349 --> 04:06:29,110

motion continue

1870

04:06:35,830 --> 04:06:33,359

aboard the canada arm 2 we have another

1871

04:06:37,750 --> 04:06:35,840

ask nasa question this one from nicole

1872

04:06:39,590 --> 04:06:37,760

wondering why does victor glover have to

1873

04:06:42,309 --> 04:06:39,600

use the canada arm instead of just using

1874

04:06:44,309 --> 04:06:42,319

the handrails

1875

04:06:46,950 --> 04:06:44,319

once glover arrives at the work site

1876

04:06:49,349 --> 04:06:46,960

this will give him stable footing and

1877

04:06:50,550 --> 04:06:49,359

allow him to impart the proper loads

1878

04:06:53,110 --> 04:06:50,560

onto the camera that they'll be

1879

04:06:55,670 --> 04:06:53,120

installing

1880

04:07:00,229 --> 04:06:55,680

i got to get myself out of the way sorry

1881

04:07:03,349 --> 04:07:02,070

while we're here stop what's the rest of

1882

04:07:07,030 --> 04:07:03,359

the maneuvers like

1883

04:07:10,630 --> 04:07:07,040

somebody said your body left about

1884

04:07:19,389 --> 04:07:12,630

accurate that publish for the

1885

04:07:24,070 --> 04:07:20,950

hey

1886

04:07:26,229 --> 04:07:24,080

okay i'll go to continue

1887

04:07:38,550 --> 04:07:26,239

okay copyright happy go we see hyper

1888

04:07:38,560 --> 04:08:12,229

what's up

1889

04:08:14,950 --> 04:08:13,670

okay that looks good right above your

1890

04:08:17,269 --> 04:08:14,960

start motion

1891

04:08:21,510 --> 04:08:17,279

stop question if that's the publish okay

1892

04:08:21,520 --> 04:08:29,269

okay ssr spread songs let me break those

1893

04:08:33,750 --> 04:08:31,269

okay ike first thing at the worksite

1894

04:08:35,349 --> 04:08:33,760

verify that the camera is in the stowed

1895

04:08:38,389 --> 04:08:35,359

position and the lens hood is square to

1896

04:08:38,399 --> 04:08:42,710

fold and square

1897

04:08:46,149 --> 04:08:44,070

happy then you're going to install the

1898

04:08:47,590 --> 04:08:46,159

round scoop onto the failed camera group

1899

04:08:49,510 --> 04:08:47,600

remember we want the handle at the 10

1900

04:08:54,389 --> 04:08:49,520

o'clock position where 12 o'clock is

1901
04:08:54,399 --> 04:08:57,830
install 10 o'clock

1902
04:08:57,840 --> 04:09:02,950
sure

1903
04:09:02,960 --> 04:09:07,349
okay round scoop is left on

1904
04:09:13,349 --> 04:09:09,910
copy that uh install the

1905
04:09:20,550 --> 04:09:13,359
hd window cover and

1906
04:09:20,560 --> 04:09:30,630
a window cover is installed

1907
04:09:33,910 --> 04:09:32,389
copy the window cover just confirm the

1908
04:09:38,790 --> 04:09:33,920
quarter turn fasteners are installed you

1909
04:09:42,710 --> 04:09:40,469
good pull test quarter turn fasteners

1910
04:09:44,550 --> 04:09:42,720
are engaged times two

1911
04:09:46,710 --> 04:09:44,560
copy you can take that rat in the series

1912
04:09:48,630 --> 04:09:46,720
in and hand it off to hopper hopper

1913
04:09:54,229 --> 04:09:48,640

you're going to stow that red

1914

04:09:58,149 --> 04:09:56,630

okay a little tight workspace in here so

1915

04:09:59,189 --> 04:09:58,159

give me a second to get to the base of

1916

04:10:36,469 --> 04:09:59,199

this

1917

04:10:41,030 --> 04:10:38,870

coming up on an hour and 45 minutes into

1918

04:10:43,510 --> 04:10:41,040

today's spacewalk we have a question

1919

04:10:45,349 --> 04:10:43,520

from jason metzdorf which is very timely

1920

04:10:46,950 --> 04:10:45,359

for what's happening now he wants to

1921

04:10:50,950 --> 04:10:46,960

know how many cameras are going to be

1922

04:10:54,710 --> 04:10:52,950

the astronauts are now at the work site

1923

04:10:57,110 --> 04:10:54,720

well they're where they will replace the

1924

04:10:59,910 --> 04:10:57,120

first of three cameras to be installed

1925

04:11:05,590 --> 04:11:01,830

this camera is being installed on the

1926

04:11:08,469 --> 04:11:05,600

starboard truss lower outboard location

1927

04:11:16,790 --> 04:11:08,479

a new hd camera to replace a pink hued

1928

04:11:21,269 --> 04:11:18,830

two other cameras will be installed

1929

04:11:28,309 --> 04:11:21,279

today there will be another hd camera

1930

04:11:32,790 --> 04:11:30,790

and components on the japanese robotic

1931

04:11:35,830 --> 04:11:32,800

arms camera system outside the cabo

1932

04:11:43,830 --> 04:11:35,840

module will be replaced as well

1933

04:11:43,840 --> 04:12:00,229

right here you go

1934

04:12:04,070 --> 04:12:01,590

all right you're going to retrieve your

1935

04:12:05,830 --> 04:12:04,080

ptt then we're looking for bravo one

1936

04:12:07,429 --> 04:12:05,840

counterclockwise two which is set

1937

04:12:16,630 --> 04:12:07,439

earlier and then we'll be driving the

1938

04:12:20,870 --> 04:12:18,630

okay the wrap is attached to three two

1939

04:12:26,309 --> 04:12:20,880

three eight

1940

04:12:26,319 --> 04:12:28,550

to

1941

04:12:31,670 --> 04:12:30,870

hey good and i'm rudy happy uh you're

1942

04:12:33,590 --> 04:12:31,680

gonna

1943

04:12:38,630 --> 04:12:33,600

release the secondary bolts uh fully

1944

04:12:44,309 --> 04:12:40,309

don't matter which

1945

04:12:44,319 --> 04:12:52,389

approximately 13 turns it works

1946

04:12:52,399 --> 04:12:56,950

and hopper next for you once this is uh

1947

04:12:59,990 --> 04:12:58,469

once we remove the camera group you're

1948

04:13:06,469 --> 04:13:00,000

going to receive that from ike and get

1949

04:13:06,479 --> 04:13:16,149

10 for 13.

1950

04:13:16,159 --> 04:13:20,469

13 turns and it appears to spring out

1951

04:13:24,710 --> 04:13:22,309

copy that

1952

04:13:40,149 --> 04:13:24,720

on the photovolt

1953

04:14:02,389 --> 04:13:42,389

victor glover now using the pistol grip

1954

04:14:02,399 --> 04:14:09,110

uh

1955

04:14:13,030 --> 04:14:11,670

i'm sorry for you again farmer

1956

04:14:17,990 --> 04:14:13,040

yeah we're just looking for a status

1957

04:14:18,000 --> 04:14:23,110

on what

1958

04:14:27,990 --> 04:14:24,149

yeah we just didn't hear you for a

1959

04:14:28,000 --> 04:14:32,710

okay

1960

04:14:38,309 --> 04:14:35,429

apple released 13 turns

1961

04:14:40,229 --> 04:14:38,319

copy that we're 30 seconds from an los

1962

04:14:42,550 --> 04:14:40,239

verify the camera group is tethered and

1963

04:14:44,469 --> 04:14:42,560

then same pgt settings bravo one

1964

04:14:50,070 --> 04:14:44,479

counterclockwise two you can release the

1965

04:14:53,670 --> 04:14:52,389

31 turns on the primary voltage

1966

04:15:19,590 --> 04:14:53,680

is tethered

1967

04:15:24,389 --> 04:15:21,590

currently in another satellite handover

1968

04:15:26,149 --> 04:15:24,399

and we will regain video communications

1969

04:15:31,030 --> 04:15:26,159

with the international space station and

1970

04:15:35,429 --> 04:15:32,950

meanwhile we are coming up on one hour

1971

04:15:39,030 --> 04:15:35,439

and fifty five zero minutes into today's

1972

04:15:40,469 --> 04:15:39,040

spacewalk to begin at 6 56 a.m central

1973

04:15:44,389 --> 04:15:40,479

time

1974

04:15:47,349 --> 04:15:44,399

moved smoothly through their tasks first

1975

04:15:49,269 --> 04:15:47,359

securing the final lithium-ion battery

1976
04:15:51,429 --> 04:15:49,279
into the international space station and

1977
04:15:53,510 --> 04:15:51,439
installing the final adapter plate

1978
04:15:55,269 --> 04:15:53,520
connecting that battery and completing

1979
04:15:57,750 --> 04:15:55,279
the power circuit

1980
04:16:00,070 --> 04:15:57,760
that completes the power work that began

1981
04:16:01,750 --> 04:16:00,080
in january 2017

1982
04:16:03,429 --> 04:16:01,760
updating the batteries aboard the

1983
04:16:07,110 --> 04:16:03,439
international space station from nickel

1984
04:16:11,590 --> 04:16:08,870
victor glover installed the final bolt

1985
04:16:14,389 --> 04:16:11,600
in the direct current switching unit and

1986
04:16:19,030 --> 04:16:14,399
mike hawkins removed the h fixture that

1987
04:16:25,750 --> 04:16:20,309
it wants to come out so i'm just going

1988
04:16:40,229 --> 04:16:26,950

okay

1989

04:16:45,510 --> 04:16:40,950

the

1990

04:16:47,510 --> 04:16:45,520

no vent pins good

1991

04:16:49,750 --> 04:16:47,520

engine and uh

1992

04:16:51,030 --> 04:16:49,760

tvcg side i'm handing it off to hopper

1993

04:16:52,550 --> 04:16:51,040

now

1994

04:17:01,110 --> 04:16:52,560

i love it

1995

04:17:04,870 --> 04:17:03,189

okay hopper once you attempt stowed that

1996

04:17:07,110 --> 04:17:04,880

then you can go ahead and transfer the

1997

04:17:08,790 --> 04:17:07,120

spare camera group over to ike and then

1998

04:17:10,389 --> 04:17:08,800

we'll need the blind mate connect or the

1999

04:17:16,389 --> 04:17:10,399

inspections for the blind connectors on

2000

04:17:20,309 --> 04:17:17,990

and i could look like one of the ta

2001

04:17:23,110 --> 04:17:20,319

clamps

2002

04:17:26,790 --> 04:17:23,120

probably in the airlock team i'm done

2003

04:17:29,349 --> 04:17:26,800

okay if we can just double check that

2004

04:17:33,990 --> 04:17:29,359

okay one by four

2005

04:17:39,830 --> 04:17:36,070

this view from the space station looking

2006

04:17:51,110 --> 04:17:39,840

down 265 miles over ukraine

2007

04:17:54,950 --> 04:17:53,349

and in about five minutes we will see

2008

04:17:57,189 --> 04:17:54,960

the astronauts cross over into an

2009

04:17:59,189 --> 04:17:57,199

orbital night time this question from

2010

04:18:01,269 --> 04:17:59,199

daniel bolnick actually has 12 year old

2011

04:18:02,950 --> 04:18:01,279

daughter who wants to know how cold it

2012

04:18:04,950 --> 04:18:02,960

is outside the international space

2013

04:18:10,149 --> 04:18:04,960

station and what the suits are made of

2014

04:18:14,229 --> 04:18:12,950

in the sunlight it can be 250 degrees

2015

04:18:17,110 --> 04:18:14,239

and without sunlight it can be a

2016

04:18:18,710 --> 04:18:17,120

negative 250 degrees fahrenheit

2017

04:18:20,309 --> 04:18:18,720

the astronauts have a cooling garment

2018

04:18:21,830 --> 04:18:20,319

underneath their spacesuits that they

2019

04:18:23,910 --> 04:18:21,840

can control the temperature to keep them

2020

04:18:26,309 --> 04:18:23,920

cool during the sunlight and also a

2021

04:18:27,349 --> 04:18:26,319

thermal garment to keep them warm when

2022

04:18:44,309 --> 04:18:27,359

they enter

2023

04:18:49,110 --> 04:18:46,630

you wanna give your lean back more say

2024

04:18:50,469 --> 04:18:49,120

again can you lean back more absolutely

2025

04:18:52,070 --> 04:18:50,479

yeah if you want to just lean back it's

2026

04:19:00,070 --> 04:18:52,080

going to be right next to you

2027

04:19:00,080 --> 04:19:12,710

right to the adjustable project

2028

04:19:12,720 --> 04:19:19,349

perfect

2029

04:19:21,910 --> 04:19:20,389

okay

2030

04:19:23,590 --> 04:19:21,920

and uh

2031

04:19:25,590 --> 04:19:23,600

you can check that ta clamp while it's

2032

04:19:26,950 --> 04:19:25,600

here and stable okay where was it you

2033

04:19:34,149 --> 04:19:26,960

were talking about now i think on the

2034

04:19:41,429 --> 04:19:35,670

oh yes okay

2035

04:19:41,439 --> 04:19:52,790

they're luckily still in

2036

04:19:56,950 --> 04:19:55,110

there's a very lightly uh

2037

04:19:58,710 --> 04:19:56,960

it's one that will pop open easily but

2038

04:20:00,710 --> 04:19:58,720

they're in and it's clamped

2039

04:20:03,670 --> 04:20:00,720

okay okay

2040

04:20:05,670 --> 04:20:03,680

so i've got a rip to it all right maybe

2041

04:20:07,830 --> 04:20:05,680

a medium ru bag

2042

04:20:08,710 --> 04:20:07,840

okay ready to swap i'm ready to swap if

2043

04:20:11,030 --> 04:20:08,720

you want to

2044

04:20:14,229 --> 04:20:11,040

that's your red okay you just let it go

2045

04:20:16,070 --> 04:20:14,239

okay and can you pop the handle yep

2046

04:20:18,070 --> 04:20:16,080

that's nice

2047

04:20:24,229 --> 04:20:18,080

there you go i got this roll i've got

2048

04:20:28,710 --> 04:20:27,110

work makes the dream work we're good

2049

04:20:34,870 --> 04:20:28,720

all right so the station side is still

2050

04:20:37,830 --> 04:20:36,070

good

2051

04:20:46,550 --> 04:20:37,840

mixers on the back of it

2052

04:20:49,110 --> 04:20:47,910

okay copy that sounds like a good

2053

04:20:51,910 --> 04:20:49,120

inspection

2054

04:20:54,469 --> 04:20:51,920

also push in and rotate the p2 lock

2055

04:21:01,670 --> 04:20:54,479

lever to unlock and verify that it pops

2056

04:21:06,830 --> 04:21:04,229

then that works yep

2057

04:21:09,750 --> 04:21:06,840

on the pgg too for the

2058

04:21:11,429 --> 04:21:09,760

vrt copy and hopper you're going to

2059

04:21:13,670 --> 04:21:11,439

translate over to handrail unlock them

2060

04:21:15,910 --> 04:21:13,680

talk about

2061

04:21:17,670 --> 04:21:15,920

handrail three two two two uh and

2062

04:21:22,630 --> 04:21:17,680

release the ethernet cable cap and put

2063

04:21:22,640 --> 04:21:25,510

it works

2064

04:21:30,309 --> 04:21:28,790

and i copy the ptu lever is popped out

2065

04:21:39,510 --> 04:21:30,319

next you're going to verify the nzg of

2066

04:21:39,520 --> 04:21:49,030

opinion works

2067

04:21:54,550 --> 04:21:51,349

all of the mvto bills are native levers

2068

04:21:57,750 --> 04:21:56,149

okay you can install the camera group on

2069

04:22:40,229 --> 04:21:57,760

the stanchion sliding along the guide

2070

04:22:44,710 --> 04:22:43,030

all right it is soft enough

2071

04:22:53,750 --> 04:22:44,720

okay you can retrieve your pgt we're

2072

04:22:53,760 --> 04:23:09,030

clockwise too

2073

04:23:14,389 --> 04:23:12,710

bravo one clockwise two is set

2074

04:23:16,469 --> 04:23:14,399

okay and just a reminder that when we're

2075

04:23:19,030 --> 04:23:16,479

driving these bolts we need to hold the

2076

04:23:20,790 --> 04:23:19,040

pgt trigger continuously until the

2077

04:23:22,550 --> 04:23:20,800

number of turns is reached if you

2078

04:23:24,550 --> 04:23:22,560

release the trigger

2079

04:23:26,309 --> 04:23:24,560

let us know report the running torque to

2080

04:23:31,750 --> 04:23:26,319

us and we'll give you a new pgt setting

2081

04:23:35,910 --> 04:23:33,349

copy that

2082

04:23:37,750 --> 04:23:35,920

thanks for the reminder

2083

04:23:40,070 --> 04:23:37,760

all right first bolt is going to be the

2084

04:23:42,790 --> 04:23:40,080

primary bolt we're going to drive it 23

2085

04:23:58,070 --> 04:23:42,800

turns only report turns and running

2086

04:24:03,429 --> 04:24:00,309

victor glover now driving the first of

2087

04:24:04,630 --> 04:24:03,439

three bolts to install this new hd

2088

04:24:06,950 --> 04:24:04,640

camera

2089

04:24:33,830 --> 04:24:06,960

on the starboard truss specifically the

2090

04:24:33,840 --> 04:24:41,349

actual torque zero decimal eight

2091

04:24:45,830 --> 04:24:43,030

or it might be zero

2092

04:24:45,840 --> 04:24:49,110

no zero decimal eight

2093

04:24:50,790 --> 04:24:49,990

copy

2094

04:25:06,149 --> 04:24:50,800

zero

2095

04:25:16,710 --> 04:25:09,429

okay i can tgt settings now alpha one

2096

04:25:22,630 --> 04:25:19,510

switch from bravo to alpha one

2097

04:25:23,990 --> 04:25:22,640

clockwise two sets

2098

04:25:26,309 --> 04:25:24,000

okay good words you're going to drive

2099

04:25:29,189 --> 04:25:26,319

the primary bolt to torque should be at

2100

04:25:34,870 --> 04:25:29,199

least one and a half turns report

2101
04:25:34,880 --> 04:25:55,830
okay

2102
04:25:55,840 --> 04:25:59,110
six more turns

2103
04:25:59,120 --> 04:26:16,149
green light 2.3 on the torch

2104
04:26:19,030 --> 04:26:17,349
okay

2105
04:26:24,790 --> 04:26:19,040
can you read that torque one more time

2106
04:26:29,030 --> 04:26:27,269
six uh sorry the torque was two decimal

2107
04:26:32,070 --> 04:26:29,040
three actual torque

2108
04:26:34,229 --> 04:26:32,080
2.3 that's for alpha one

2109
04:26:36,870 --> 04:26:34,239
clockwise two

2110
04:26:39,030 --> 04:26:36,880
program torque is 2.5

2111
04:26:39,910 --> 04:26:39,040
okay copy that that's a uh that's a good

2112
04:26:41,349 --> 04:26:39,920
bolt

2113
04:26:44,229 --> 04:26:41,359

i can go ahead and

2114

04:26:49,550 --> 04:26:44,239

hand off the wax cable to hopper if he

2115

04:26:49,560 --> 04:27:00,149

already stand by

2116

04:27:00,159 --> 04:27:16,229

um

2117

04:27:16,239 --> 04:27:28,070

okay

2118

04:27:31,750 --> 04:27:29,990

and stay out of your work space uh

2119

04:27:34,309 --> 04:27:31,760

you're fine do what you got to do

2120

04:27:38,229 --> 04:27:34,319

your work space now

2121

04:27:42,229 --> 04:27:39,670

the lab cable's right here though so

2122

04:27:44,469 --> 04:27:42,239

when you need it i can you know

2123

04:27:49,830 --> 04:27:44,479

okay i can reach that out so yeah if you

2124

04:28:04,070 --> 04:27:51,590

this whole thing or this this one's just

2125

04:28:04,080 --> 04:28:26,149

i actually probably need another

2126
04:28:26,159 --> 04:28:32,070
okay okay

2127
04:28:35,349 --> 04:28:33,910
with the whole thing or just

2128
04:28:40,149 --> 04:28:35,359
well we're gonna

2129
04:28:47,269 --> 04:28:43,110
and then the lock cable

2130
04:28:54,790 --> 04:28:47,279
let me put this space back in here okay

2131
04:28:58,309 --> 04:28:56,630
and hopper once you get the lap cable

2132
04:29:00,630 --> 04:28:58,319
you're going to put the cap from the wap

2133
04:29:02,950 --> 04:29:00,640
side in your trash bag and then you can

2134
04:29:04,550 --> 04:29:02,960
mate the ethernet cable to the lap cable

2135
04:29:12,389 --> 04:29:04,560
and sew the slack away back on the

2136
04:29:15,429 --> 04:29:13,269
so

2137
04:29:17,590 --> 04:29:15,439
i think it needs to come behind this

2138
04:29:19,990 --> 04:29:17,600

engine yeah would you believe it it's

2139

04:29:21,830 --> 04:29:20,000

kind of on my side right now but

2140

04:29:28,469 --> 04:29:21,840

over on the other side maybe underneath

2141

04:29:33,510 --> 04:29:29,750

yeah

2142

04:29:37,110 --> 04:29:36,149

caught on my uh my wrist okay

2143

04:29:39,429 --> 04:29:37,120

got it

2144

04:29:42,149 --> 04:29:39,439

as a glover continues driving the bolts

2145

04:29:44,630 --> 04:29:42,159

to secure the new camera

2146

04:29:47,030 --> 04:29:44,640

your french hook is parallel to these

2147

04:29:51,189 --> 04:29:47,040

benches okay i have them so

2148

04:29:55,030 --> 04:29:53,269

hopkins is routing an ethernet cable

2149

04:29:57,910 --> 04:29:55,040

routed on a previous spacewalk he's

2150

04:29:59,910 --> 04:29:57,920

mating that cable cable with the wap

2151
04:30:07,189 --> 04:29:59,920
cable standing for a wireless access

2152
04:30:25,750 --> 04:30:09,269
now two hours and four minutes into

2153
04:30:25,760 --> 04:30:34,149
okay cap is removed

2154
04:30:34,159 --> 04:30:49,349
and i see no fod

2155
04:31:05,269 --> 04:30:51,110
copy that good inspection you got to go

2156
04:31:05,279 --> 04:31:12,710
okay mated over sooner

2157
04:31:16,630 --> 04:31:14,309
okay copy that you can stow the slack

2158
04:31:18,710 --> 04:31:16,640
away we're about 30 seconds from an los

2159
04:31:21,510 --> 04:31:18,720
but uh ike if you want to get your pgt

2160
04:31:23,189 --> 04:31:21,520
ready uh bravo one clockwise two and

2161
04:31:29,990 --> 04:31:23,199
we'll meet you on the other side of the

2162
04:31:30,000 --> 04:31:47,349
all right so i'm going to kind of

2163
04:31:56,950 --> 04:31:49,910

this wax strap actually did come off

2164

04:32:00,309 --> 04:31:58,630

and we're currently in a brief handover

2165

04:32:03,030 --> 04:32:00,319

period with our satellites aboard the

2166

04:32:04,710 --> 04:32:03,040

international space station

2167

04:32:06,710 --> 04:32:04,720

we also have an ask nasa question this

2168

04:32:08,870 --> 04:32:06,720

one from justin wondering if the suits

2169

04:32:10,630 --> 04:32:08,880

have any kind of emergency propulsion

2170

04:32:12,070 --> 04:32:10,640

system built in

2171

04:32:14,229 --> 04:32:12,080

if you get to watch the beginning of the

2172

04:32:15,590 --> 04:32:14,239

spacewalk as the astronauts are suiting

2173

04:32:17,990 --> 04:32:15,600

up they put on something called the

2174

04:32:19,110 --> 04:32:18,000

safer or the simplified aid for eva

2175

04:32:21,349 --> 04:32:19,120

rescue

2176
04:32:23,830 --> 04:32:21,359
this is a nitrogen compressed backpack

2177
04:32:25,830 --> 04:32:23,840
that essentially if need be would allow

2178
04:32:27,510 --> 04:32:25,840
the astronauts to maneuver back toward

2179
04:32:29,349 --> 04:32:27,520
the station if they were to become

2180
04:32:30,790 --> 04:32:29,359
detached for some reason

2181
04:32:32,229 --> 04:32:30,800
however the astronauts are always

2182
04:32:33,510 --> 04:32:32,239
tethered to the international space

2183
04:32:36,550 --> 04:32:33,520
station so

2184
04:32:38,790 --> 04:32:36,560
we don't ever expect the safer to need

2185
04:32:43,830 --> 04:32:38,800
to be used however it is there just in

2186
04:32:43,840 --> 04:32:48,229
bravo one clockwise

2187
04:32:53,110 --> 04:32:50,149
okay and we're going to drive the

2188
04:33:01,349 --> 04:32:53,120

forward secondary bolt five turns only

2189

04:33:01,359 --> 04:33:05,510

okay forward and then station forward

2190

04:33:05,520 --> 04:33:08,789

okay firm

2191

04:33:13,429 --> 04:33:12,470

okay station four volts i've got bravo

2192

04:33:15,349 --> 04:33:13,439

one

2193

04:33:17,349 --> 04:33:15,359

clockwise two sets

2194

04:33:18,869 --> 04:33:17,359

five turns and then you get running

2195

04:33:27,910 --> 04:33:18,879

torque

2196

04:33:27,920 --> 04:33:55,510

work

2197

04:33:59,910 --> 04:33:57,670

five turns on the forward bolt

2198

04:34:12,070 --> 04:33:59,920

does appear to be started running torque

2199

04:34:12,080 --> 04:34:27,670

copy 0.1 standby

2200

04:34:30,709 --> 04:34:29,189

and ike did you say you thought you

2201
04:34:31,830 --> 04:34:30,719
weren't sure if the bolt was actually

2202
04:34:35,269 --> 04:34:31,840
turning

2203
04:34:35,279 --> 04:34:43,910
the bolt is engaged it is engaged

2204
04:34:46,629 --> 04:34:44,789
okay

2205
04:34:48,709 --> 04:34:46,639
copy that

2206
04:34:49,590 --> 04:34:48,719
so uh 0.1 on the torque we're going to

2207
04:34:52,830 --> 04:34:49,600
go

2208
04:35:03,109 --> 04:34:52,840
at

2209
04:35:03,119 --> 04:35:08,789
happy it works

2210
04:35:18,551 --> 04:35:11,830
okay i've got the npl set of 2.5

2211
04:35:18,561 --> 04:35:46,709
standby one

2212
04:35:51,750 --> 04:35:48,230
and i actually want to just double check

2213
04:35:56,470 --> 04:35:51,760

your happy spill with that

2214

04:36:00,150 --> 04:35:58,310

you've pretty much got the lap cable

2215

04:36:01,830 --> 04:36:00,160

extended to the racetrack

2216

04:36:03,269 --> 04:36:01,840

yeah i imagine that's what the other one

2217

04:36:05,429 --> 04:36:03,279

will be like

2218

04:36:06,789 --> 04:36:05,439

after it went uh

2219

04:36:09,510 --> 04:36:06,799

and then i just looped it all right

2220

04:36:11,750 --> 04:36:09,520

there yeah right most of this extra came

2221

04:36:13,830 --> 04:36:11,760

from from this bundle yeah from napa and

2222

04:36:16,830 --> 04:36:13,840

also not

2223

04:36:21,510 --> 04:36:19,750

same and i can hopper the uh they're

2224

04:36:23,349 --> 04:36:21,520

double checking on the setting for the

2225

04:36:25,189 --> 04:36:23,359

mtl uh we think you can leave it where

2226

04:36:27,269 --> 04:36:25,199

it's at uh and proceed but we'll get

2227

04:36:28,629 --> 04:36:27,279

back to you on that uh right before the

2228

04:36:30,470 --> 04:36:28,639

los though we heard you guys say

2229

04:36:35,670 --> 04:36:30,480

something about the lap table can you

2230

04:36:38,949 --> 04:36:37,189

we were just double checking to make

2231

04:36:40,629 --> 04:36:38,959

sure i got the wire tied down it's on

2232

04:36:42,310 --> 04:36:40,639

the race track

2233

04:36:43,830 --> 04:36:42,320

and i just was double checking with ike

2234

04:36:45,349 --> 04:36:43,840

to make sure the french hook was still

2235

04:36:50,789 --> 04:36:45,359

on a good config

2236

04:36:50,799 --> 04:36:57,029

okay copy all thanks

2237

04:37:02,949 --> 04:37:00,789

i mean we can do the ping test

2238

04:37:04,470 --> 04:37:02,959

i think we should right well i guess we

2239

04:37:06,551 --> 04:37:04,480

gotta install it first i gotta finish

2240

04:37:07,830 --> 04:37:06,561

this

2241

04:37:09,670 --> 04:37:07,840

i thought you could

2242

04:37:11,189 --> 04:37:09,680

i don't know now what do you think from

2243

04:37:14,310 --> 04:37:11,199

an inspection standpoint you're gonna be

2244

04:37:16,230 --> 04:37:14,320

able to do it do you need to

2245

04:37:18,070 --> 04:37:16,240

we gotta inspect the

2246

04:37:20,230 --> 04:37:18,080

strap

2247

04:37:25,590 --> 04:37:20,240

the clamps

2248

04:37:27,990 --> 04:37:25,600

how about the pa clamp so they're back

2249

04:37:31,830 --> 04:37:28,000

ta clamps

2250

04:37:34,629 --> 04:37:31,840

ptu clamp

2251

04:37:35,990 --> 04:37:34,639

and i can see and reach the strap so

2252

04:37:37,990 --> 04:37:36,000

i think i can

2253

04:37:39,670 --> 04:37:38,000

do the same so all the inspection you're

2254

04:37:43,830 --> 04:37:39,680

in a good position okay for them and i

2255

04:37:47,590 --> 04:37:45,990

like i said the tie down kit the wax

2256

04:37:50,869 --> 04:37:47,600

trap came loose

2257

04:37:54,070 --> 04:37:50,879

i was able to sit you back down okay

2258

04:37:56,869 --> 04:37:54,080

so farmer based on ike's uh assessment

2259

04:37:59,029 --> 04:37:56,879

there that he thinks he can

2260

04:38:01,910 --> 04:37:59,039

do all those inspections are you okay if

2261

04:38:07,109 --> 04:38:01,920

i uh start heading back get the failed

2262

04:38:11,590 --> 04:38:08,629

yeah a firm hopper that sounds like a

2263

04:38:13,269 --> 04:38:11,600

good plan so i you can

2264

04:38:16,310 --> 04:38:13,279

take the old camera group with you back

2265

04:38:16,320 --> 04:38:19,830

hey

2266

04:38:19,840 --> 04:38:25,750

that didn't work

2267

04:38:25,760 --> 04:39:01,750

um

2268

04:39:06,629 --> 04:39:04,789

nasa astronaut mike hopkins

2269

04:39:08,789 --> 04:39:06,639

this view from his helmet camera now

2270

04:39:10,949 --> 04:39:08,799

heading back to the airlock once again

2271

04:39:13,830 --> 04:39:10,959

he's going to stow the camera the failed

2272

04:39:16,230 --> 04:39:13,840

camera that was just removed

2273

04:39:18,830 --> 04:39:16,240

and he's going to retrieve the camera

2274

04:39:20,470 --> 04:39:18,840

and equipment needed to

2275

04:39:22,070 --> 04:39:20,480

install

2276

04:39:24,230 --> 04:39:22,080

the new components for the japanese

2277

04:39:37,350 --> 04:39:24,240

robotic arms camera system outside the

2278

04:39:46,830 --> 04:39:39,510

all right i'm clear of you all right

2279

04:39:51,670 --> 04:39:49,830

you we're two hours and 13 minutes into

2280

04:39:53,910 --> 04:39:51,680

today's spacewalk with the international

2281

04:40:02,230 --> 04:39:53,920

space station flying in an orbital night

2282

04:40:02,240 --> 04:40:06,868

okay um

2283

04:40:13,270 --> 04:40:08,948

okay roger that

2284

04:40:15,590 --> 04:40:13,280

i'm in the mtl of 2.5 like you told me

2285

04:40:17,110 --> 04:40:15,600

i'm not quite following but what which

2286

04:40:18,788 --> 04:40:17,120

one we do

2287

04:40:20,150 --> 04:40:18,798

yeah you're doing the right thing uh and

2288

04:40:21,030 --> 04:40:20,160

that's the setting that we're looking at

2289

04:40:24,948 --> 04:40:21,040

we're just having some other

2290

04:40:28,628 --> 04:40:26,788

anybody or any possibility you can do to

2291

04:40:35,670 --> 04:40:28,638

think that we'll have to finish these

2292

04:40:38,708 --> 04:40:37,350

yeah yeah unfortunately we have to

2293

04:41:03,590 --> 04:40:38,718

complete all these steps before we can

2294

04:41:09,510 --> 04:41:05,750

nasa astronaut victor glover continues

2295

04:41:11,270 --> 04:41:09,520

work on the cp3 camera installation

2296

04:41:12,550 --> 04:41:11,280

and in the meantime we have a question

2297

04:41:14,470 --> 04:41:12,560

from amal

2298

04:41:15,830 --> 04:41:14,480

on twitter you can use the hashtag ask

2299

04:41:17,030 --> 04:41:15,840

nasa and we'll try to answer your

2300

04:41:18,788 --> 04:41:17,040

questions

2301
04:41:20,550 --> 04:41:18,798
this question what's the main objective

2302
04:41:22,070 --> 04:41:20,560
for this spacewalk we're watching one of

2303
04:41:23,590 --> 04:41:22,080
them right now when we've seen a few

2304
04:41:27,270 --> 04:41:23,600
others happen

2305
04:41:29,270 --> 04:41:27,280
today we relocated the adapter plate

2306
04:41:30,310 --> 04:41:29,280
the final adapter plate needed for

2307
04:41:32,150 --> 04:41:30,320
battery upgrades aboard the

2308
04:41:35,190 --> 04:41:32,160
international space station and also

2309
04:41:37,590 --> 04:41:35,200
secured the final lithium-ion battery on

2310
04:41:39,110 --> 04:41:37,600
the space station

2311
04:41:40,470 --> 04:41:39,120
there's a lot of camera work happening

2312
04:41:42,310 --> 04:41:40,480
today as well

2313
04:41:47,190 --> 04:41:42,320

including the camera work that victor

2314

04:41:51,990 --> 04:41:49,430

that camera is replacing an external

2315

04:41:54,708 --> 04:41:52,000

camera on the starboard truss

2316

04:41:57,750 --> 04:41:54,718

another camera will be installed hd on

2317

04:41:59,990 --> 04:41:57,760

the destiny laboratory

2318

04:42:02,550 --> 04:42:00,000

as well as the japanese robotic arms

2319

04:42:10,230 --> 04:42:02,560

camera system will be updated outside of

2320

04:42:13,590 --> 04:42:11,830

okay cathy but what about the uh you

2321

04:42:16,708 --> 04:42:13,600

know alpha bravo one through seven do

2322

04:42:18,310 --> 04:42:16,718

you want me to change any of that

2323

04:42:19,990 --> 04:42:18,320

i get the npo limits but what do you

2324

04:42:26,788 --> 04:42:20,000

want me to keep saying i'm currently in

2325

04:42:35,110 --> 04:42:28,868

set that to alpha one so it'll be mtl

2326

04:42:35,120 --> 04:42:55,430

work

2327

04:43:01,350 --> 04:42:59,830

cl 2.5 alpha 1 clockwise 2.

2328

04:43:03,190 --> 04:43:01,360

this is the torque

2329

04:43:05,030 --> 04:43:03,200

a firm we're going to drive the forward

2330

04:43:06,550 --> 04:43:05,040

bolt to torque should be at least two

2331

04:43:08,150 --> 04:43:06,560

additional turns

2332

04:43:09,910 --> 04:43:08,160

and we're not

2333

04:43:23,190 --> 04:43:09,920

not expecting a green light necessarily

2334

04:43:28,310 --> 04:43:26,230

okay so what it did is that uh

2335

04:43:30,310 --> 04:43:28,320

four and a half turns it started to wrap

2336

04:43:36,390 --> 04:43:30,320

it

2337

04:43:36,400 --> 04:43:39,830

the uh the russians

2338

04:43:54,868 --> 04:43:41,510

the part that turns continued to turn

2339

04:43:59,910 --> 04:43:56,948

okay like uh copy four makes sense a

2340

04:44:04,470 --> 04:43:59,920

firm four decimal five turns and

2341

04:44:09,910 --> 04:44:07,430

2.3

2342

04:44:25,030 --> 04:44:09,920

and the the forward pull it appears to

2343

04:44:28,708 --> 04:44:26,708

and we're double checking on that but

2344

04:44:48,708 --> 04:44:28,718

that sounds good for now so stand by one

2345

04:44:54,230 --> 04:44:52,150

oh that's living treating hopper

2346

04:44:56,310 --> 04:44:54,240

throwing me around but i think i got it

2347

04:44:58,230 --> 04:44:56,320

under control

2348

04:45:01,030 --> 04:44:58,240

i'm almost at the uh see the story

2349

04:45:05,350 --> 04:45:02,868

okay ike

2350

04:45:07,910 --> 04:45:05,360

that is a good install so we can proceed

2351
04:45:11,110 --> 04:45:07,920
to the next bolt uh the pgt you're gonna

2352
04:45:18,788 --> 04:45:11,120
have to reset the mtl to 30.5 and then

2353
04:45:18,798 --> 04:45:34,788
works

2354
04:45:41,350 --> 04:45:38,628
bravo one clockwise two was it

2355
04:45:43,030 --> 04:45:41,360
yep good words bravo one clockwise two

2356
04:45:47,270 --> 04:45:43,040
we're going to be driving the aft bolt

2357
04:45:47,280 --> 04:45:50,628
level one clockwise two

2358
04:45:50,638 --> 04:45:53,270
hot

2359
04:46:04,070 --> 04:45:54,868
good words and we'll look for turns and

2360
04:46:09,990 --> 04:46:07,430
that turns on the asphalt

2361
04:46:19,030 --> 04:46:10,000
the asphalt is engaged

2362
04:46:39,350 --> 04:46:21,350
copy five turns and understand zero

2363
04:46:43,430 --> 04:46:41,270

two hours and 20 minutes into today's

2364

04:46:44,788 --> 04:46:43,440

spacewalk nasa astronaut victor glover

2365

04:46:47,670 --> 04:46:44,798

continues work

2366

04:46:50,868 --> 04:46:47,680

on the cp3 cameras ensuring they are

2367

04:46:50,878 --> 04:46:55,670

and then alpha one clockwise two

2368

04:46:55,680 --> 04:47:07,830

works

2369

04:47:11,910 --> 04:47:10,070

meanwhile nasa astronaut mike hopkins is

2370

04:47:13,990 --> 04:47:11,920

back at the airlock installing the

2371

04:47:17,110 --> 04:47:14,000

failed camera group

2372

04:47:19,750 --> 04:47:17,120

he's also retrieving the necessary

2373

04:47:35,990 --> 04:47:19,760

components for the japanese experiment

2374

04:47:41,190 --> 04:47:37,830

a7 burns

2375

04:47:45,510 --> 04:47:41,200

torque is 2.1

2376

04:47:45,520 --> 04:47:50,470

hold this flush

2377

04:47:53,510 --> 04:47:52,390

okay great that's a that is a good

2378

04:47:55,510 --> 04:47:53,520

install you can go ahead and put your

2379

04:48:09,310 --> 04:47:55,520

pgt on your swing arm and we'll get

2380

04:48:09,320 --> 04:48:21,030

okay stokes

2381

04:48:25,030 --> 04:48:23,030

and hopper we see you putting the

2382

04:48:26,390 --> 04:48:25,040

the camera group into the airlock a

2383

04:48:27,430 --> 04:48:26,400

reminder once you get it in there you're

2384

04:48:30,230 --> 04:48:27,440

going to

2385

04:49:57,590 --> 04:48:30,240

swap the round scoop from the camera

2386

04:50:00,470 --> 04:49:58,948

all right let me know when you're ready

2387

04:50:06,550 --> 04:50:00,480

for uh these

2388

04:50:09,350 --> 04:50:07,750

okay first thing we're going to look for

2389

04:50:12,150 --> 04:50:09,360

is that the wax strap is configured

2390

04:50:13,190 --> 04:50:12,160

correctly and cinched down and uh double

2391

04:50:16,390 --> 04:50:13,200

check the french hook that you were

2392

04:50:21,190 --> 04:50:18,390

it is cinched and the french hook is

2393

04:50:22,150 --> 04:50:21,200

parallel to the stanchion

2394

04:50:25,110 --> 04:50:22,160

okay

2395

04:50:30,788 --> 04:50:25,120

verify the wap and ptu cables go through

2396

04:50:35,110 --> 04:50:31,990

there are through the restraint the

2397

04:50:38,708 --> 04:50:36,868

and verify that the cable clamp is

2398

04:50:46,070 --> 04:50:38,718

configured correctly with both the ta

2399

04:50:51,750 --> 04:50:48,550

which well so the ptu clamp is converted

2400

04:50:54,470 --> 04:50:51,760

configured correctly the e8 uh the

2401
04:50:56,470 --> 04:50:54,480
hi-def camera ta clamp is correct it's

2402
04:50:59,190 --> 04:50:56,480
got two cables through it it's closed

2403
04:51:00,868 --> 04:50:59,200
and then it's got a wire tied to the uh

2404
04:51:04,628 --> 04:51:00,878
the jumper cable going to the light i

2405
04:51:06,150 --> 04:51:04,638
believe and it's always secure

2406
04:51:07,590 --> 04:51:06,160
okay copy that and just to clarify the

2407
04:51:09,030 --> 04:51:07,600
cable clamp we're referring to is the

2408
04:51:11,110 --> 04:51:09,040
one that has that little locking lever

2409
04:51:13,750 --> 04:51:11,120
on it that goes right in the uh the base

2410
04:51:16,868 --> 04:51:13,760
of where the light intersects the ptu

2411
04:51:21,350 --> 04:51:18,550
i just gave you both of them

2412
04:51:23,910 --> 04:51:21,360
okay copy that

2413
04:51:25,990 --> 04:51:23,920

next is you can release the window cover

2414

04:52:16,868 --> 04:51:26,000

and the round scoop and sew them in the

2415

04:52:22,550 --> 04:52:18,628

okay the camera cover and the round

2416

04:52:23,830 --> 04:52:22,560

scoop are in the rv bag

2417

04:52:25,830 --> 04:52:23,840

and the adjustable that they were

2418

04:52:28,230 --> 04:52:25,840

connected to

2419

04:52:34,708 --> 04:52:28,240

okay copy that and then verify that the

2420

04:52:34,718 --> 04:52:40,070

square

2421

04:52:45,270 --> 04:52:41,030

okay

2422

04:52:47,430 --> 04:52:45,280

it we'll go ahead and start this the

2423

04:52:49,430 --> 04:52:47,440

ping test and then

2424

04:52:53,670 --> 04:52:49,440

you can start moving the arm out to the

2425

04:52:57,510 --> 04:52:55,830

all right uh farmer feed away kate

2426

04:53:00,230 --> 04:52:57,520

solici you have to go

2427

04:53:02,070 --> 04:53:00,240

to maneuver tools

2428

04:53:04,150 --> 04:53:02,080

and i are clear

2429

04:53:42,230 --> 04:53:04,160

okay copy this is go for the maneuver to

2430

04:53:46,390 --> 04:53:44,310

move your body right first bend the body

2431

04:54:00,788 --> 04:53:46,400

down obviously motion

2432

04:54:06,390 --> 04:54:03,750

and uh i could take the chris call as

2433

04:54:08,550 --> 04:54:06,400

well during the dark now okay yep i'm

2434

04:54:10,470 --> 04:54:08,560

clear of the light so you guys uh

2435

04:54:12,628 --> 04:54:10,480

including on the boot plate ingress

2436

04:54:24,470 --> 04:54:12,638

eight nine are clear can you

2437

04:54:28,230 --> 04:54:26,550

we're clear of the camera group

2438

04:54:52,070 --> 04:54:28,240

stop you kind of move down now bring

2439

04:54:56,948 --> 04:54:53,750

nasa astronaut victor glover has

2440

04:54:58,628 --> 04:54:56,958

completed installation of the cp3 camera

2441

04:55:00,628 --> 04:54:58,638

replacing an external camera on the

2442

04:55:03,270 --> 04:55:00,638

starboard truss

2443

04:55:05,590 --> 04:55:03,280

this is a new hd camera and replaces a

2444

04:55:19,110 --> 04:55:05,600

pink hued camera you might have uh

2445

04:55:22,628 --> 04:55:20,708

as you can see there is still on the end

2446

04:55:24,230 --> 04:55:22,638

of the canada arm 2 being controlled

2447

04:55:38,470 --> 04:55:24,240

robotically from inside the space

2448

04:55:41,510 --> 04:55:40,628

hey guys got a day pass coming up in two

2449

04:55:43,190 --> 04:55:41,520

minutes

2450

04:55:48,788 --> 04:55:43,200

and we just got a good ping test on the

2451

04:55:48,798 --> 04:55:52,868

good news thank you

2452

04:55:57,350 --> 04:55:55,510

good news from ground iv bob heinz a

2453

04:55:59,430 --> 04:55:57,360

nasa astronaut here in mission control

2454

04:56:02,628 --> 04:55:59,440

houston relaying to the crew that the

2455

04:56:07,430 --> 04:56:02,638

cp3 camera was properly installed and is

2456

04:56:12,708 --> 04:56:09,670

i'm feedback to it

2457

04:56:16,150 --> 04:56:12,718

and i'm coming out to

2458

04:56:20,070 --> 04:56:18,070

we are two hours and 30 minutes into

2459

04:56:32,948 --> 04:56:20,080

today's spacewalk

2460

04:56:34,948 --> 04:56:32,958

was to secure the final lithium-ion

2461

04:56:38,390 --> 04:56:34,958

battery to the space station and install

2462

04:56:42,150 --> 04:56:40,150

those were also reportedly in a good

2463

04:56:43,830 --> 04:56:42,160

configuration and that completes the

2464

04:56:50,628 --> 04:56:43,840

battery work that began on the space

2465

04:56:53,670 --> 04:56:52,070

the crew members also installed the

2466

04:56:56,708 --> 04:56:53,680

final bolt in the direct current

2467

04:57:01,590 --> 04:56:56,718

switching unit and removed an h fixture

2468

04:57:07,670 --> 04:57:04,150

glover and hawkins just completed the

2469

04:57:11,670 --> 04:57:07,680

cp3 camera installation a brand new hd

2470

04:57:16,868 --> 04:57:14,628

and this view from hopkins helmet camera

2471

04:57:19,190 --> 04:57:16,878

as he leaves the airlock once again

2472

04:57:21,270 --> 04:57:19,200

after stowing the old

2473

04:57:23,670 --> 04:57:21,280

cp3 camera

2474

04:57:25,750 --> 04:57:23,680

and retrieving the materials necessary

2475

04:57:38,708 --> 04:57:25,760

for the japanese experiment module

2476
04:57:42,230 --> 04:57:40,550
glover will be working on a separate

2477
04:57:43,430 --> 04:57:42,240
camera and that'll be on the destiny

2478
04:58:00,948 --> 04:57:43,440
laboratory

2479
04:58:00,958 --> 04:58:24,470
um

2480
04:58:24,480 --> 04:58:29,750
creators are down firmer

2481
04:58:56,948 --> 04:58:31,430
okay copy that and uh glove and half

2482
04:59:01,270 --> 04:58:58,788
we're in a quick handover period these

2483
04:59:02,948 --> 04:59:01,280
are tracked and expected and we will

2484
04:59:05,750 --> 04:59:02,958
regain video with the international

2485
04:59:07,350 --> 04:59:05,760
space station shortly

2486
04:59:11,270 --> 04:59:07,360
there has pulled back just a little bit

2487
04:59:14,070 --> 04:59:11,280
more but there's rtd underneath

2488
04:59:15,510 --> 04:59:14,080

okay hopper we had a quick los rate uh

2489

04:59:20,070 --> 04:59:15,520

right in the middle of that so we copied

2490

04:59:24,150 --> 04:59:21,910

yeah just a little bit more fact that

2491

04:59:29,990 --> 04:59:24,160

there's rtb underneath

2492

04:59:33,270 --> 04:59:32,070

okay copy that hopper you can go ahead

2493

04:59:34,628 --> 04:59:33,280

then and

2494

04:59:36,070 --> 04:59:34,638

make sure the thermal hash coat or the

2495

04:59:38,788 --> 04:59:36,080

thermal cover is closed and then

2496

04:59:40,150 --> 04:59:38,798

translate out to the gym going across

2497

04:59:45,830 --> 04:59:40,160

the lab you're going to drop your green

2498

04:59:45,840 --> 04:59:50,390

one three one

2499

05:00:01,110 --> 04:59:52,708

as mike hopkins makes his way out to the

2500

05:00:15,670 --> 05:00:02,550

yeah it's based on we got a good thing

2501

05:00:15,680 --> 05:00:19,350

and another satellite handover

2502

05:00:23,030 --> 05:00:21,430

and another confirmation of a good ping

2503

05:00:24,550 --> 05:00:23,040

test on the camera that was just

2504

05:00:26,230 --> 05:00:24,560

installed

2505

05:00:28,150 --> 05:00:26,240

we have a question from

2506

05:00:31,190 --> 05:00:28,160

mcofficialplays

2507

05:00:33,910 --> 05:00:31,200

on twitter you can submit your question

2508

05:00:35,990 --> 05:00:33,920

ask nasa this one asking will there be

2509

05:00:39,190 --> 05:00:36,000

public views available from the new hd

2510

05:00:42,070 --> 05:00:39,200

camera being installed today

2511

05:00:44,788 --> 05:00:42,080

you may be familiar with a camera view

2512

05:00:46,310 --> 05:00:44,798

that previously looked magenta or pink

2513

05:00:48,150 --> 05:00:46,320

in color

2514

05:00:50,070 --> 05:00:48,160

that's the camera that was just replaced

2515

05:00:52,788 --> 05:00:50,080

by victor glover and mike hopkins with a

2516

05:01:03,110 --> 05:00:52,798

new hd camera so you may be able to get

2517

05:01:09,510 --> 05:01:04,470

okay

2518

05:01:24,868 --> 05:01:11,510

and i'm on face one you obviously know

2519

05:02:06,948 --> 05:01:42,390

uh

2520

05:02:16,070 --> 05:02:08,948

like this we have five-minute joke as to

2521

05:02:16,080 --> 05:02:34,550

good motion continues

2522

05:02:41,270 --> 05:02:36,628

houston do you have a good wps video

2523

05:02:46,628 --> 05:02:43,830

hey we've got good wbvs video from both

2524

05:02:52,788 --> 05:02:50,628

can you see the radiator the underside

2525

05:02:55,350 --> 05:02:52,798

able to see that big looks like a big

2526

05:02:56,390 --> 05:02:55,360

piece of the outer exterior covering

2527

05:02:58,470 --> 05:02:56,400

peeled

2528

05:03:01,670 --> 05:02:58,480

from the starboard side ass

2529

05:03:01,680 --> 05:03:05,430

it's like half of a single panel

2530

05:03:11,590 --> 05:03:07,110

it's the most inboard panel can you see

2531

05:03:14,868 --> 05:03:13,110

yeah we're taking a look it's a little

2532

05:03:16,868 --> 05:03:14,878

washed out right now on your wvs video

2533

05:03:20,628 --> 05:03:16,878

but we'll uh take note and try to get a

2534

05:03:23,910 --> 05:03:22,310

yeah it is the uh

2535

05:03:27,110 --> 05:03:23,920

mostly inboard one

2536

05:03:29,030 --> 05:03:27,120

and it is on the second to last panel

2537

05:03:37,510 --> 05:03:29,040

it will be pretty obvious

2538

05:03:41,030 --> 05:03:39,750

thanks ike houston copies all we'll take

2539

05:03:57,830 --> 05:03:41,040

a look

2540

05:03:57,840 --> 05:04:06,868

okay

2541

05:04:10,470 --> 05:04:08,628

yeah just a heads up that is the one we

2542

05:04:24,470 --> 05:04:10,480

expect and we know that the condition

2543

05:04:24,480 --> 05:04:39,830

that is not new though

2544

05:04:43,270 --> 05:04:41,270

and ike one

2545

05:04:46,310 --> 05:04:43,280

thing we need to

2546

05:04:49,590 --> 05:04:46,320

go back on with the pgt setting and mtl

2547

05:04:54,550 --> 05:04:49,600

we need you to set that back to 30.5

2548

05:04:54,560 --> 05:05:27,430

good reminders

2549

05:05:32,868 --> 05:05:29,990

a couple new black smudges

2550

05:05:34,788 --> 05:05:32,878

a little bit of eraser on my

2551

05:05:37,190 --> 05:05:34,798

right index finger

2552

05:05:40,708 --> 05:05:37,200

plenty of rtv to go around

2553

05:05:40,718 --> 05:06:14,628

copy that thanks

2554

05:06:14,638 --> 05:06:19,990

all right farmer greensborough 1131.

2555

05:06:23,270 --> 05:06:21,670

okay that hopper you can continue

2556

05:06:25,670 --> 05:06:23,280

translation where you're going the nader

2557

05:06:39,990 --> 05:06:25,680

path and then up the forward side of the

2558

05:06:43,990 --> 05:06:42,470

and hot hopper quick reminder on the to

2559

05:06:48,070 --> 05:06:44,000

avoid all the yellow paint out on the

2560

05:06:48,080 --> 05:06:51,270

thank you

2561

05:06:55,190 --> 05:06:52,948

this view from the helmet camera of mike

2562

05:06:57,190 --> 05:06:55,200

hopkins or as you hear him referred to

2563

05:06:59,110 --> 05:06:57,200

hopper that's his call sign

2564

05:07:03,030 --> 05:06:59,120

heading out to the japanese experiment

2565

05:07:08,390 --> 05:07:05,190

meanwhile nasa astronaut victor glover

2566

05:07:33,590 --> 05:07:08,400

is on his way to the u.s lab module to

2567

05:07:39,510 --> 05:07:36,390

uh negative i could just talk to houston

2568

05:07:45,110 --> 05:07:39,520

about the crayons to the cp3 okay

2569

05:07:48,708 --> 05:07:46,550

if you're waiting for me at your go to

2570

05:07:51,510 --> 05:07:48,718

maneuver

2571

05:07:54,948 --> 05:07:51,520

copy next we'll be at gca to publish the

2572

05:08:11,990 --> 05:07:54,958

cp-13 hd cam installation the standby

2573

05:08:15,990 --> 05:08:14,070

in this view live from nasa astronaut

2574

05:08:17,910 --> 05:08:16,000

victor glover's helmet camera he's

2575

05:08:19,830 --> 05:08:17,920

currently on the end of the canon arm

2576

05:08:21,590 --> 05:08:19,840

too and the other voices you hear

2577

05:08:24,390 --> 05:08:21,600

speaking with him are those of the

2578

05:08:26,550 --> 05:08:24,400

astronauts inside the space station jaxa

2579

05:08:29,270 --> 05:08:26,560

astronaut suicina gucci and nasa

2580

05:08:31,910 --> 05:08:29,280

astronaut k rubens they are robotically

2581

05:08:34,150 --> 05:08:31,920

maneuvering the arm into place so victor

2582

05:08:37,030 --> 05:08:34,160

glover can reach his next work site on

2583

05:08:42,230 --> 05:08:38,550

the international space station is

2584

05:09:52,628 --> 05:08:42,240

currently flying 270 statute miles over

2585

05:09:52,638 --> 05:09:56,470

you could look in yeah

2586

05:10:00,550 --> 05:09:58,150

hi

2587

05:10:04,550 --> 05:10:00,560

we are ready for dca to publish the cp

2588

05:10:05,830 --> 05:10:04,560

13 hd camera solutions pop are you ready

2589

05:10:07,030 --> 05:10:05,840

i am ready

2590

05:10:09,430 --> 05:10:07,040

ready

2591

05:10:11,350 --> 05:10:09,440

uh a firm just reminder uh once you

2592

05:10:12,708 --> 05:10:11,360

start going for the hd camera don't

2593

05:10:16,390 --> 05:10:12,718

touch the vent ports and that's the only

2594

05:10:21,110 --> 05:10:17,990

okay you have to go

2595

05:10:24,070 --> 05:10:21,120

to gca to publish ok go for gca to

2596

05:10:25,990 --> 05:10:24,080

publish starting uh body updates

2597

05:10:27,670 --> 05:10:26,000

i've got good players for the lab i'm

2598

05:10:29,990 --> 05:10:27,680

getting back tools sailors are tucked in

2599

05:10:31,910 --> 05:10:30,000

the ingredients collapse

2600

05:10:34,550 --> 05:10:31,920

thank you yeah we need a class to the

2601

05:10:39,830 --> 05:10:35,670

and

2602

05:10:41,190 --> 05:10:39,840

got a good view but also just for your

2603

05:10:43,110 --> 05:10:41,200

awareness please watch your head to the

2604

05:10:44,550 --> 05:10:43,120

lab as we come in i've got a good view

2605

05:10:55,510 --> 05:10:44,560

of the lab and i'm waiting back you have

2606

05:10:55,520 --> 05:11:16,070

before you continue

2607

05:11:40,868 --> 05:11:17,990

here comes the body in one meter

2608

05:11:40,878 --> 05:11:59,830

thank you

2609

05:11:59,840 --> 05:12:24,070

continue

2610

05:12:24,080 --> 05:12:41,030

yes

2611

05:12:46,868 --> 05:12:42,708

gym rms

2612

05:12:55,030 --> 05:12:49,110

copy hopper on the brackets and copy

2613

05:13:01,270 --> 05:12:57,270

uh hopper you're going to sew the the

2614

05:13:02,788 --> 05:13:01,280

gem rms bag on handrail 7036 copy the

2615

05:13:04,470 --> 05:13:02,798

latches and then you can put the round

2616

05:13:08,310 --> 05:13:04,480

scoop on

2617

05:13:08,320 --> 05:13:11,830

probably that didn't

2618

05:13:17,110 --> 05:13:14,948

uh ike if you can inspect uh the

2619

05:13:18,948 --> 05:13:17,120

cp3 camera verify the camera is in the

2620

05:13:22,628 --> 05:13:18,958

stowed position with the lens pointing

2621

05:13:26,628 --> 05:13:24,788

length to the base and the hood is

2622

05:13:28,948 --> 05:13:26,638

square

2623

05:13:30,070 --> 05:13:28,958

copy that you can retrieve the hd camera

2624

05:13:41,670 --> 05:13:30,080

out of your bag

2625

05:13:45,670 --> 05:13:43,750

as you saw we just had a brief satellite

2626
05:13:47,750 --> 05:13:45,680
handover as the astronauts continue

2627
05:13:49,510 --> 05:13:47,760
stepping through their tasks today and

2628
05:13:52,550 --> 05:13:49,520
in the meantime we have an ask nasa

2629
05:13:54,550 --> 05:13:52,560
question this one from ben age 5 who

2630
05:13:56,470 --> 05:13:54,560
wants to know how the astronaut stops

2631
05:13:58,550 --> 05:13:56,480
himself from floating away

2632
05:14:00,550 --> 05:13:58,560
as you can see in this image that is

2633
05:14:02,150 --> 05:14:00,560
nasa astronaut victor glover attached to

2634
05:14:04,390 --> 05:14:02,160
the canada arm 2

2635
05:14:06,150 --> 05:14:04,400
however he is always also tethered to

2636
05:14:07,990 --> 05:14:06,160
the canada arm 2

2637
05:14:10,150 --> 05:14:08,000
as well as mike hawkins is tethered to

2638
05:14:12,390 --> 05:14:10,160

the international space station

2639

05:14:14,788 --> 05:14:12,400

astronauts never remove their tethers

2640

05:14:18,390 --> 05:14:14,798

and always have a grip on the handrail

2641

05:14:18,400 --> 05:14:28,470

wve connector from the ptu j1

2642

05:14:34,230 --> 05:14:30,788

and if you need to you can slide the mli

2643

05:14:34,240 --> 05:15:08,788

roger and mark

2644

05:15:08,798 --> 05:15:13,110

if i'm where i've got the camera out

2645

05:15:13,120 --> 05:15:19,990

the lever is flush

2646

05:15:42,948 --> 05:15:21,430

copy that ike you can

2647

05:15:53,110 --> 05:15:44,948

okay coffee do you mated

2648

05:15:57,670 --> 05:15:54,868

good words uh next you're gonna retrieve

2649

05:16:02,708 --> 05:15:57,680

your pgt uh settings bravo 7

2650

05:16:02,718 --> 05:16:16,470

bravo 7 counter clockwise

2651
05:16:21,830 --> 05:16:20,150
mike hopkins now working to install the

2652
05:16:24,070 --> 05:16:21,840
components required for the japanese

2653
05:16:27,430 --> 05:16:24,080
robotic arms camera system outside the

2654
05:16:32,628 --> 05:16:27,440
kibo module he's using the pistol grip

2655
05:16:32,638 --> 05:16:35,590
standby

2656
05:16:35,600 --> 05:16:39,990
and number transformer

2657
05:16:44,230 --> 05:16:42,788
okay hopper you're going to drive uh

2658
05:16:48,150 --> 05:16:44,240
excuse me release both the bolts

2659
05:16:48,160 --> 05:16:54,628
roger bravo 7 counterclockwise two

2660
05:17:09,030 --> 05:16:56,390
and turning

2661
05:17:12,628 --> 05:17:10,628
the farmer it looks like it's completely

2662
05:17:20,628 --> 05:17:12,638
seated to me but the black line is not

2663
05:17:20,638 --> 05:17:31,110

and how far off do you think it is like

2664

05:17:31,120 --> 05:17:40,310

standby it is gone

2665

05:17:40,320 --> 05:17:44,310

okay

2666

05:17:44,320 --> 05:17:48,628

move standby

2667

05:17:54,788 --> 05:17:50,390

the black line is flush with the back of

2668

05:17:54,798 --> 05:18:04,628

copy black lines flush and full tests

2669

05:18:08,788 --> 05:18:06,550

full test

2670

05:18:09,910 --> 05:18:08,798

it had a lot of friction going on though

2671

05:18:11,830 --> 05:18:09,920

so

2672

05:18:19,910 --> 05:18:11,840

uh

2673

05:18:23,750 --> 05:18:22,390

okay copy that you can remove the round

2674

05:18:28,230 --> 05:18:23,760

scoop and the window cover and put them

2675

05:18:31,590 --> 05:18:30,310

okay before i do that so you think

2676

05:18:33,670 --> 05:18:31,600

there's a possibility you're going to

2677

05:18:37,990 --> 05:18:33,680

want me to get off the arm and do the uh

2678

05:18:38,000 --> 05:18:57,750

okay so i want to run an idea by you

2679

05:19:00,390 --> 05:18:58,708

okay

2680

05:19:02,390 --> 05:19:00,400

we don't necessarily need it but uh we

2681

05:19:04,390 --> 05:19:02,400

are uh really good on time so if it's uh

2682

05:19:09,750 --> 05:19:04,400

if that's the way you want to go we can

2683

05:19:12,550 --> 05:19:11,350

okay i was gonna just take the rom scoop

2684

05:19:17,510 --> 05:19:12,560

off of the

2685

05:19:21,190 --> 05:19:19,990

and then get off the arm and go do it if

2686

05:19:22,390 --> 05:19:21,200

you're not worried about it i think we

2687

05:19:35,430 --> 05:19:22,400

can we can stick with the plan as

2688

05:19:38,708 --> 05:19:37,270

okay totally up to you like if you want

2689

05:19:42,470 --> 05:19:38,718

to if you're happy to do the cable we'll

2690

05:19:50,230 --> 05:19:44,948

yeah okay let's try

2691

05:19:50,240 --> 05:19:57,670

before my wv is removed

2692

05:19:57,680 --> 05:20:10,470

copy that over

2693

05:20:15,270 --> 05:20:12,708

okay hopper to then install the spare

2694

05:20:16,788 --> 05:20:15,280

one uh onto the interface uh and then

2695

05:20:22,310 --> 05:20:16,798

we'll be looking for

2696

05:20:22,320 --> 05:20:42,628

easy one

2697

05:20:45,830 --> 05:20:44,070

stand by one hopper sorry about that

2698

05:20:48,150 --> 05:20:45,840

like the orientation of that scoop needs

2699

05:20:49,430 --> 05:20:48,160

to be the same as we had on the wve so

2700

05:20:51,110 --> 05:20:49,440

if you uh if you're going to put that on

2701
05:20:57,110 --> 05:20:51,120
the electronics pocket it needs to be at

2702
05:21:40,868 --> 05:20:58,230
stand by

2703
05:21:46,150 --> 05:21:42,868
okay we're good i hear uh you're clear

2704
05:21:49,830 --> 05:21:47,910
okay so yeah we'll do that at the end

2705
05:21:52,390 --> 05:21:49,840
then so i'm ready to go to uh the cables

2706
05:21:54,230 --> 05:21:52,400
i believe it is

2707
05:21:55,990 --> 05:21:54,240
okay copy that stem you're ready stand

2708
05:21:59,190 --> 05:21:56,000
by one second uh hopper what was your

2709
05:22:03,590 --> 05:22:01,350
didn't have a loss

2710
05:22:05,750 --> 05:22:03,600
okay copy that uh when you're ready then

2711
05:22:08,470 --> 05:22:05,760
we're gonna be driving the two uh both

2712
05:22:09,750 --> 05:22:08,480
bolts uh the bravo two clockwise two and

2713
05:22:14,310 --> 05:22:09,760

we're looking twelve and a half to

2714

05:22:25,030 --> 05:22:17,270

two clockwise to

2715

05:22:29,670 --> 05:22:26,310

i'm working on maneuver while you're

2716

05:22:57,750 --> 05:22:29,680

driving absolutely okay you have to go

2717

05:23:02,470 --> 05:23:01,110

and we're not seeing the maneuver

2718

05:23:04,150 --> 05:23:02,480

see are you going to get off the arm

2719

05:23:06,230 --> 05:23:04,160

right now negative

2720

05:23:07,910 --> 05:23:06,240

hey copy

2721

05:23:35,430 --> 05:23:07,920

understand your go to maneuver just

2722

05:23:40,708 --> 05:23:37,190

this view of nasa astronaut victor

2723

05:23:46,628 --> 05:23:40,718

glover as he is working on the new hd

2724

05:23:55,750 --> 05:23:49,670

tonight this is a cp testing cam backup

2725

05:24:01,030 --> 05:23:57,270

announcement motion

2726
05:24:06,230 --> 05:24:03,350
meanwhile mike hopkins is driving two

2727
05:24:07,910 --> 05:24:06,240
bolts beginning to install the

2728
05:24:10,150 --> 05:24:07,920
replacement components for the japanese

2729
05:24:53,350 --> 05:24:10,160
robotic arms camera system outside the

2730
05:25:36,548 --> 05:24:56,470
like a buddy next to the buddy down away

2731
05:25:41,190 --> 05:25:39,110
mike i just want to take a little bit

2732
05:25:42,788 --> 05:25:41,200
back to the original position and the

2733
05:25:45,110 --> 05:25:42,798
test experience

2734
05:26:41,030 --> 05:25:45,120
and standby for the joke house

2735
05:26:41,040 --> 05:26:45,510
just two minutes to uh cable setup

2736
05:26:45,520 --> 05:26:51,750
here you go

2737
05:26:51,760 --> 05:27:05,990
obviously motion

2738
05:27:10,948 --> 05:27:08,390

we're now three hours into today's

2739

05:27:13,510 --> 05:27:10,958

spacewalk which began at 6 56 a.m

2740

05:27:15,750 --> 05:27:13,520

central time this morning

2741

05:27:17,590 --> 05:27:15,760

the astronauts mike hopkins and victor

2742

05:27:19,750 --> 05:27:17,600

glover are working separately right now

2743

05:27:23,670 --> 05:27:19,760

with victor glover on your screen

2744

05:27:25,510 --> 05:27:23,680

at the end of the canada arm 2.

2745

05:27:27,750 --> 05:27:25,520

glover is currently working outside the

2746

05:27:32,150 --> 05:27:27,760

destiny laboratory replacing an aging

2747

05:27:36,070 --> 05:27:33,830

meanwhile hopkins is outside the

2748

05:27:38,628 --> 05:27:36,080

japanese experiment module replacing

2749

05:27:46,150 --> 05:27:38,638

components for that robotic arms camera

2750

05:27:51,750 --> 05:27:48,070

so far today the astronauts completed

2751
05:27:54,070 --> 05:27:51,760
battery work that began in january 2017

2752
05:27:55,990 --> 05:27:54,080
installing the final lithium ion battery

2753
05:27:58,548 --> 05:27:56,000
and final adapter plate

2754
05:27:59,990 --> 05:27:58,558
routing its power through the station

2755
05:28:03,350 --> 05:28:00,000
they also installed the final bolt in

2756
05:28:05,750 --> 05:28:03,360
the direct current switching unit

2757
05:28:07,830 --> 05:28:05,760
and mike hawkins removed an h fixture

2758
05:28:11,670 --> 05:28:07,840
preparing for future power upgrades to

2759
05:28:17,430 --> 05:28:14,708
the team also just installed a cp3

2760
05:28:19,670 --> 05:28:17,440
camera on the starboard truss

2761
05:28:22,310 --> 05:28:19,680
at the s1 lower outboard location

2762
05:28:36,310 --> 05:28:22,320
replacing a camera that was formerly

2763
05:28:41,350 --> 05:28:38,150

and that little patch of earth you see

2764

05:29:00,948 --> 05:28:41,360

below is 260 miles below the space

2765

05:29:07,190 --> 05:29:04,470

i'm on the uh venus bolt

2766

05:29:11,990 --> 05:29:07,200

i got uh

2767

05:29:18,230 --> 05:29:16,070

a good torque real good green light

2768

05:29:22,310 --> 05:29:18,240

later on it was 14 turn

2769

05:29:23,190 --> 05:29:22,320

copy 12 turns on the zenith bolt and 14

2770

05:29:29,350 --> 05:29:23,200

turns

2771

05:29:33,990 --> 05:29:31,510

that's affirmative and torque on the

2772

05:29:36,948 --> 05:29:34,000

venus was 16

2773

05:29:39,670 --> 05:29:36,958

and nader was 15.8

2774

05:29:42,948 --> 05:29:39,680

okay 16 on the zenith

2775

05:29:44,628 --> 05:29:42,958

and 15.8 on the nader uh the 12 turns is

2776

05:29:50,628 --> 05:29:44,638

a slightly less less than we were

2777

05:29:54,150 --> 05:29:51,750

okay i

2778

05:29:56,230 --> 05:29:54,160

wanted to move you to the eca

2779

05:29:58,788 --> 05:29:56,240

gca to publish that's a cable make

2780

05:30:05,590 --> 05:29:58,798

position starting body right followed by

2781

05:30:05,600 --> 05:30:13,190

opposite muscle body right

2782

05:30:13,200 --> 05:30:37,350

uh

2783

05:31:03,910 --> 05:30:38,628

let's go

2784

05:31:03,920 --> 05:31:11,190

60 centimeters to go

2785

05:31:37,910 --> 05:31:12,548

help you continue

2786

05:31:37,920 --> 05:31:52,470

research

2787

05:31:56,230 --> 05:31:54,390

i like this response

2788

05:31:57,510 --> 05:31:56,240

okay and if you could take me 10

2789

05:31:59,990 --> 05:31:57,520

centimeters

2790

05:32:09,610 --> 05:32:00,000

to my right

2791

05:32:13,830 --> 05:32:11,910

[Music]

2792

05:32:15,270 --> 05:32:13,840

you take me 10 millimeters toward my

2793

05:32:20,548 --> 05:32:15,280

feet down

2794

05:32:29,270 --> 05:32:22,868

good motion continue

2795

05:32:29,280 --> 05:32:33,830

ready okay you want to continue

2796

05:32:33,840 --> 05:32:38,470

stop motion

2797

05:32:38,480 --> 05:32:42,948

okay complete

2798

05:32:42,958 --> 05:32:48,788

okay gc completes breaks on

2799

05:32:53,030 --> 05:32:51,750

okay copy uh the gca complete the cables

2800

05:32:54,230 --> 05:32:53,040

hi ike we're gonna have you hold there

2801
05:33:00,390 --> 05:32:54,240
for a second

2802
05:33:04,708 --> 05:33:02,230
okay hopper uh big picture with that

2803
05:33:07,030 --> 05:33:04,718
bolt um we're gonna have to uh back it

2804
05:33:11,350 --> 05:33:07,040
out one turn and then uh drive it at a

2805
05:33:16,708 --> 05:33:13,830
so we're gonna go to the zenith bolt ptt

2806
05:33:21,590 --> 05:33:16,718
setting of bravo seven counterclockwise

2807
05:33:25,430 --> 05:33:24,310
level seven counterclockwise two out one

2808
05:33:28,548 --> 05:33:25,440
turn

2809
05:33:30,548 --> 05:33:28,558
and then driving in is what

2810
05:33:35,270 --> 05:33:30,558
driving in is going to be bravo 4

2811
05:33:41,030 --> 05:33:38,470
okay 507 one turn

2812
05:33:43,030 --> 05:33:41,040
and then bravo 4.

2813
05:33:49,110 --> 05:33:43,040

good work let me get three turns at

2814

05:34:04,948 --> 05:33:51,270

yeah not necessarily three turns uh

2815

05:34:10,310 --> 05:34:07,350

okay ike with you in position we can go

2816

05:34:36,470 --> 05:34:10,320

ahead and demate the ptu cable from the

2817

05:34:36,480 --> 05:34:53,190

mated

2818

05:34:53,200 --> 05:34:56,708

the pins on the lights look good

2819

05:35:00,390 --> 05:34:58,470

okay copy that

2820

05:35:06,390 --> 05:35:00,400

next you're going to mate the ptu cable

2821

05:35:06,400 --> 05:35:10,788

okay and i've taken the cap off of j1

2822

05:35:17,750 --> 05:35:14,070

apron do you have a cap on it

2823

05:35:21,990 --> 05:35:20,788

and it's going forward forward over

2824

05:35:23,670 --> 05:35:22,000

center

2825

05:35:26,150 --> 05:35:23,680

full test

2826

05:35:28,548 --> 05:35:26,160

and the ptu cable is mated

2827

05:35:30,788 --> 05:35:28,558

vhd camera

2828

05:35:33,590 --> 05:35:30,798

copy good words uh you can mate then the

2829

05:35:34,708 --> 05:35:33,600

jumper cable from the hd camera to the

2830

05:35:36,548 --> 05:35:34,718

light

2831

05:35:45,270 --> 05:35:36,558

so that's the jumper cable p1 to the

2832

05:35:48,470 --> 05:35:46,070

okay

2833

05:35:58,070 --> 05:35:48,480

we got 1.14 turns

2834

05:36:15,110 --> 05:35:59,350

okay copy that we're going to call that

2835

05:36:21,590 --> 05:36:17,110

this view from the helmet camera of nasa

2836

05:36:43,670 --> 05:36:21,600

astronaut victor glover as he works

2837

05:36:43,680 --> 05:36:49,030

dip connector no fod bdmi band

2838

05:36:49,040 --> 05:37:05,830

got a good inspection on the light side

2839

05:37:12,150 --> 05:37:07,350

is mated

2840

05:37:12,160 --> 05:37:18,150

made it to the light

2841

05:37:22,868 --> 05:37:20,230

all right to that next we're going to

2842

05:37:29,430 --> 05:37:22,878

route the ptu cable and the jumper cable

2843

05:37:37,270 --> 05:37:30,788

happy

2844

05:37:44,230 --> 05:37:40,310

all right farmer i've got uh

2845

05:37:45,590 --> 05:37:44,240

at good stance good note 5 gdm band

2846

05:37:47,350 --> 05:37:45,600

over center

2847

05:37:50,070 --> 05:37:47,360

reinstalling the

2848

05:37:54,150 --> 05:37:50,080

wire timer

2849

05:37:57,990 --> 05:37:56,150

that

2850

05:37:59,990 --> 05:37:58,000

glover has just made

2851

05:38:02,070 --> 05:38:00,000

two cables

2852

05:38:08,868 --> 05:38:02,080

necessary for install of the new hd

2853

05:38:16,230 --> 05:38:11,110

jumper cable are in the hd camera to

2854

05:38:21,030 --> 05:38:18,708

okay copy that next we're routing the

2855

05:38:23,670 --> 05:38:21,040

wap cable so we're going to open the ptu

2856

05:38:26,150 --> 05:38:23,680

cable restraint

2857

05:38:27,910 --> 05:38:26,160

place the ptu cable and the wax cable in

2858

05:38:32,150 --> 05:38:27,920

the cable restraint and then close and

2859

05:38:45,830 --> 05:38:34,070

okay the ptu cable is already in there

2860

05:38:50,230 --> 05:38:48,628

the lab cable has these visa tape

2861

05:38:55,110 --> 05:38:50,240

bundles and i'm supposed to put it in

2862

05:39:02,390 --> 05:38:57,190

yeah those white marshmallow things is

2863

05:39:10,230 --> 05:39:03,990

a firm the cable restraint should go

2864

05:39:14,548 --> 05:39:11,430

okay

2865

05:39:16,948 --> 05:39:14,558

cable restraint is closed and locked

2866

05:39:20,868 --> 05:39:16,958

covers twisted in the ptu cable and the

2867

05:39:24,390 --> 05:39:20,878

web cable between the marshmallows

2868

05:39:29,270 --> 05:39:26,708

okay copy that looks good from here you

2869

05:39:30,548 --> 05:39:29,280

can temp sew the cable clamp on the ptu

2870

05:39:32,230 --> 05:39:30,558

cylinder

2871

05:39:34,230 --> 05:39:32,240

and place the strap and the remainder of

2872

05:39:38,948 --> 05:39:34,240

the cable over on the nader side of the

2873

05:39:42,390 --> 05:39:41,190

okay

2874

05:39:44,788 --> 05:39:42,400

standby

2875

05:39:46,548 --> 05:39:44,798

copy and then one sorting out these caps

2876
05:39:48,708 --> 05:39:46,558
roger that and then once you get down

2877
05:39:51,110 --> 05:39:48,718
the cap off the uh

2878
05:39:52,230 --> 05:39:51,120
hold on for a second tap off the hd

2879
05:39:55,670 --> 05:39:52,240
camera

2880
05:39:57,750 --> 05:39:55,680
and the cap off the uh jumper cable

2881
05:39:59,750 --> 05:39:57,760
um

2882
05:40:02,310 --> 05:39:59,760
i'm taking up my my wrist now so i'm

2883
05:40:02,320 --> 05:40:09,190
run my trash bags

2884
05:40:09,200 --> 05:40:25,030
and we copy that plan i

2885
05:40:28,470 --> 05:40:27,110
okay both of those caps are in my trash

2886
05:40:55,910 --> 05:40:28,480
bag

2887
05:41:00,548 --> 05:40:57,990
certainly an office with a view for our

2888
05:41:02,628 --> 05:41:00,558

space walkers today this is a view from

2889

05:41:03,990 --> 05:41:02,638

victor glover's helmet camera

2890

05:41:06,150 --> 05:41:04,000

venus harness

2891

05:41:07,910 --> 05:41:06,160

wwee it looked like there may have been

2892

05:41:09,350 --> 05:41:07,920

some caps on tape or something still on

2893

05:41:10,470 --> 05:41:09,360

there

2894

05:41:13,990 --> 05:41:10,480

can you take a look at those and see if

2895

05:41:17,270 --> 05:41:15,510

um actually

2896

05:41:20,868 --> 05:41:17,280

there was capstone tape that was over

2897

05:41:26,230 --> 05:41:23,590

and so i took that it was the protected

2898

05:41:28,708 --> 05:41:26,240

cover over over it

2899

05:41:30,628 --> 05:41:28,718

and so i took that off and put it in my

2900

05:41:36,628 --> 05:41:30,638

trash bag

2901

05:41:39,830 --> 05:41:37,990

okay that sounds good as long as there's

2902

05:41:41,670 --> 05:41:39,840

no more tape sitting out there that's

2903

05:41:43,830 --> 05:41:41,680

probably what we saw

2904

05:41:46,390 --> 05:41:43,840

i'll double check but uh i think that

2905

05:41:51,990 --> 05:41:48,470

what you guys saw but i'll double check

2906

05:42:15,590 --> 05:42:10,788

this

2907

05:42:18,390 --> 05:42:15,600

hawkins stowing the failed camera that

2908

05:42:20,628 --> 05:42:18,400

was on the japanese experiment module

2909

05:42:21,910 --> 05:42:20,638

robotic manipulator system the robotic

2910

05:42:27,350 --> 05:42:21,920

arm

2911

05:42:27,360 --> 05:42:33,270

excellent good news

2912

05:42:37,350 --> 05:42:34,708

and like once you get that cable and

2913

05:42:39,350 --> 05:42:37,360

clamp temp stowed over there then uh the

2914

05:42:45,270 --> 05:42:39,360

neck next up is the arm maneuver to the

2915

05:42:45,280 --> 05:42:51,990

okay i have it tensed

2916

05:42:55,350 --> 05:42:54,310

and i'm ready hopper can i uh you got it

2917

05:42:57,350 --> 05:42:55,360

maneuver

2918

05:42:58,708 --> 05:42:57,360

okay first you have to go to uh the

2919

05:42:59,910 --> 05:42:58,718

client position

2920

05:43:08,390 --> 05:42:59,920

hopefully uh this should be a

2921

05:43:13,830 --> 05:43:10,708

the ta clamp came open

2922

05:43:18,548 --> 05:43:13,840

i'm just resetting it

2923

05:43:18,558 --> 05:43:51,190

i use this wire tie since it's here

2924

05:43:55,430 --> 05:43:53,430

okay the ta clamp is reclosed and i just

2925

05:44:07,190 --> 05:43:55,440

do the wire tie over it since it's

2926

05:44:12,390 --> 05:44:08,628

and quick check of your ingress aid

2927

05:44:13,270 --> 05:44:12,400

since that's pretty critical here

2928

05:44:37,430 --> 05:44:13,280

is

2929

05:45:14,150 --> 05:44:38,708

good motion

2930

05:45:17,030 --> 05:45:16,070

a view from victor glover's helmet

2931

05:45:18,708 --> 05:45:17,040

camera

2932

05:45:21,910 --> 05:45:18,718

as the international space station

2933

05:45:24,548 --> 05:45:21,920

orbits 264 statute miles

2934

05:45:26,548 --> 05:45:24,558

over the north atlantic ocean

2935

05:45:28,868 --> 05:45:26,558

we're coming up on three hours and 20

2936

05:45:31,110 --> 05:45:28,878

minutes into today's spacewalk both

2937

05:45:33,270 --> 05:45:31,120

astronauts working separately to replace

2938

05:45:37,670 --> 05:45:33,280

cameras outside of the international

2939

05:45:37,680 --> 05:46:01,270

two minutes

2940

05:46:01,280 --> 05:46:24,788

um

2941

05:46:29,510 --> 05:46:26,390

okay i could just be a two and a half

2942

05:46:53,990 --> 05:46:29,520

minutes joe house to uh crown setup

2943

05:46:58,070 --> 05:46:55,590

this helmet came review from victor

2944

05:46:59,830 --> 05:46:58,080

glover on the canadarm2 and this one

2945

05:47:02,310 --> 05:46:59,840

inside the international space station

2946

05:47:04,868 --> 05:47:02,320

you can see k rubens and to her left

2947

05:47:07,990 --> 05:47:04,878

soichinoguchi they are controlling the

2948

05:47:11,030 --> 05:47:08,000

canada arm 2 from inside using robotic

2949

05:47:12,708 --> 05:47:11,040

controls to maneuver the robotic arm and

2950

05:47:26,548 --> 05:47:12,718

moving victor glover into place to

2951
05:47:26,558 --> 05:47:41,190
hey

2952
05:47:46,708 --> 05:47:43,030
pets on tape

2953
05:47:48,548 --> 05:47:46,718
again i think it was just this uh

2954
05:47:49,670 --> 05:47:48,558
it was the cap over the top of this

2955
05:47:53,030 --> 05:47:49,680
white

2956
05:47:56,390 --> 05:47:54,230
okay that sounds good we're good with

2957
05:47:58,628 --> 05:47:56,400
that inspection appreciate that

2958
05:48:00,310 --> 05:47:58,638
and then other just verification you

2959
05:48:02,230 --> 05:48:00,320
didn't see any flaking on the white

2960
05:48:03,670 --> 05:48:02,240
paint when you were putting a wve in the

2961
05:48:04,788 --> 05:48:03,680
bag

2962
05:48:26,150 --> 05:48:04,798
i

2963
05:48:27,510 --> 05:48:26,160

had the bag on the brt we just get a

2964

05:48:31,990 --> 05:48:27,520

glove and hap check

2965

05:48:32,000 --> 05:48:56,310

roger that didn't work

2966

05:49:01,990 --> 05:48:58,628

okay dry hop

2967

05:49:03,750 --> 05:49:02,000

and the right glove just has some

2968

05:49:07,590 --> 05:49:03,760

uh smudging

2969

05:49:09,190 --> 05:49:07,600

smudges on it from pinky

2970

05:49:21,270 --> 05:49:09,200

and the

2971

05:49:25,830 --> 05:49:23,270

copy that uh with that you can go ahead

2972

05:49:27,510 --> 05:49:25,840

and uh translate over to cp13 we're

2973

05:49:29,430 --> 05:49:27,520

going to go ahead and have you do the

2974

05:49:31,990 --> 05:49:29,440

cablemate that we were talking about

2975

05:49:33,350 --> 05:49:32,000

before and then big picture plan for you

2976
05:49:34,628 --> 05:49:33,360
guys is that we've got some get ahead

2977
05:49:37,270 --> 05:49:34,638
ahead

2978
05:49:43,750 --> 05:49:37,280
are following these things hopper

2979
05:49:43,760 --> 05:49:50,230
okay hopper coffee

2980
05:49:50,240 --> 05:50:04,628
coffee

2981
05:50:08,868 --> 05:50:05,990
all right so each uk if you're waiting

2982
05:50:10,150 --> 05:50:08,878
on me you have to go to maneuver

2983
05:50:20,948 --> 05:50:10,160
we're setting up cameras we're almost

2984
05:50:20,958 --> 05:50:42,948
okay

2985
05:50:47,510 --> 05:50:45,510
mike hawkins now moving on to his next

2986
05:50:49,910 --> 05:50:47,520
work site

2987
05:50:52,628 --> 05:50:49,920
having completed the installation of the

2988
05:51:10,830 --> 05:50:52,638

japanese experiment modules remote

2989

05:51:10,840 --> 05:51:38,150

abortion promotion

2990

05:51:38,160 --> 05:52:08,948

uh

2991

05:52:08,958 --> 05:52:53,510

um

2992

05:52:59,430 --> 05:52:55,910

mike hopkins is making his way to the

2993

05:53:02,150 --> 05:52:59,440

cp-13 worksite that is the camera being

2994

05:53:05,510 --> 05:53:02,160

re or replacing an aging camera

2995

05:53:07,590 --> 05:53:05,520

on the destiny laboratory

2996

05:53:09,510 --> 05:53:07,600

victor glover you can see him on the end

2997

05:53:11,190 --> 05:53:09,520

of the canadarm2 being maneuvered into

2998

05:53:32,628 --> 05:53:11,200

place for his next steps at the same

2999

05:53:36,708 --> 05:53:34,548

you guys got a night pass coming up in a

3000

05:53:41,590 --> 05:53:36,718

couple minutes and we also have a

3001
05:53:41,600 --> 05:54:01,350
everyone

3002
05:55:04,628 --> 05:54:18,548
um

3003
05:55:13,750 --> 05:55:07,110
okay i come at my green hook

3004
05:55:18,948 --> 05:55:16,230
how was that translation out there

3005
05:55:20,868 --> 05:55:18,958
that wasn't bad

3006
05:55:21,590 --> 05:55:20,878
nothing that sounded

3007
05:55:43,190 --> 05:55:21,600
uh

3008
05:55:48,310 --> 05:55:45,670
coming up on three hours and 30 minutes

3009
05:55:51,750 --> 05:55:48,320
into today's spacewalk that started at 6

3010
05:55:53,190 --> 05:55:51,760
56 a.m central time this morning the

3011
05:55:55,430 --> 05:55:53,200
astronauts have been stepping through

3012
05:55:58,628 --> 05:55:55,440
their tasks with the completion of the

3013
05:56:00,868 --> 05:55:58,638

battery work that began in january 2017

3014

05:56:02,868 --> 05:56:00,878

securing the final lithium-ion battery

3015

05:56:05,030 --> 05:56:02,878

in the station and installing the final

3016

05:56:06,548 --> 05:56:05,040

adapter plate as well as driving the

3017

05:56:09,190 --> 05:56:06,558

last bolt in a

3018

05:56:12,310 --> 05:56:09,200

direct charge

3019

05:56:15,670 --> 05:56:12,320

direct current switching unit

3020

05:56:17,430 --> 05:56:15,680

mike hawkins also removed an h fixture

3021

05:56:20,310 --> 05:56:17,440

that'll be necessary for future power

3022

05:56:24,390 --> 05:56:20,320

upgrades and the duo installed a new

3023

05:56:28,390 --> 05:56:26,470

hawkins just completed

3024

05:56:32,390 --> 05:56:28,400

upgrades to the javanese experiment

3025

05:56:33,670 --> 05:56:32,400

module remote manipulator system camera

3026

05:56:35,590 --> 05:56:33,680

and the two are now working on

3027

05:56:42,150 --> 05:56:35,600

installing an hd camera outside the

3028

05:56:46,548 --> 05:56:43,510

as you can see we just went through a

3029

05:56:49,270 --> 05:56:46,558

brief satellite handover

3030

05:56:52,150 --> 05:56:49,280

and we've got a question from martina

3031

05:56:53,270 --> 05:56:52,160

with the hashtag ask nasa on twitter

3032

05:56:55,110 --> 05:56:53,280

martino wants to know how the

3033

05:56:57,590 --> 05:56:55,120

temperature changes during sunrise and

3034

05:56:59,030 --> 05:56:57,600

sunset while spacewalking how the suits

3035

05:57:01,030 --> 05:56:59,040

are dealing with it

3036

05:57:05,030 --> 05:57:01,040

and if astronauts have the possibility

3037

05:57:06,788 --> 05:57:05,040

to take a drink while on the space walk

3038

05:57:09,270 --> 05:57:06,798

in the sunlight when the space station

3039

05:57:11,270 --> 05:57:09,280

is in an orbital daytime it can be 250

3040

05:57:14,150 --> 05:57:11,280

degrees fahrenheit and without sunlight

3041

05:57:15,990 --> 05:57:14,160

it can be a negative 250 degrees outside

3042

05:57:17,670 --> 05:57:16,000

therefore the spacesuits have a cooling

3043

05:57:19,750 --> 05:57:17,680

garment that allows the astronaut to

3044

05:57:21,830 --> 05:57:19,760

control the temperature inside the suit

3045

05:57:23,990 --> 05:57:21,840

as well as thermal properties keeping

3046

05:57:26,230 --> 05:57:24,000

them warm

3047

05:57:28,390 --> 05:57:26,240

additionally in the suit is an in-suit

3048

05:57:30,788 --> 05:57:28,400

drink bag that's a plastic water-filled

3049

05:57:33,830 --> 05:57:30,798

pouch that attaches to the inside of the

3050

05:57:37,350 --> 05:57:33,840

hard upper torso a plastic tube with a

3051

05:57:39,110 --> 05:57:37,360

bite valve sticks out of the bag

3052

05:57:41,430 --> 05:57:39,120

the tube and the valve can be adjusted

3053

05:57:43,430 --> 05:57:41,440

to be near the astronauts mouth

3054

05:57:44,948 --> 05:57:43,440

biting that valve opens the tube so the

3055

05:57:46,788 --> 05:57:44,958

space walker can take a drink and

3056

05:57:51,110 --> 05:57:46,798

releasing the bite closes the valve

3057

05:57:55,270 --> 05:57:53,110

and hopper we just got word from jackson

3058

05:57:59,750 --> 05:57:55,280

that we got a good check out on the wve

3059

05:58:04,708 --> 05:58:01,590

10 more centimeters

3060

05:58:32,310 --> 05:58:04,718

in

3061

05:58:34,948 --> 05:58:32,320

and tasks up to the

3062

05:58:36,310 --> 05:58:34,958

crew spacewalking today

3063

05:58:37,510 --> 05:58:36,320

yep sorry we're sorry to step on you

3064

05:58:49,590 --> 05:58:37,520

guys

3065

05:58:51,910 --> 05:58:49,600

there

3066

05:58:53,830 --> 05:58:51,920

next you can place the cable clamp into

3067

05:58:55,190 --> 05:58:53,840

the ptu notch

3068

05:58:56,708 --> 05:58:55,200

make sure that the cable is routing

3069

05:59:11,190 --> 05:58:56,718

towards the stanchion and then lock the

3070

05:59:11,200 --> 05:59:20,390

okay farmer i'm here at cp-13

3071

05:59:24,470 --> 05:59:22,628

you'll also hear ground iv bob hines

3072

05:59:25,750 --> 05:59:24,480

being referred to as farmer his call

3073

05:59:27,830 --> 05:59:25,760

sign

3074

05:59:30,230 --> 05:59:27,840

i could go uh ditch this

3075

05:59:33,590 --> 05:59:30,240

if you go ditch this bag and get the

3076

05:59:46,230 --> 05:59:33,600

h fixture and then come back here

3077

05:59:50,708 --> 05:59:48,628

and and hopper are you able to retrieve

3078

05:59:52,150 --> 05:59:50,718

the lap cable the ethernet cable should

3079

05:59:53,590 --> 05:59:52,160

be sewn at the base of the stanchion and

3080

05:59:58,230 --> 05:59:53,600

then we'll just need the wap cable for

3081

06:00:02,070 --> 06:00:00,628

and i've got a knife from ike i'll go

3082

06:00:02,830 --> 06:00:02,080

get it

3083

06:00:05,510 --> 06:00:02,840

in

3084

06:00:07,190 --> 06:00:05,520

work and would you have a risk to take

3085

06:00:08,470 --> 06:00:07,200

the cable off the wrap cable if you want

3086

06:00:09,910 --> 06:00:08,480

me to take it off

3087

06:00:16,708 --> 06:00:09,920

oh no i've got a

3088

06:00:20,788 --> 06:00:18,708

hopkins on his way to retrieve a wac

3089

06:00:22,868 --> 06:00:20,798

cable that stands for wireless access

3090

06:00:29,190 --> 06:00:22,878

point that will need to be made into the

3091

06:00:33,510 --> 06:00:31,350

and earlier we heard some news relayed

3092

06:00:36,150 --> 06:00:33,520

up to the spacewalkers that jaxa the

3093

06:00:39,110 --> 06:00:36,160

japanese aerospace exploration agency

3094

06:00:40,868 --> 06:00:39,120

received a good checkout on the

3095

06:00:42,548 --> 06:00:40,878

new camera installed on their remote

3096

06:00:48,070 --> 06:00:42,558

manipulator system outside the kibo

3097

06:00:51,190 --> 06:00:49,590

okay i think this

3098

06:00:54,948 --> 06:00:51,200

yeah i think that this wire side right

3099

06:00:54,958 --> 06:00:57,990

if you're all right

3100

06:00:58,000 --> 06:01:10,708

okay

3101
06:01:17,270 --> 06:01:11,830
ready

3102
06:01:17,280 --> 06:01:21,350
i need that part

3103
06:01:21,360 --> 06:01:36,868
okay i got it yes

3104
06:01:36,878 --> 06:01:48,470
okay

3105
06:01:51,670 --> 06:01:49,990
and hopper our game plan is to just

3106
06:01:54,310 --> 06:01:51,680
leave you here until we finish this task

3107
06:01:55,510 --> 06:01:54,320
where we're really far ahead right now

3108
06:02:01,590 --> 06:01:55,520
so i think we'll just pick up some

3109
06:02:04,310 --> 06:02:03,270
everyone

3110
06:02:06,548 --> 06:02:04,320
thank you

3111
06:02:08,868 --> 06:02:06,558
and uh ike we didn't hear it if you

3112
06:02:14,070 --> 06:02:08,878
called down have you completed the clamp

3113
06:02:16,788 --> 06:02:15,830

is installed locked with a good pull

3114

06:02:30,470 --> 06:02:16,798

test

3115

06:02:33,910 --> 06:02:32,230

and then one more thing just to verify

3116

06:02:39,830 --> 06:02:33,920

that the that you did retrieve the red

3117

06:02:43,430 --> 06:02:41,750

i have it to my mini workstation i

3118

06:02:46,390 --> 06:02:43,440

haven't taken it all the way off so what

3119

06:02:48,310 --> 06:02:46,400

i'm ready to if you if you're ready

3120

06:02:50,150 --> 06:02:48,320

yep as long as the clamp is installed

3121

06:02:52,628 --> 06:02:50,160

and locked you can remove that red and

3122

06:02:55,110 --> 06:02:52,638

then there is one more arm position it's

3123

06:02:57,110 --> 06:02:55,120

the strap position uh so whenever you're

3124

06:03:00,470 --> 06:02:57,120

ready you can move the arm to that

3125

06:03:04,070 --> 06:03:01,990

actually i'm going to stay here for a

3126

06:03:07,670 --> 06:03:04,080

second

3127

06:03:12,070 --> 06:03:07,680

so i'm good in the current position

3128

06:03:16,310 --> 06:03:14,310

hey i'm farmer i have those caps off do

3129

06:03:21,270 --> 06:03:16,320

you want me to meet or are we waiting on

3130

06:03:21,280 --> 06:03:33,510

stand by one for now

3131

06:03:37,270 --> 06:03:35,590

okay hot uh farmer can you give me some

3132

06:03:38,868 --> 06:03:37,280

words on the strap

3133

06:03:44,868 --> 06:03:38,878

i may be able to install it from right

3134

06:03:49,190 --> 06:03:46,548

yeah so as the strap comes down the

3135

06:03:50,470 --> 06:03:49,200

first step is placing the side of the

3136

06:03:51,910 --> 06:03:50,480

strap that has the quarter turn

3137

06:03:53,750 --> 06:03:51,920

fasteners

3138

06:03:58,948 --> 06:03:53,760

over the tether point on the electronics

3139

06:03:58,958 --> 06:04:03,910

okay

3140

06:04:07,430 --> 06:04:05,670

and which way does that quarter turn

3141

06:04:08,948 --> 06:04:07,440

fasten your face

3142

06:04:10,548 --> 06:04:08,958

i think i may need to put it on the

3143

06:04:13,750 --> 06:04:10,558

other side

3144

06:04:41,190 --> 06:04:13,760

so the uh the velcro that's on the uh on

3145

06:04:41,200 --> 06:04:51,270

scroll towards the stencer

3146

06:04:53,990 --> 06:04:52,788

and then once that so once you have that

3147

06:04:55,510 --> 06:04:54,000

on there with the velcro towards the

3148

06:04:59,190 --> 06:04:55,520

stanchion which side should the french

3149

06:05:03,670 --> 06:04:59,200

host be on super friendship

3150

06:05:03,680 --> 06:05:23,350

on the neighbor side or the z inside

3151
06:06:03,190 --> 06:05:24,070
the

3152
06:06:03,200 --> 06:06:08,470
uh

3153
06:06:34,390 --> 06:06:09,750
there we go

3154
06:06:37,990 --> 06:06:36,390
and once you get the that end of the

3155
06:06:40,150 --> 06:06:38,000
strap around there you can use your end

3156
06:06:41,670 --> 06:06:40,160
effector on the tether point to hold it

3157
06:06:50,868 --> 06:06:41,680
in place while you fish the other end

3158
06:06:50,878 --> 06:07:09,270
thank you

3159
06:07:15,830 --> 06:07:11,190
let's just go over that

3160
06:07:24,150 --> 06:07:19,350
here i'm going to release it again

3161
06:07:27,990 --> 06:07:26,470
uh can you tell me how the cable the

3162
06:07:30,628 --> 06:07:28,000
tether sorry

3163
06:07:32,390 --> 06:07:30,638

the strap is is it twisted it does look

3164

06:07:35,350 --> 06:07:32,400

like it has one twist

3165

06:07:40,948 --> 06:07:37,350

well can you reach it thank you

3166

06:07:40,958 --> 06:07:44,628

alright so you can see it there i don't

3167

06:07:44,638 --> 06:07:48,230

look when it comes around

3168

06:07:48,240 --> 06:07:51,910

you like

3169

06:07:56,310 --> 06:07:55,270

this like that yeah

3170

06:07:58,470 --> 06:07:56,320

okay

3171

06:08:00,150 --> 06:07:58,480

there you go

3172

06:08:01,990 --> 06:08:00,160

and uh just a reminder for you guys

3173

06:08:03,110 --> 06:08:02,000

there is another arm position if uh if

3174

06:08:04,708 --> 06:08:03,120

you think that would be helpful

3175

06:08:23,510 --> 06:08:04,718

otherwise uh looks like you guys are

3176

06:08:26,390 --> 06:08:24,788

yeah perfect

3177

06:08:28,628 --> 06:08:26,400

okay i've got the quarter turn fastener

3178

06:08:31,590 --> 06:08:28,638

in and then form and confirm i use this

3179

06:08:34,548 --> 06:08:31,600

long wire tie to the wire tie it through

3180

06:08:37,910 --> 06:08:36,548

uh a firm one once the quarter turn

3181

06:08:39,590 --> 06:08:37,920

fasteners are done all you have to do is

3182

06:08:40,868 --> 06:08:39,600

find the squished end of that wire tie

3183

06:08:42,708 --> 06:08:40,878

and feed it through there it doesn't

3184

06:08:44,390 --> 06:08:42,718

need three turns or anything like that

3185

06:08:49,590 --> 06:08:44,400

just put it in place to help hold it in

3186

06:08:53,750 --> 06:08:51,910

the quarter turn fastener is

3187

06:09:05,910 --> 06:08:53,760

mated

3188

06:09:11,910 --> 06:09:07,670

see the uh the tightening part of it

3189

06:09:12,628 --> 06:09:11,920

over there i do be able to snug it down

3190

06:09:14,548 --> 06:09:12,638

uh

3191

06:09:17,670 --> 06:09:14,558

i can let me get a little better

3192

06:09:22,310 --> 06:09:20,070

you hold onto it got it

3193

06:09:24,628 --> 06:09:22,320

okay it's tightening myself so it's not

3194

06:09:36,470 --> 06:09:24,638

going anywhere yeah

3195

06:09:40,868 --> 06:09:39,350

how's that look looks good

3196

06:09:43,190 --> 06:09:40,878

and now we've got the french hook there

3197

06:09:45,110 --> 06:09:43,200

in place i can see it

3198

06:09:47,350 --> 06:09:45,120

so you got some slack on the left table

3199

06:09:49,670 --> 06:09:47,360

you could take up if you're able

3200

06:09:51,990 --> 06:09:49,680

okay let me just do a quick check on

3201
06:09:54,150 --> 06:09:52,000
this side

3202
06:09:55,590 --> 06:09:54,160
oh yeah

3203
06:10:03,030 --> 06:09:55,600
that's all good

3204
06:10:03,040 --> 06:10:12,310
take in some slack he said

3205
06:10:12,320 --> 06:10:34,390
expansion

3206
06:10:37,270 --> 06:10:35,670
i don't think we're going to need the

3207
06:10:38,708 --> 06:10:37,280
other arm position unless you need to go

3208
06:10:40,628 --> 06:10:38,718
there for a

3209
06:10:55,270 --> 06:10:40,638
automatic maneuver so

3210
06:11:01,030 --> 06:10:59,430
are you still happy with uh that length

3211
06:11:03,110 --> 06:11:01,040
it still looks great

3212
06:11:04,628 --> 06:11:03,120
okay very good

3213
06:11:06,548 --> 06:11:04,638

yeah and hopper i'm ready to make it

3214

06:11:07,990 --> 06:11:06,558

okay whenever uh copy that was gonna be

3215

06:11:09,430 --> 06:11:08,000

my next question yeah you have a you

3216

06:11:14,150 --> 06:11:09,440

have a go to mate the lap cable to the

3217

06:11:14,160 --> 06:11:17,910

okay

3218

06:11:29,190 --> 06:11:21,030

good emi vans good pins

3219

06:11:32,948 --> 06:11:31,190

and i understand you don't need any

3220

06:11:42,548 --> 06:11:32,958

maneuvers are you ready for the maneuver

3221

06:11:54,150 --> 06:11:44,070

yeah like before you go if you can

3222

06:11:54,160 --> 06:12:00,150

it is still square

3223

06:12:05,110 --> 06:12:01,750

and part of the ethernet and the rock

3224

06:12:08,470 --> 06:12:05,120

cable are connected over center

3225

06:12:09,990 --> 06:12:08,480

copy the uh good mate and ike with that

3226

06:12:16,628 --> 06:12:10,000

inspection you are

3227

06:12:21,350 --> 06:12:18,628

all right so you guys have a go for your

3228

06:12:22,948 --> 06:12:21,360

ping test and kate soichi i'm ready for

3229

06:12:24,788 --> 06:12:22,958

maneuver go to maneuver

3230

06:12:30,390 --> 06:12:24,798

you go for maneuver there will be a

3231

06:12:35,030 --> 06:12:32,390

thank you

3232

06:12:35,910 --> 06:12:35,040

and station uh on speech ground one we

3233

06:13:04,390 --> 06:12:35,920

see that

3234

06:13:11,430 --> 06:13:07,830

this is actually maneuver but

3235

06:13:17,190 --> 06:13:13,510

this is okay

3236

06:13:19,510 --> 06:13:17,200

if this is maneuver not the gta and

3237

06:13:31,030 --> 06:13:19,520

we'll be doing the manual body out

3238

06:13:31,040 --> 06:13:38,788

to go back to your log

3239

06:13:38,798 --> 06:14:02,948

stand by one hopper

3240

06:14:07,350 --> 06:14:05,590

yeah hopper before you leave

3241

06:14:10,390 --> 06:14:07,360

on the wv

3242

06:14:22,310 --> 06:14:10,400

s camera we noticed a unassociated ta

3243

06:14:29,270 --> 06:14:24,548

on your helmet cam uh it was at the base

3244

06:14:32,150 --> 06:14:29,280

of the stanchion uh the cp-13 stanchion

3245

06:14:56,470 --> 06:14:32,160

oh i'm 13. hey yes i know exactly what

3246

06:15:00,868 --> 06:14:58,708

so hopper when you find that ta clamp if

3247

06:15:02,230 --> 06:15:00,878

you can just

3248

06:15:03,590 --> 06:15:02,240

close the ta clamp then you can head

3249

06:15:13,670 --> 06:15:03,600

back to the airlock

3250

06:15:17,590 --> 06:15:15,430

and that was released when i got up here

3251

06:15:27,030 --> 06:15:17,600

there's several ta clamps uh some that

3252

06:15:27,040 --> 06:15:34,788

firm if uh if you can please thanks

3253

06:15:39,350 --> 06:15:36,868

mike this is a joke has three three

3254

06:15:48,628 --> 06:15:39,360

point five minutes to uh yesterday

3255

06:15:54,548 --> 06:15:51,350

almost three hours and fifty five zero

3256

06:15:56,070 --> 06:15:54,558

minutes into today's spacewalk

3257

06:15:59,430 --> 06:15:56,080

the astronauts have just completed

3258

06:16:06,788 --> 06:15:59,440

installation of the cp-13 hd camera

3259

06:16:11,430 --> 06:16:09,030

this comes after completion of several

3260

06:16:13,830 --> 06:16:11,440

other tasks today including the

3261

06:16:15,910 --> 06:16:13,840

final lithium-ion battery being secured

3262

06:16:17,830 --> 06:16:15,920

to the international space station

3263

06:16:21,670 --> 06:16:17,840

and the final adapter plate connecting

3264

06:16:25,270 --> 06:16:23,590

along with this glover installed the

3265

06:16:27,910 --> 06:16:25,280

final bolt in the direct current

3266

06:16:29,670 --> 06:16:27,920

switching unit

3267

06:16:33,030 --> 06:16:29,680

and this completes the battery upgrades

3268

06:16:35,110 --> 06:16:33,040

that began in january 2017.

3269

06:16:38,230 --> 06:16:35,120

mike hawkins removed an h fixture

3270

06:16:41,430 --> 06:16:38,240

preparing the area for upgrades to the

3271

06:16:43,430 --> 06:16:41,440

future power system

3272

06:16:47,590 --> 06:16:43,440

and the team worked together to install

3273

06:16:49,350 --> 06:16:47,600

a new hd camera on the starboard truss

3274

06:16:51,190 --> 06:16:49,360

hopkins then went to the japanese

3275

06:16:54,628 --> 06:16:51,200

experiment module and installed a new

3276

06:16:57,030 --> 06:16:54,638

camera to the remote manipulator system

3277

06:16:59,670 --> 06:16:57,040

meanwhile glover was working on the

3278

06:17:02,230 --> 06:16:59,680

cp-13 hd camera installation outside the

3279

06:17:09,430 --> 06:17:02,240

us laboratory which the duo just

3280

06:17:12,830 --> 06:17:10,788

the international space station is

3281

06:17:15,910 --> 06:17:12,840

currently flying in an orbital nighttime

3282

06:17:17,750 --> 06:17:15,920

263 statute miles

3283

06:17:19,270 --> 06:17:17,760

over the indian ocean

3284

06:17:30,548 --> 06:17:19,280

six inch

3285

06:17:30,558 --> 06:17:36,948

sorry i stepped on you hopper go ahead

3286

06:17:41,110 --> 06:17:39,430

just give enough status

3287

06:18:18,788 --> 06:17:41,120

right at the top of the cedar spur come

3288

06:18:27,430 --> 06:18:20,628

all right good news we got a good ping

3289

06:18:27,440 --> 06:18:33,190

thanks for the update thank you

3290

06:18:37,350 --> 06:18:35,430

okay big picture for you guys uh we're a

3291

06:18:39,830 --> 06:18:37,360

little over four hours

3292

06:18:42,390 --> 06:18:39,840

on the p-e-t

3293

06:18:44,548 --> 06:18:42,400

we've got a seven plus thirty limiting

3294

06:18:46,548 --> 06:18:44,558

consumable which medox

3295

06:18:50,230 --> 06:18:46,558

our game plan hopper is for you to do

3296

06:18:51,350 --> 06:18:50,240

the uh the h fixture out on s4

3297

06:18:55,750 --> 06:18:51,360

and i

3298

06:18:58,310 --> 06:18:55,760

have you do the with x relocate and

3299

06:19:08,708 --> 06:18:58,320

excuse me the with x and apfr relocate

3300

06:19:12,708 --> 06:19:10,468

copy that

3301

06:19:14,070 --> 06:19:12,718

you good copy

3302

06:19:36,628 --> 06:19:14,080

bye baby

3303

06:19:41,590 --> 06:19:38,708

all right i'm at the airlock

3304

06:19:43,270 --> 06:19:41,600

open on the thermal cover

3305

06:19:46,150 --> 06:19:43,280

copy thermal cover uh you're going to

3306

06:19:47,670 --> 06:19:46,160

stow your j uh chem rms bag in there and

3307

06:19:49,030 --> 06:19:47,680

you're going to retrieve crew lock bag

3308

06:20:04,310 --> 06:19:49,040

number one

3309

06:20:10,788 --> 06:20:06,708

as you heard the recently installed cp

3310

06:20:13,990 --> 06:20:10,798

13 hd camera outside of the us lab

3311

06:20:15,590 --> 06:20:14,000

is reporting a good configuration

3312

06:20:17,350 --> 06:20:15,600

and the crew continues to move ahead of

3313

06:20:19,510 --> 06:20:17,360

the timeline today

3314

06:20:38,548 --> 06:20:19,520

are you ready for me

3315

06:20:41,830 --> 06:20:39,990

because the crew is ahead of schedule

3316

06:20:43,590 --> 06:20:41,840

they have been assigned some get ahead

3317

06:20:44,548 --> 06:20:43,600

tasks

3318

06:20:46,868 --> 06:20:44,558

okay

3319

06:20:59,670 --> 06:20:46,878

first the station venus by two meters

3320

06:20:59,680 --> 06:21:06,788

venus

3321

06:21:11,670 --> 06:21:08,468

hopkins is making his way back to the

3322

06:21:14,628 --> 06:21:11,680

airlock to retrieve the tools he needs

3323

06:21:25,670 --> 06:21:14,638

to remove another h fixture this one on

3324

06:21:25,680 --> 06:21:32,868

ago

3325

06:21:38,230 --> 06:21:35,030

victor glover is still in the canada arm

3326

06:21:41,910 --> 06:21:38,240

2 and moving back to position

3327

06:21:46,310 --> 06:21:44,708

relocating the apfr or the articulating

3328

06:21:47,910 --> 06:21:46,320

portable foot restraint which he is

3329

06:21:49,430 --> 06:21:47,920

currently standing in

3330

06:22:10,628 --> 06:21:49,440

and preparing that for an upcoming

3331

06:22:10,638 --> 06:22:15,430

and that's perfect you see it completely

3332

06:22:19,750 --> 06:22:17,510

and so i'm going to get out here

3333

06:22:21,350 --> 06:22:19,760

and start my uh safety swap and then i

3334

06:22:22,548 --> 06:22:21,360

may have you go a little more venus for

3335

06:22:24,708 --> 06:22:22,558

the removal

3336

06:22:28,468 --> 06:22:24,718

it kind of takes a break song

3337

06:22:30,788 --> 06:22:28,478

i'll be breaking you dropping my left

3338

06:22:33,030 --> 06:22:30,798

copy

3339

06:22:35,590 --> 06:22:33,040

and i just a quick verification uh pull

3340

06:22:40,708 --> 06:22:35,600

test on the socket swap that you get

3341

06:22:44,788 --> 06:22:42,628

full test on both the

3342

06:23:08,948 --> 06:22:44,798

side b caddy and the pgt

3343

06:23:13,830 --> 06:23:11,670

the entire arm

3344

06:23:15,110 --> 06:23:13,840

let me grab my waste tether

3345

06:23:17,430 --> 06:23:15,120

i'm going to have you guys go and finish

3346

06:23:18,788 --> 06:23:17,440

that venus

3347

06:23:26,230 --> 06:23:18,798

stop it

3348

06:23:30,230 --> 06:23:28,468

we've got another ask nasa question this

3349

06:23:32,310 --> 06:23:30,240

one coming from jess

3350

06:23:38,070 --> 06:23:32,320

asking why do the astronauts wear

3351
06:23:42,310 --> 06:23:39,830
the mirrors on the gloves are actually

3352
06:23:51,590 --> 06:23:42,320
so the astronauts can read the writing

3353
06:23:55,270 --> 06:23:52,788
the front of the suits are where the

3354
06:23:59,030 --> 06:23:55,280
astronauts have control over

3355
06:24:01,110 --> 06:23:59,040
multiple systems in their spacesuit

3356
06:24:09,430 --> 06:24:01,120
and i'll take care of all that once it's

3357
06:24:12,708 --> 06:24:10,948
and some of the writing on that space

3358
06:24:14,390 --> 06:24:12,718
dude includes how the astronauts can

3359
06:24:15,670 --> 06:24:14,400
control the switches

3360
06:24:21,110 --> 06:24:15,680
and

3361
06:24:23,270 --> 06:24:21,120
it's written in mirror image because

3362
06:24:34,868 --> 06:24:23,280
it's intended to be read via that mirror

3363
06:24:39,110 --> 06:24:37,110

all right copy that hopper

3364

06:24:44,390 --> 06:24:39,120

check the thermal cover closed and save

3365

06:25:04,788 --> 06:24:46,948

cover is closed check your safer handles

3366

06:25:04,798 --> 06:25:10,788

venus

3367

06:25:10,798 --> 06:25:16,868

in motion

3368

06:25:43,430 --> 06:25:18,310

motion continue

3369

06:25:47,750 --> 06:25:45,590

how far to publish

3370

06:25:50,390 --> 06:25:47,760

it's about a meter and a half patient

3371

06:25:55,910 --> 06:25:54,070

i think you can stop right there

3372

06:25:56,708 --> 06:25:55,920

puppy thomas

3373

06:26:04,628 --> 06:25:56,718

stop

3374

06:26:08,948 --> 06:26:06,628

it appears we lost your wvs signal can

3375

06:26:34,868 --> 06:26:08,958

you double check that your button is or

3376

06:26:34,878 --> 06:26:40,708

copy thanks we got you back

3377

06:26:44,230 --> 06:26:42,788

we're now four hours into today's

3378

06:26:59,110 --> 06:26:44,240

spacewalk and the astronauts have

3379

06:26:59,120 --> 06:27:17,110

uh

3380

06:27:17,120 --> 06:27:32,548

this one

3381

06:27:36,788 --> 06:27:34,948

and hopper just heads up for you when

3382

06:27:38,628 --> 06:27:36,798

you get out to the sarge we're going to

3383

06:27:44,708 --> 06:27:38,638

be looking the three alpha bga is going

3384

06:27:44,718 --> 06:27:54,070

thank you

3385

06:27:59,270 --> 06:27:55,990

all right farmer the yellow hook is back

3386

06:28:00,948 --> 06:27:59,280

to my red reel see that's the green reel

3387

06:28:08,150 --> 06:28:00,958

and my green looks back to the red reel

3388

06:28:08,160 --> 06:28:14,230

copy that

3389

06:28:25,430 --> 06:28:16,868

and we have a day pass and a short loss

3390

06:28:30,868 --> 06:28:28,548

and do i have a spot i have to put my

3391

06:28:36,868 --> 06:28:30,878

green hook down

3392

06:28:40,468 --> 06:28:39,030

yeah we don't have one specified so

3393

06:28:48,230 --> 06:28:40,478

find someplace convenient either the

3394

06:28:52,468 --> 06:28:50,070

on the right side of your screen victor

3395

06:28:54,070 --> 06:28:52,478

glover's helmet camera

3396

06:28:56,948 --> 06:28:54,080

and on the left

3397

06:28:58,948 --> 06:28:56,958

helmet camera belonging to mike hopkins

3398

06:29:01,590 --> 06:28:58,958

you can see glover has now egressed or

3399

06:29:12,230 --> 06:29:01,600

exited the apr the articulating

3400

06:29:16,230 --> 06:29:14,310

and as you heard ground iv bob hines

3401
06:29:19,990 --> 06:29:16,240
relay to the crew members we are in a

3402
06:29:23,590 --> 06:29:21,990
and when we return we can expect to see

3403
06:29:24,548 --> 06:29:23,600
more daylight outside of the space

3404
06:29:29,590 --> 06:29:24,558
station

3405
06:30:08,708 --> 06:29:29,600
a day moving at 17

3406
06:30:08,718 --> 06:30:59,910
um

3407
06:31:03,430 --> 06:31:00,788
all right

3408
06:31:06,230 --> 06:31:03,440
you know i put my green hook down

3409
06:31:08,868 --> 06:31:06,240
three zero one one it's just outboard of

3410
06:31:13,430 --> 06:31:08,878
the starboard steeda cart underneath it

3411
06:31:18,948 --> 06:31:15,510
and i'm done with esp2 heading back to

3412
06:31:23,190 --> 06:31:21,430
and ike that completes the today's uh

3413
06:31:25,430 --> 06:31:23,200

wonderful ride thanks for flying real

3414

06:31:27,670 --> 06:31:25,440

fast express

3415

06:31:39,590 --> 06:31:27,680

will just be a repeat customer fly with

3416

06:31:43,670 --> 06:31:41,510

the words coming from jaxa astronaut

3417

06:31:44,948 --> 06:31:43,680

suicinaguchi inside the international

3418

06:31:47,910 --> 06:31:44,958

space station

3419

06:31:50,070 --> 06:31:47,920

and this question from gianluca age 7

3420

06:31:51,990 --> 06:31:50,080

addresses exactly what we just heard

3421

06:31:53,750 --> 06:31:52,000

asking how do the astronauts know when

3422

06:31:55,430 --> 06:31:53,760

the robotic arm will move and do they

3423

06:31:57,190 --> 06:31:55,440

control it

3424

06:31:58,948 --> 06:31:57,200

you can see the robotic arm clearly in

3425

06:32:00,948 --> 06:31:58,958

this picture also known as the canada

3426

06:32:02,868 --> 06:32:00,958

arm 2 and down to the bottom right

3427

06:32:04,468 --> 06:32:02,878

that's astronaut victor glover who has

3428

06:32:06,150 --> 06:32:04,478

been on the arm for much of today's

3429

06:32:07,990 --> 06:32:06,160

spacewalk

3430

06:32:09,830 --> 06:32:08,000

inside the international space station

3431

06:32:12,150 --> 06:32:09,840

is kate rubin's you can see her there

3432

06:32:14,390 --> 06:32:12,160

with those screens as well as soichi

3433

06:32:15,510 --> 06:32:14,400

naguchi who have been working

3434

06:32:23,190 --> 06:32:15,520

on

3435

06:32:25,670 --> 06:32:23,200

will move because he or she is in

3436

06:32:27,830 --> 06:32:25,680

constant contact with the astronauts

3437

06:32:29,670 --> 06:32:27,840

inside the international space station

3438

06:32:31,510 --> 06:32:29,680

and can even relay directions like how

3439

06:32:33,750 --> 06:32:31,520

much closer or further he or she needs

3440

06:32:35,910 --> 06:32:33,760

to be away from the task they are

3441

06:32:37,510 --> 06:32:35,920

working on

3442

06:32:39,510 --> 06:32:37,520

all right i don't know if farmers back

3443

06:32:44,708 --> 06:32:39,520

but i can

3444

06:32:44,718 --> 06:32:50,150

copy gauntlet thanks

3445

06:32:55,670 --> 06:32:53,830

farmer the apsr is installed uh

3446

06:32:58,788 --> 06:32:55,680

the boot plate spacing mater and it's

3447

06:33:01,670 --> 06:32:58,798

the ingredient is folded holds it down

3448

06:33:02,948 --> 06:33:01,680

okay copy good words uh we had a lot of

3449

06:33:05,030 --> 06:33:02,958

chatter going on where you're doing this

3450

06:33:06,230 --> 06:33:05,040

tether swap can we just get a quick run

3451
06:33:10,310 --> 06:33:06,240
through of that just to make sure we had

3452
06:33:13,910 --> 06:33:12,548
for the red reels yellow hook is locked

3453
06:33:21,990 --> 06:33:13,920
to the green reel both reels are

3454
06:33:22,000 --> 06:33:38,548
copy sounds good thanks a lot

3455
06:33:42,788 --> 06:33:40,070
hey firm you can go back to the airlock

3456
06:33:44,390 --> 06:33:42,798
and drop off your bag

3457
06:33:47,110 --> 06:33:44,400
and uh we're going to start off with you

3458
06:33:47,990 --> 06:33:47,120
doing the uh with x which you're just

3459
06:33:54,310 --> 06:33:48,000
passed

3460
06:33:57,190 --> 06:33:55,830
okay if

3461
06:33:59,270 --> 06:33:57,200
can i go back and get it or just drop

3462
06:34:01,270 --> 06:33:59,280
the bag off first now drop the bag off

3463
06:34:14,230 --> 06:34:01,280

first and then you'll need your brt open

3464

06:34:14,240 --> 06:34:28,070

all right can i open a thermal cover

3465

06:34:28,080 --> 06:34:46,788

normal coverage is open

3466

06:34:46,798 --> 06:34:57,750

disregard

3467

06:35:00,708 --> 06:34:59,030

on the right side of your screen is

3468

06:35:02,628 --> 06:35:00,718

victor glover's helmet camera you can

3469

06:35:04,788 --> 06:35:02,638

see he's made it back to the airlock but

3470

06:35:06,150 --> 06:35:04,798

the day is not finished yet

3471

06:35:07,830 --> 06:35:06,160

he's going to be working on an

3472

06:35:10,390 --> 06:35:07,840

articulating portable foot restraint

3473

06:35:15,270 --> 06:35:10,400

preparing that for another spacewalk in

3474

06:35:21,430 --> 06:35:16,548

meanwhile on the left side of your

3475

06:35:25,750 --> 06:35:23,190

he's making his way out to conduct

3476
06:35:45,910 --> 06:35:25,760
another h fixture removal and preparing

3477
06:35:45,920 --> 06:36:02,230
huh

3478
06:36:02,240 --> 06:36:39,270
okay

3479
06:36:43,030 --> 06:36:41,590
doing well

3480
06:36:53,430 --> 06:36:43,040
all right i'm out of

3481
06:36:58,390 --> 06:36:55,430
a glimpse of the earth below mike

3482
06:37:00,708 --> 06:36:58,400
hopkins from his helmet camera

3483
06:37:02,750 --> 06:37:00,718
is a look at the south pacific ocean as

3484
06:37:06,150 --> 06:37:02,760
the international space station flies

3485
06:37:08,830 --> 06:37:06,160
271 statute miles over

3486
06:37:15,670 --> 06:37:08,840
the south pacific ocean south of new

3487
06:37:22,548 --> 06:37:17,030
farmer just confirmed i don't need to

3488
06:37:22,558 --> 06:37:25,990

that's correct

3489

06:38:20,070 --> 06:37:28,230

just making a deposit all right coming

3490

06:38:20,080 --> 06:38:24,390

thermal cover is closed

3491

06:38:27,510 --> 06:38:26,070

okay copy that uh check your safety

3492

06:39:13,750 --> 06:38:27,520

handles down and then we'll take a glove

3493

06:39:17,510 --> 06:39:15,910

all right farmer happy dry

3494

06:39:19,030 --> 06:39:17,520

and gloves

3495

06:39:21,910 --> 06:39:19,040

only changes a little bit of that black

3496

06:39:27,510 --> 06:39:21,920

stuff has rubbed away so

3497

06:39:58,868 --> 06:39:30,948

working on safer handles now

3498

06:40:02,468 --> 06:40:00,868

you just heard nasa astronaut victor

3499

06:40:04,468 --> 06:40:02,478

glover in this view from his helmet

3500

06:40:06,868 --> 06:40:04,478

camera as he's at the airlock preparing

3501

06:40:09,350 --> 06:40:06,878

for his next task setting up

3502

06:40:12,708 --> 06:40:09,360

an apfr and articulating portable foot

3503

06:40:15,110 --> 06:40:12,718

restraint for a future spacewalk he gave

3504

06:40:18,708 --> 06:40:15,120

a glove and hap check hap stands for

3505

06:40:20,390 --> 06:40:18,718

helmet absorption pad and the astronauts

3506

06:40:24,468 --> 06:40:20,400

regularly check this to make sure

3507

06:40:29,190 --> 06:40:26,628

additionally as you can see a spacewalk

3508

06:40:31,590 --> 06:40:29,200

is a completely hands-on task and so the

3509

06:40:33,990 --> 06:40:31,600

astronauts conduct regular glove checks

3510

06:40:35,350 --> 06:40:34,000

to ensure there are no tears in their

3511

06:40:36,788 --> 06:40:35,360

gloves and they can proceed with the

3512

06:40:37,910 --> 06:40:36,798

spacewalk

3513

06:40:39,910 --> 06:40:37,920

okay you're going to translate to the

3514

06:40:52,788 --> 06:40:39,920

with x over on the starboard side of

3515

06:40:56,548 --> 06:40:54,788

and hopper reminder on this h fixture

3516

06:40:58,468 --> 06:40:56,558

only two bolts are currently installed

3517

06:41:01,990 --> 06:40:58,478

so it's bolts two and four we're going

3518

06:41:09,670 --> 06:41:04,430

now the bravo seven

3519

06:41:14,948 --> 06:41:11,670

that's a good setting we're looking at

3520

06:41:17,190 --> 06:41:14,958

bolts two and four

3521

06:41:19,190 --> 06:41:17,200

we're going to turn both of them one to

3522

06:41:37,910 --> 06:41:19,200

two turns only

3523

06:41:41,430 --> 06:41:39,590

this view from mike hawkins helmet

3524

06:41:44,230 --> 06:41:41,440

camera you can tell because it is

3525

06:41:46,548 --> 06:41:44,240

designated number 18 in the bottom right

3526

06:41:49,510 --> 06:41:46,558

he is using the pgt or the pistol grip

3527

06:41:51,270 --> 06:41:49,520

tool to release another h fixture that

3528

06:41:52,070 --> 06:41:51,280

was one of his tasks earlier today as

3529

06:41:53,830 --> 06:41:52,080

well

3530

06:41:56,230 --> 06:41:53,840

and with that successful completion as

3531

06:41:58,548 --> 06:41:56,240

well as the other tasks that the space

3532

06:42:06,310 --> 06:41:58,558

walkers were given today they've decided

3533

06:42:11,750 --> 06:42:09,590

we're in a current los or loss of signal

3534

06:42:13,110 --> 06:42:11,760

these are tracked and uh expected

3535

06:42:15,510 --> 06:42:13,120

throughout the spacewalk and we will

3536

06:42:21,910 --> 06:42:15,520

regain video communications with our

3537

06:42:38,468 --> 06:42:24,708

four two turns

3538

06:42:38,478 --> 06:42:42,310

two turns hold two

3539

06:42:45,990 --> 06:42:44,628

okay two turns bolt two uh keeping the

3540

06:42:47,910 --> 06:42:46,000

same settings bravo seven

3541

06:42:51,270 --> 06:42:47,920

counterclockwise one we're going to

3542

06:42:53,350 --> 06:42:51,280

release them 10 additional turns

3543

06:42:55,350 --> 06:42:53,360

here you've got a view of victor glover

3544

06:42:57,910 --> 06:42:55,360

and then his view on the right side of

3545

06:42:59,510 --> 06:42:57,920

your screen

3546

06:43:00,628 --> 06:42:59,520

making his way to his next work site

3547

06:43:02,628 --> 06:43:00,638

meanwhile

3548

06:43:21,830 --> 06:43:02,638

nasa astronaut mike hawkins continues

3549

06:43:36,390 --> 06:43:23,590

another handover period of the tracking

3550

06:43:36,400 --> 06:43:44,868

okay foreign

3551
06:43:50,150 --> 06:43:46,468
copy that like you're going to translate

3552
06:44:01,510 --> 06:43:50,160
out to the fort feta cart and

3553
06:44:04,150 --> 06:44:03,350
and some other acronyms you just heard

3554
06:44:05,830 --> 06:44:04,160
uh

3555
06:44:08,150 --> 06:44:05,840
victor glover also known as his call

3556
06:44:09,750 --> 06:44:08,160
sign ike is heading out to the port

3557
06:44:13,670 --> 06:44:09,760
cedar cart that stands for crew

3558
06:44:17,350 --> 06:44:15,590
he'll be working with the whiff or the

3559
06:44:26,548 --> 06:44:17,360
worksite interface and preparing the

3560
06:44:31,190 --> 06:44:29,030
all right four release with seven turns

3561
06:44:34,868 --> 06:44:31,200
two released with

3562
06:44:43,270 --> 06:44:36,948
copy seven turns on both four eight

3563
06:44:47,190 --> 06:44:45,110

all right just uh verified all four of

3564

06:44:48,948 --> 06:44:47,200

the bolts are released if you need to

3565

06:44:52,390 --> 06:44:48,958

you can use your fingers to continue

3566

06:44:52,400 --> 06:45:27,990

thank you

3567

06:45:32,830 --> 06:45:31,190

all right i'm headed up to the spur

3568

06:45:36,468 --> 06:45:32,840

right

3569

06:45:38,230 --> 06:45:36,478

here copy that ike and uh

3570

06:45:39,590 --> 06:45:38,240

obviously we're us doing the get ahead

3571

06:45:41,030 --> 06:45:39,600

so please keep an eye on the safety

3572

06:45:56,310 --> 06:45:41,040

tethers

3573

06:45:59,510 --> 06:45:58,708

yes sir i can't get my fingers in there

3574

06:46:20,628 --> 06:45:59,520

to

3575

06:46:22,310 --> 06:46:20,638

finger inside these if you remember on

3576

06:46:25,270 --> 06:46:22,320

that h fixture

3577

06:46:28,310 --> 06:46:25,280

bolts go down into a

3578

06:46:34,948 --> 06:46:28,320

okay i did get one

3579

06:46:39,030 --> 06:46:36,150

and when they're released they should

3580

06:46:40,628 --> 06:46:39,040

pop out so uh i don't know if you can

3581

06:46:52,310 --> 06:46:40,638

tell that at all while they're

3582

06:46:52,320 --> 06:46:56,548

okay all four release

3583

06:47:00,548 --> 06:46:58,868

copy all four released so you can

3584

06:47:02,230 --> 06:47:00,558

retrieve the wedge assembly if that's

3585

06:47:05,670 --> 06:47:02,240

what you want to do again and put them

3586

06:47:21,030 --> 06:47:07,030

yes

3587

06:47:25,910 --> 06:47:22,788

this view from mike hopkins helmet

3588

06:47:27,990 --> 06:47:25,920

camera he just removed the h fixture

3589

06:47:29,910 --> 06:47:28,000

that was removed from the station

3590

06:47:32,390 --> 06:47:29,920

earlier and he's now working to remove

3591

06:47:36,948 --> 06:47:32,400

the second of the day a get a head task

3592

06:47:40,708 --> 06:47:38,628

copy that like once you get up to whiff

3593

06:47:45,868 --> 06:47:40,718

three you're going to put the wiff x in

3594

06:47:45,878 --> 06:48:06,390

one alpha one

3595

06:48:06,400 --> 06:48:18,868

bye

3596

06:48:18,878 --> 06:48:32,310

um

3597

06:48:32,320 --> 06:48:39,030

should be nader and port

3598

06:49:04,788 --> 06:48:41,430

okay if i put it in i think all right

3599

06:49:10,230 --> 06:49:07,110

okay yep you're right

3600

06:49:12,548 --> 06:49:10,240

putting mater in porch

3601

06:49:15,030 --> 06:49:12,558

now toward this

3602

06:49:18,230 --> 06:49:15,040

bottom center of the seat of cart okay

3603

06:49:21,350 --> 06:49:18,240

seven alpha

3604

06:49:32,948 --> 06:49:22,788

full twist test

3605

06:49:37,430 --> 06:49:35,030

okay copy that ike and then next you're

3606

06:49:38,150 --> 06:49:37,440

going to retrieve the apfr that's there

3607

06:49:40,390 --> 06:49:38,160

on

3608

06:49:47,110 --> 06:49:40,400

the cetacart with 2 and you're going to

3609

06:49:47,120 --> 06:50:00,230

happy times

3610

06:50:00,240 --> 06:50:04,468

it's fixtures released

3611

06:50:10,070 --> 06:50:06,390

nice work you're the age fixture black

3612

06:50:13,830 --> 06:50:11,990

it's the wedge tool

3613

06:50:16,468 --> 06:50:13,840

hey farmer i'm having a hard time

3614

06:50:17,990 --> 06:50:16,478

getting to the indication on the one

3615

06:50:23,590 --> 06:50:18,000

versus two can you just tell me that

3616

06:50:23,600 --> 06:50:40,468

one should be fully collapsed

3617

06:50:40,478 --> 06:50:44,548

yeah sorry uh if we can get a

3618

06:50:50,628 --> 06:50:47,110

some pictures of the gse pad

3619

06:51:04,708 --> 06:50:51,990

will do

3620

06:51:08,830 --> 06:51:07,030

uh yes please we would like an inventory

3621

06:51:12,150 --> 06:51:08,840

of the

3622

06:51:13,590 --> 06:51:12,160

bag roger on the integral rep i've got

3623

06:51:15,670 --> 06:51:13,600

an adjustable

3624

06:51:17,830 --> 06:51:15,680

iq good for me to go ahead and do this

3625

06:51:28,070 --> 06:51:17,840

uh give me the apfr settings for me and

3626
06:51:34,310 --> 06:51:29,990
okay your apfr settings are going to be

3627
06:51:35,830 --> 06:51:34,320
12 sierra sarah sierra sierra golf three

3628
06:51:53,430 --> 06:51:35,840
and uh hopper if you stand by on that

3629
06:51:58,070 --> 06:51:55,830
four hours and 25 minutes into today's

3630
06:52:01,190 --> 06:51:58,080
spacewalk mike hopkins has successfully

3631
06:52:02,390 --> 06:52:01,200
removed another h fixture

3632
06:52:04,230 --> 06:52:02,400
and then you can just leave that out

3633
06:52:06,390 --> 06:52:04,240
we're going to do

3634
06:52:07,750 --> 06:52:06,400
the next task of the photo task

3635
06:52:11,030 --> 06:52:07,760
and then we'll do the inventory after

3636
06:52:11,040 --> 06:52:14,548
roger

3637
06:52:20,310 --> 06:52:16,468
farmer clock for 12 good pull twist test

3638
06:52:20,320 --> 06:52:23,670

it works

3639

06:53:02,310 --> 06:52:26,310

hello sierra sierra golf three

3640

06:53:02,320 --> 06:53:24,468

uh

3641

06:53:27,590 --> 06:53:26,230

all right farmer i need to go ahead and

3642

06:53:30,468 --> 06:53:27,600

do some of this inventory and get some

3643

06:53:34,948 --> 06:53:30,478

of this stuff back in the bag

3644

06:53:34,958 --> 06:53:37,510

okay

3645

06:53:39,910 --> 06:53:38,390

all right

3646

06:53:42,830 --> 06:53:39,920

i've got a

3647

06:53:45,750 --> 06:53:42,840

toggle red to an adjustable

3648

06:53:47,030 --> 06:53:45,760

hammer and a

3649

06:53:49,190 --> 06:53:47,040

camera

3650

06:53:54,468 --> 06:53:49,200

what is this prf

3651
06:54:05,030 --> 06:53:57,740
then i got an integral

3652
06:54:08,310 --> 06:54:06,468
and that's going the integral is going

3653
06:54:10,548 --> 06:54:08,320
to adjustable to the pry bar and then

3654
06:54:16,310 --> 06:54:10,558
the other end is empty

3655
06:54:21,590 --> 06:54:19,430
i've got an adjustable

3656
06:54:24,230 --> 06:54:21,600
a second adjustable that has an h

3657
06:54:24,240 --> 06:54:29,270
got a small small rep with the camera

3658
06:54:34,708 --> 06:54:32,948
and an integral with the wedge assembly

3659
06:54:38,150 --> 06:54:34,718
i've got an integral with the adjustable

3660
06:54:41,590 --> 06:54:39,590
i've got a

3661
06:54:43,670 --> 06:54:41,600
small small

3662
06:54:49,430 --> 06:54:43,680
with an adjustable

3663
06:54:57,590 --> 06:54:51,510

and i think that's it and then on the

3664

06:54:57,600 --> 06:55:03,750

yeah that's a good inventory offer

3665

06:55:09,030 --> 06:55:06,230

okay farmer twelve sierra sierra golf

3666

06:55:12,390 --> 06:55:09,040

three and that apfr has a really sticky

3667

06:55:16,390 --> 06:55:14,868

okay copy that confirm that it

3668

06:55:27,110 --> 06:55:16,400

you were able to get it to pop back out

3669

06:55:30,628 --> 06:55:29,270

okay copy that that's a good install you

3670

06:55:33,830 --> 06:55:30,638

can go ahead head back towards the

3671

06:55:44,390 --> 06:55:33,840

airlock your next task is going to be to

3672

06:55:46,708 --> 06:55:45,670

and hopper while you're buttoning that

3673

06:55:49,030 --> 06:55:46,718

thing up

3674

06:55:51,270 --> 06:55:49,040

game plan for you is to do

3675

06:55:52,230 --> 06:55:51,280

some of the photo ops on the mini pump

3676
06:55:55,910 --> 06:55:52,240
module

3677
06:55:55,920 --> 06:56:55,110
thank you

3678
06:56:55,120 --> 06:57:05,190
all right farmer i am telly the oi whiff

3679
06:57:18,310 --> 06:57:07,350
okay copy that just confirm we're on the

3680
06:57:22,150 --> 06:57:20,310
hey good words you can rat to the tether

3681
06:57:24,788 --> 06:57:22,160
points and

3682
06:57:26,868 --> 06:57:24,798
lift the two tabs and slide the oi whiff

3683
06:57:29,590 --> 06:57:26,878
off uh it slides away from the tether

3684
06:57:44,628 --> 06:57:29,600
point

3685
06:57:50,310 --> 06:57:47,190
now over four hours and 31 minutes into

3686
06:57:52,390 --> 06:57:50,320
today's spacewalk which began at 6 56

3687
06:57:53,910 --> 06:57:52,400
a.m central time this morning the

3688
06:57:56,468 --> 06:57:53,920

astronauts have completed all of their

3689

06:57:58,468 --> 06:57:56,478

major tasks and moved on to get aheads

3690

06:58:00,628 --> 06:57:58,478

of which mike hopkins has completed

3691

06:58:03,190 --> 06:58:00,638

another h fixture removal preparing the

3692

06:58:05,430 --> 06:58:03,200

station for future power upgrades and

3693

06:58:07,990 --> 06:58:05,440

victor glover has completed work on an

3694

06:58:10,070 --> 06:58:08,000

apfr or an articulating portable foot

3695

06:58:25,750 --> 06:58:10,080

restraint preparing the station for

3696

06:58:25,760 --> 06:58:29,350

on my workstation

3697

06:58:34,548 --> 06:58:31,910

heading to the past end of the equipment

3698

06:58:38,788 --> 06:58:37,110

okay good words just a landmark for you

3699

06:58:41,510 --> 06:58:38,798

as you go around the wagon wheel and

3700

06:58:46,708 --> 06:58:41,520

come up the aft side handrail zero five

3701

06:58:46,718 --> 06:59:36,628

row five can start port

3702

06:59:41,510 --> 06:59:38,150

and hopper when you get a chance to go

3703

06:59:41,520 --> 06:59:44,628

okay

3704

06:59:44,638 --> 06:59:58,468

all right swan is on my vrt

3705

07:00:02,628 --> 07:00:00,708

we've got another handover between the

3706

07:00:04,230 --> 07:00:02,638

tracking data and relay satellite system

3707

07:00:06,948 --> 07:00:04,240

and we will regain communications and

3708

07:00:08,788 --> 07:00:06,958

video with the crew shortly

3709

07:00:10,310 --> 07:00:08,798

in the meantime a look back at all that

3710

07:00:14,548 --> 07:00:10,320

has been accomplished in the last four

3711

07:00:19,110 --> 07:00:16,788

nasa astronauts mike hopkins and victor

3712

07:00:20,788 --> 07:00:19,120

glover secured the final lithium-ion

3713

07:00:23,110 --> 07:00:20,798

battery to the international space

3714

07:00:25,270 --> 07:00:23,120

station and installed the final adapter

3715

07:00:27,590 --> 07:00:25,280

plate completing its circuit

3716

07:00:30,708 --> 07:00:27,600

copy that and we just got good words on

3717

07:00:31,990 --> 07:00:30,718

a good pan and tilt test for cp-13 so

3718

07:00:34,868 --> 07:00:32,000

three for three in the cameras today

3719

07:00:40,548 --> 07:00:36,468

that's awesome thank you

3720

07:00:48,708 --> 07:00:43,910

farmer i am in the vicinity i see uh

3721

07:00:53,590 --> 07:00:51,430

okay okay stand by one second

3722

07:00:55,430 --> 07:00:53,600

hopkins then moved on to remove an h

3723

07:00:57,430 --> 07:00:55,440

fixture

3724

07:01:00,468 --> 07:00:57,440

preparing the station for future power

3725

07:01:03,030 --> 07:01:00,478

upgrades before the duo moved on

3726
07:01:06,310 --> 07:01:03,040
to complete cp3 camera installation an

3727
07:01:08,150 --> 07:01:06,320
hd camera aboard the starboard truss

3728
07:01:09,670 --> 07:01:08,160
to translate back

3729
07:01:11,670 --> 07:01:09,680
we're going to need you to check the

3730
07:01:14,468 --> 07:01:11,680
brakes on the cedar cart and then the

3731
07:01:15,830 --> 07:01:14,478
next task for the mpm is going to be out

3732
07:01:21,670 --> 07:01:15,840
at the

3733
07:01:26,150 --> 07:01:23,590
okay

3734
07:01:27,430 --> 07:01:26,160
let's do the

3735
07:01:29,670 --> 07:01:27,440
we'll get the

3736
07:01:32,070 --> 07:01:29,680
two cards first

3737
07:01:34,788 --> 07:01:32,080
and then we'll

3738
07:01:36,070 --> 07:01:34,798

the other items

3739

07:01:39,670 --> 07:01:36,080

roger that big picture you're just

3740

07:01:39,680 --> 07:01:42,948

roger

3741

07:01:47,110 --> 07:01:45,590

okay ike uh looks like you slid uh i see

3742

07:01:48,788 --> 07:01:47,120

the oi whiff on there we're looking for

3743

07:01:50,070 --> 07:01:48,798

a width six

3744

07:01:51,510 --> 07:01:50,080

uh you're gonna slide it onto the

3745

07:02:00,468 --> 07:01:51,520

fitting and then verify that the two

3746

07:02:08,150 --> 07:02:03,030

the team also completed japanese robotic

3747

07:02:13,750 --> 07:02:10,070

and installed an upgraded camera outside

3748

07:02:16,230 --> 07:02:13,760

the us lab which bob hines just relayed

3749

07:02:28,948 --> 07:02:16,240

his checked out well and performing as

3750

07:02:32,548 --> 07:02:31,030

this view from mike hawkins helmet

3751
07:02:34,230 --> 07:02:32,558
camera giving you a glimpse at those

3752
07:02:45,030 --> 07:02:34,240
batteries aboard the international space

3753
07:02:45,040 --> 07:02:47,670
is good

3754
07:02:51,030 --> 07:02:49,670
okay farmer gloves still look good on

3755
07:02:52,468 --> 07:02:51,040
eye left

3756
07:02:55,510 --> 07:02:52,478
and pinky

3757
07:02:57,190 --> 07:02:55,520
the rtvs the bottom digits

3758
07:02:58,628 --> 07:02:57,200
a little bit of peeling the same about

3759
07:02:59,670 --> 07:02:58,638
an eighth of an inch maybe a quarter of

3760
07:03:00,548 --> 07:02:59,680
an inch

3761
07:03:02,468 --> 07:03:00,558
and

3762
07:03:03,190 --> 07:03:02,478
an eighth of an inch worth of it peeling

3763
07:03:05,590 --> 07:03:03,200

up

3764

07:03:08,868 --> 07:03:05,600

we'll see if it's still connected

3765

07:03:11,670 --> 07:03:08,878

and the fabric underneath is good to go

3766

07:03:14,548 --> 07:03:11,680

then that may change my half is dry

3767

07:03:15,670 --> 07:03:14,558

copy copy that and that left finger is

3768

07:03:20,548 --> 07:03:15,680

that

3769

07:03:26,070 --> 07:03:23,030

the earlier one was my right pinky same

3770

07:03:27,990 --> 07:03:26,080

place on my right hand left pinky

3771

07:03:36,310 --> 07:03:28,000

the earlier one was right

3772

07:03:39,910 --> 07:03:37,910

all right like uh next task for you

3773

07:03:42,070 --> 07:03:39,920

we're going to be a magnetic plate rnr

3774

07:03:44,070 --> 07:03:42,080

at the airlock there so you can head

3775

07:03:46,390 --> 07:03:44,080

back open the thermal cover and you're

3776

07:04:01,910 --> 07:03:46,400

going to retrieve the

3777

07:04:07,430 --> 07:04:03,590

okay farm all right come in board of the

3778

07:04:07,440 --> 07:04:13,110

copy that hopper

3779

07:04:16,070 --> 07:04:14,548

and hopper you're going to continue port

3780

07:04:20,468 --> 07:04:16,080

you're looking for mile marker eight

3781

07:04:28,788 --> 07:04:23,190

eight four two zero roger coming up on

3782

07:04:28,798 --> 07:04:38,628

and my green hook

3783

07:04:47,990 --> 07:04:40,070

and like when you get into the air lock

3784

07:04:48,000 --> 07:05:33,030

thermal cover is coming open

3785

07:05:33,040 --> 07:05:45,750

um

3786

07:05:49,110 --> 07:05:47,110

all right finally i got my green rail

3787

07:05:54,070 --> 07:05:49,120

back

3788

07:05:54,080 --> 07:06:10,788

copy that

3789

07:06:22,628 --> 07:06:12,948

hey farmer i've got the true luck bag

3790

07:06:28,390 --> 07:06:24,948

okay you can secure that bag to the

3791

07:06:30,070 --> 07:06:28,400

airlock handrail right near the hatchway

3792

07:06:31,430 --> 07:06:30,080

with an adjustable

3793

07:06:55,670 --> 07:06:31,440

just make sure that the doors are

3794

07:08:11,030 --> 07:06:57,990

let me see the car break that off

3795

07:08:16,070 --> 07:08:12,548

sorry we didn't hear anything hopper was

3796

07:08:19,510 --> 07:08:17,670

if i was just telling you starboard see

3797

07:08:20,390 --> 07:08:19,520

the cart

3798

07:08:23,030 --> 07:08:20,400

brake

3799

07:08:38,708 --> 07:08:23,040

handle was pushed twice

3800

07:08:42,310 --> 07:08:40,150

okay out of the bag you're going to

3801
07:08:44,788 --> 07:08:42,320
retrieve the iv wrench

3802
07:08:46,628 --> 07:08:44,798
and secure it to the old magnetic plate

3803
07:08:50,070 --> 07:08:46,638
so just let the magnet pull to pull the

3804
07:08:53,830 --> 07:08:52,230
yeah the magnet's not very strong

3805
07:08:55,030 --> 07:08:53,840
and the force of the reds is actually

3806
07:08:56,708 --> 07:08:55,040
pulling it off

3807
07:08:58,628 --> 07:08:56,718
to lock the red out

3808
07:09:04,468 --> 07:08:58,638
but that magnetic force is not very

3809
07:09:04,478 --> 07:09:10,628
copy standby one

3810
07:09:10,638 --> 07:09:31,750
goodbye

3811
07:09:45,590 --> 07:09:33,430
let's see the car two pushes on the

3812
07:09:49,590 --> 07:09:47,430
astronauts mike hawkins and victor

3813
07:09:51,830 --> 07:09:49,600

glover have been

3814

07:09:54,948 --> 07:09:51,840

on their spacewalk now for four hours

3815

07:09:57,030 --> 07:09:54,958

and 43 minutes

3816

07:09:58,468 --> 07:09:57,040

they have moved into get ahead tasks

3817

07:10:02,390 --> 07:09:58,478

after completing all of their major

3818

07:10:06,708 --> 07:10:04,070

i'll keep an eye on it i'll go slow and

3819

07:10:08,548 --> 07:10:06,718

i'll just make sure to tend to it so i i

3820

07:10:10,150 --> 07:10:08,558

it is weak it's not as strong as the one

3821

07:10:12,868 --> 07:10:10,160

that's in the bag is the new magnetic

3822

07:10:21,350 --> 07:10:12,878

plate but uh i'll keep that in mind but

3823

07:10:24,628 --> 07:10:23,190

okay copy that it's just a warning

3824

07:10:26,390 --> 07:10:24,638

remember the loose fasteners could have

3825

07:10:27,670 --> 07:10:26,400

sharp edges

3826
07:10:29,590 --> 07:10:27,680
and as you're looking at it note the

3827
07:10:32,548 --> 07:10:29,600
position of the fastener alignment

3828
07:10:34,468 --> 07:10:32,558
markings

3829
07:10:36,150 --> 07:10:34,478
copy

3830
07:10:37,270 --> 07:10:36,160
points towards the center of the hatch

3831
07:10:39,430 --> 07:10:37,280
opening

3832
07:10:41,190 --> 07:10:39,440
copy good words retrieve the t-handle

3833
07:10:42,150 --> 07:10:41,200
tool and you can release both of those

3834
07:10:47,510 --> 07:10:42,160
fasteners it's going to be

3835
07:10:51,350 --> 07:10:49,750
okay

3836
07:10:53,750 --> 07:10:51,360
that's the release position i was giving

3837
07:10:55,190 --> 07:10:53,760
you the release right toward the center

3838
07:11:00,070 --> 07:10:55,200

of the hatchway

3839

07:11:03,110 --> 07:11:01,350

wrench is still

3840

07:11:09,990 --> 07:11:03,120

felt to it

3841

07:11:13,990 --> 07:11:11,990

nasa astronaut victor glover you can see

3842

07:11:16,150 --> 07:11:14,000

his helmet camera view on the right hand

3843

07:11:18,708 --> 07:11:16,160

side is at the airlock

3844

07:11:20,468 --> 07:11:18,718

retrieves the new magnetic plate

3845

07:11:22,468 --> 07:11:20,478

also being careful with that one lock

3846

07:11:25,350 --> 07:11:22,478

out the red as needed to alleviate the

3847

07:11:29,030 --> 07:11:27,350

glover is working to remove and replace

3848

07:11:30,548 --> 07:11:29,040

a magnetic plate

3849

07:11:33,030 --> 07:11:30,558

that helps the

3850

07:11:34,708 --> 07:11:33,040

thermal cover which you can see open

3851
07:11:56,548 --> 07:11:34,718
at the airlock helps the thermal cover

3852
07:12:00,628 --> 07:11:58,628
we're in a satellite handover and we'll

3853
07:12:03,190 --> 07:12:00,638
regain communications and video with the

3854
07:12:04,548 --> 07:12:03,200
crew shortly

3855
07:12:06,548 --> 07:12:04,558
but currently you're looking at the

3856
07:12:11,190 --> 07:12:06,558
inside of mission control houston at

3857
07:12:17,190 --> 07:12:13,670
this room is staffed 24 hours a day 7

3858
07:12:19,510 --> 07:12:17,200
days a week 365 days a year as all of

3859
07:12:21,750 --> 07:12:19,520
the flight controllers manage maintain

3860
07:12:28,548 --> 07:12:21,760
and help improve the systems aboard the

3861
07:12:28,558 --> 07:12:51,910
the new magnetic plate is aligned

3862
07:12:51,920 --> 07:12:56,548
okay hopper's at basics

3863
07:13:01,910 --> 07:13:00,390

copy that standby one uh spike for the

3864

07:13:04,868 --> 07:13:01,920

zeus fasteners here you're going to go

3865

07:13:06,628 --> 07:13:04,878

count clockwise slowly until the zeus

3866

07:13:08,468 --> 07:13:06,638

fastener drops in

3867

07:13:23,030 --> 07:13:08,478

and then you're going to go clockwise to

3868

07:13:27,190 --> 07:13:25,270

we're in another satellite handover as

3869

07:13:29,270 --> 07:13:27,200

nasa astronaut victor glover or as

3870

07:13:30,708 --> 07:13:29,280

you'll hear him referred to as ike which

3871

07:13:33,110 --> 07:13:30,718

is his call sign

3872

07:13:35,590 --> 07:13:33,120

is at the airlock and working to remove

3873

07:14:10,310 --> 07:13:35,600

and replace a magnetic plate that helps

3874

07:14:10,320 --> 07:14:16,708

fastener 1 is installed

3875

07:14:16,718 --> 07:14:28,788

copy that

3876

07:14:28,798 --> 07:14:33,430

number 2 is installed

3877

07:14:33,440 --> 07:14:40,390

the full test will start you solve it

3878

07:14:45,590 --> 07:14:42,070

copy that sounds like a good install

3879

07:14:49,030 --> 07:14:47,270

and when you get a chance give a good

3880

07:14:50,390 --> 07:14:49,040

pull test using the tether point and

3881

07:14:53,590 --> 07:14:50,400

then we'll take an inventory of the crew

3882

07:14:57,430 --> 07:14:55,670

pull test using the tether point let me

3883

07:15:01,430 --> 07:14:57,440

grab the red off of it and i'll give you

3884

07:15:01,440 --> 07:15:06,548

pictures that you want the farmer

3885

07:15:16,468 --> 07:15:10,548

yeah so you confirm you're at base6

3886

07:15:20,708 --> 07:15:19,590

okay we're going to be photographing uh

3887

07:15:46,390 --> 07:15:20,718

the

3888

07:15:46,400 --> 07:15:54,390

see a nitrogen tank

3889

07:15:58,948 --> 07:15:56,868

okay you might have uh you might be one

3890

07:16:00,390 --> 07:15:58,958

bay one bay too far so go back to the

3891

07:16:03,110 --> 07:16:00,400

next um

3892

07:16:04,628 --> 07:16:03,120

bulkhead further starboard and the ddcu

3893

07:16:14,390 --> 07:16:04,638

should be there and the connectors we're

3894

07:16:19,270 --> 07:16:16,150

was that mile marker we gave you too far

3895

07:16:31,350 --> 07:16:21,750

i think it might have been

3896

07:16:31,360 --> 07:16:34,708

are you ready for the in-store

3897

07:16:38,868 --> 07:16:36,788

okay copy that ike we're ready and since

3898

07:16:43,670 --> 07:16:38,878

you only opened half of the bag we only

3899

07:16:48,628 --> 07:16:46,548

uh okay plus i stuck the uh wrench i

3900

07:16:50,788 --> 07:16:48,638

stuck the iv wrench and the magnetic

3901

07:16:52,628 --> 07:16:50,798

plate on the other side

3902

07:16:54,230 --> 07:16:52,638

to keep it in uh you know with a closed

3903

07:16:55,430 --> 07:16:54,240

door while i was doing it so they're on

3904

07:16:57,430 --> 07:16:55,440

the other side

3905

07:17:01,990 --> 07:16:57,440

and on

3906

07:17:08,230 --> 07:17:05,190

the t-handle tool and then an empty

3907

07:17:08,240 --> 07:17:13,110

and that's it

3908

07:17:16,948 --> 07:17:15,350

okay and i think you said that they may

3909

07:17:18,948 --> 07:17:16,958

have been on the other side but the iva

3910

07:17:22,628 --> 07:17:18,958

wrench and the magnetic plate are both

3911

07:17:36,708 --> 07:17:25,270

we are on the other side good yes

3912

07:17:42,150 --> 07:17:39,190

okay i'm at the

3913

07:17:47,110 --> 07:17:42,160

port venus right above the

3914

07:17:50,548 --> 07:17:48,388

yeah it looks like the right spot up

3915

07:17:52,948 --> 07:17:50,558

there so we're basically looking for a

3916

07:17:54,868 --> 07:17:52,958

good imagery of those connectors

3917

07:18:00,948 --> 07:17:54,878

and the surrounding structure that are

3918

07:18:04,230 --> 07:18:02,868

and if you see ta clamps or p clamps

3919

07:18:07,750 --> 07:18:04,240

those are the kinds of things we're also

3920

07:18:07,760 --> 07:18:32,150

roger

3921

07:18:37,510 --> 07:18:34,388

this view from helmet camera of nasa

3922

07:18:39,670 --> 07:18:37,520

astronaut victor glover

3923

07:18:47,750 --> 07:18:39,680

who has just completed a removal and

3924

07:19:14,468 --> 07:18:49,430

this new magnet will help keep the

3925

07:19:23,190 --> 07:19:17,110

and i just confirmed that your ptt

3926

07:19:27,350 --> 07:19:25,350

that is correct

3927

07:19:29,270 --> 07:19:27,360

okay copy that uh

3928

07:19:31,670 --> 07:19:29,280

any other pictures

3929

07:19:33,350 --> 07:19:31,680

a firm hopper stand by one second

3930

07:19:35,190 --> 07:19:33,360

actually if you want to go ahead and

3931

07:19:37,110 --> 07:19:35,200

translate uh

3932

07:19:38,548 --> 07:19:37,120

one bay i guess it might be two bays

3933

07:19:40,628 --> 07:19:38,558

over bay ten

3934

07:19:50,388 --> 07:19:40,638

mile marker eight eight two zero and it

3935

07:19:50,398 --> 07:19:58,788

and how are you feeling hopper uh pike

3936

07:20:03,750 --> 07:20:00,788

that's unclear is that good or bad

3937

07:20:08,388 --> 07:20:03,760

well what do you think your farmer

3938

07:20:12,628 --> 07:20:10,230

yeah uh hopper so we're looking at the

3939

07:20:15,030 --> 07:20:12,638

uh the port side of the pump module uh

3940

07:20:17,430 --> 07:20:15,040

we've got uh some more photos there um

3941

07:20:20,468 --> 07:20:17,440

there's the mli attachment and then

3942

07:20:22,230 --> 07:20:20,478

based on overview

3943

07:20:23,910 --> 07:20:22,240

yeah no i copy that i'm just saying what

3944

07:20:28,468 --> 07:20:23,920

are you guys thinking from uh

3945

07:20:33,270 --> 07:20:30,548

so you had a good day

3946

07:20:35,110 --> 07:20:33,280

yep totally agree there are three more

3947

07:20:37,510 --> 07:20:35,120

photo sites that are kind of in line

3948

07:20:39,510 --> 07:20:37,520

here just along face one

3949

07:20:41,030 --> 07:20:39,520

that would be part of this get ahead

3950

07:20:42,310 --> 07:20:41,040

that you're doing

3951
07:20:44,230 --> 07:20:42,320
and then for

3952
07:20:46,310 --> 07:20:44,240
spike we were going to send him out to

3953
07:20:54,388 --> 07:20:46,320
do the mmod

3954
07:21:00,708 --> 07:20:57,030
why don't we take these pictures and

3955
07:21:07,430 --> 07:21:02,310
okay that sounds like uh sounds like a

3956
07:21:11,110 --> 07:21:09,590
okay i'm at uh

3957
07:21:15,270 --> 07:21:11,120
10.

3958
07:21:18,788 --> 07:21:17,190
okay copy that uh

3959
07:21:21,430 --> 07:21:18,798
ike

3960
07:21:23,190 --> 07:21:21,440
oh sorry hopper uh you're at the bay ten

3961
07:21:30,868 --> 07:21:23,200
uh should be around mile marker eight

3962
07:21:30,878 --> 07:21:36,628
is where it starts

3963
07:21:41,350 --> 07:21:38,150

okay and basically we're just looking

3964

07:21:46,388 --> 07:21:41,360

for a photo of the moi attachment points

3965

07:21:46,398 --> 07:21:50,150

along the mdm

3966

07:21:55,670 --> 07:21:53,110

along the front module

3967

07:21:57,910 --> 07:21:55,680

yeah so if you just get just port of the

3968

07:21:59,910 --> 07:21:57,920

pump module and then take the picture as

3969

07:22:35,430 --> 07:21:59,920

you're looking aft and starboard along

3970

07:22:38,230 --> 07:22:36,948

and like we're just going to hold you in

3971

07:22:39,430 --> 07:22:38,240

position if you want to maybe take a

3972

07:22:46,070 --> 07:22:39,440

look in the air lock and make sure that

3973

07:22:49,750 --> 07:22:48,150

id is not a use i would just

3974

07:22:51,190 --> 07:22:49,760

that's another word i'd use to describe

3975

07:22:52,468 --> 07:22:51,200

the airlock right now

3976

07:22:56,150 --> 07:22:52,478

copy that

3977

07:23:25,910 --> 07:22:56,160

hurry if you want to hang out and relax

3978

07:23:28,948 --> 07:23:27,670

if i can put some of these bungees to

3979

07:23:31,670 --> 07:23:28,958

use

3980

07:23:33,430 --> 07:23:31,680

yeah i tried with uh

3981

07:23:34,788 --> 07:23:33,440

with the wve

3982

07:23:43,750 --> 07:23:34,798

yeah

3983

07:23:48,310 --> 07:23:46,548

four hours and 57 minutes into today's

3984

07:23:51,670 --> 07:23:48,320

spacewalk the international space

3985

07:23:54,948 --> 07:23:51,680

station is flying 265 statute miles

3986

07:23:56,708 --> 07:23:54,958

over the southern coast of ireland

3987

07:23:58,948 --> 07:23:56,718

this view is from the helmet camera of

3988

07:24:03,670 --> 07:23:58,958

nasa astronaut victor glover on his

3989

07:24:07,750 --> 07:24:05,110

this is the helmet camera of mike

3990

07:24:09,750 --> 07:24:07,760

hopkins my apologies he is taking photos

3991

07:24:11,270 --> 07:24:09,760

of the external

3992

07:24:13,670 --> 07:24:11,280

uh portions of the space station to

3993

07:24:15,350 --> 07:24:13,680

document its current state

3994

07:24:18,708 --> 07:24:15,360

meanwhile victor glover is at the

3995

07:24:20,788 --> 07:24:18,718

airlock having just wrapped up a removal

3996

07:24:25,990 --> 07:24:20,798

and replacement of an airlock magnet to

3997

07:24:29,830 --> 07:24:27,670

these were both get ahead tasks on

3998

07:24:31,990 --> 07:24:29,840

today's timeline have the astronauts

3999

07:24:33,190 --> 07:24:32,000

having completed all of their major

4000

07:24:35,110 --> 07:24:33,200

tasks

4001
07:24:53,350 --> 07:24:35,120
moving swiftly and ahead of schedule the

4002
07:24:53,360 --> 07:25:17,430
come on

4003
07:25:21,350 --> 07:25:19,430
okay

4004
07:25:23,270 --> 07:25:21,360
i opened up the middle as much as i can

4005
07:25:24,788 --> 07:25:23,280
that uh

4006
07:25:26,708 --> 07:25:24,798
the medium are you guys looking pretty

4007
07:25:27,830 --> 07:25:26,718
good at the uh

4008
07:25:29,350 --> 07:25:27,840
the

4009
07:25:31,350 --> 07:25:29,360
is uh it's gonna

4010
07:25:34,070 --> 07:25:31,360
make it a little challenging you got it

4011
07:25:35,430 --> 07:25:34,080
up forward against the

4012
07:25:36,708 --> 07:25:35,440
the hatch

4013
07:25:41,030 --> 07:25:36,718

it is

4014

07:25:43,110 --> 07:25:41,040

fast and against the hack yeah yeah okay

4015

07:25:56,708 --> 07:25:43,120

all right i'm hanging out in my usual

4016

07:25:56,718 --> 07:26:19,910

uh

4017

07:26:19,920 --> 07:26:37,990

bye

4018

07:26:38,000 --> 07:26:50,868

all right talk to the fiesta

4019

07:26:50,878 --> 07:26:54,948

see you

4020

07:26:54,958 --> 07:27:23,270

enjoying the views enjoying the view

4021

07:27:27,510 --> 07:27:25,350

both of our astronauts come out of our

4022

07:27:29,510 --> 07:27:27,520

astronauts coming into frame now in the

4023

07:27:31,990 --> 07:27:29,520

left you can see mike hopkins with the

4024

07:27:34,548 --> 07:27:32,000

red stripes around his spacesuit who was

4025

07:27:39,110 --> 07:27:34,558

ev1 or extra vehicular crew member one

4026
07:27:53,830 --> 07:27:41,270
and on the right is victor glover on his

4027
07:27:53,840 --> 07:27:56,230
okay

4028
07:27:56,240 --> 07:28:00,468
we are both at the airlock

4029
07:28:05,430 --> 07:28:03,190
and i think it's time

4030
07:28:07,270 --> 07:28:05,440
i'm going to take one last look around

4031
07:28:15,030 --> 07:28:07,280
watch the

4032
07:28:15,040 --> 07:28:19,510
beautiful view all right

4033
07:28:27,110 --> 07:28:21,190
yeah enjoy the view you guys did a great

4034
07:28:31,110 --> 07:28:28,310
when you get a chance that someone can

4035
07:28:35,350 --> 07:28:31,120
take a look at the airlock hatch fit in

4036
07:28:35,360 --> 07:28:38,388
roger

4037
07:28:38,398 --> 07:28:44,388
i can see him easy

4038
07:28:49,750 --> 07:28:46,070

okay i

4039

07:28:51,030 --> 07:28:49,760

my waist feather is to the d-ring

4040

07:28:54,548 --> 07:28:51,040

in the airlock

4041

07:28:56,150 --> 07:28:54,558

tail closed lighter lock black on black

4042

07:28:58,708 --> 07:28:56,160

got a good pull test

4043

07:29:00,628 --> 07:28:58,718

and

4044

07:29:10,388 --> 07:29:00,638

let me put my

4045

07:29:10,398 --> 07:29:37,270

thank you

4046

07:29:41,110 --> 07:29:38,868

we're experiencing another satellite

4047

07:29:43,430 --> 07:29:41,120

handover as the astronauts prepare to

4048

07:29:45,910 --> 07:29:43,440

ingress or enter the airlock following

4049

07:29:47,990 --> 07:29:45,920

today's spacewalk

4050

07:29:50,310 --> 07:29:48,000

the spacewalk itself won't be considered

4051
07:29:55,670 --> 07:29:50,320
complete until re-pressurization of the

4052
07:29:55,680 --> 07:30:15,750
um

4053
07:30:19,590 --> 07:30:16,708
okay

4054
07:30:30,310 --> 07:30:19,600
ev1 is in the airlock and i am

4055
07:30:30,320 --> 07:30:33,670
copies

4056
07:30:38,070 --> 07:30:35,670
and uh confirming so you gotta save each

4057
07:30:40,150 --> 07:30:38,080
other cheating for your waste tether

4058
07:30:48,948 --> 07:30:40,160
i do but just let me get a double check

4059
07:30:52,708 --> 07:30:50,708
that's affirmative

4060
07:30:56,070 --> 07:30:52,718
philosophy extender velcro satellite

4061
07:30:58,150 --> 07:30:56,080
black unblock good pull test copy that

4062
07:31:00,070 --> 07:30:58,160
my weight center small hose is locked in

4063
07:31:01,910 --> 07:31:00,080

my right bearing extender

4064

07:31:03,270 --> 07:31:01,920

big hook is locked to your safety tether

4065

07:31:05,510 --> 07:31:03,280

anchor hook

4066

07:31:08,468 --> 07:31:05,520

eight closed locked back on black

4067

07:31:10,548 --> 07:31:08,478

i've got your six cutter anchor hook

4068

07:31:13,910 --> 07:31:10,558

off the handrail lock to my hook black

4069

07:31:19,270 --> 07:31:13,920

on blocks good full test between the two

4070

07:31:19,280 --> 07:31:24,230

putting that in the airlock

4071

07:31:29,750 --> 07:31:27,750

and i will grab my tether anchor

4072

07:31:38,070 --> 07:31:29,760

hold hook

4073

07:31:41,750 --> 07:31:40,070

and whenever you're ready

4074

07:31:46,070 --> 07:31:41,760

i will come on in

4075

07:31:46,080 --> 07:32:16,788

now

4076
07:32:20,548 --> 07:32:18,708
i've got the

4077
07:32:23,030 --> 07:32:20,558
hammer group

4078
07:32:24,230 --> 07:32:23,040
it is on the outside but i've got it

4079
07:32:25,670 --> 07:32:24,240
held low

4080
07:33:47,750 --> 07:32:25,680
okay

4081
07:33:51,430 --> 07:33:49,510
all right nice job on the ingress when

4082
07:33:54,310 --> 07:33:51,440
you guys are ready you can remove the

4083
07:34:01,430 --> 07:33:54,320
scu's from the stowage pouches

4084
07:34:01,440 --> 07:34:10,548
roger

4085
07:34:18,230 --> 07:34:11,670
okay

4086
07:34:22,788 --> 07:34:21,190
i bring my feet up a little bit more

4087
07:34:25,110 --> 07:34:22,798
uh yeah there's

4088
07:34:26,708 --> 07:34:25,120

you're hitting it somebody pull it down

4089

07:34:28,788 --> 07:34:26,718

hitting something else

4090

07:34:30,388 --> 07:34:28,798

there you go how about that

4091

07:34:31,190 --> 07:34:30,398

that's about as low as i can get the

4092

07:34:36,548 --> 07:34:31,200

light

4093

07:34:36,558 --> 07:34:39,830

how's that feel

4094

07:34:42,708 --> 07:34:41,190

okay

4095

07:34:45,990 --> 07:34:42,718

oh i

4096

07:34:46,000 --> 07:34:50,548

off okay

4097

07:34:53,590 --> 07:34:52,230

i can probably get you a little more

4098

07:34:55,030 --> 07:34:53,600

room

4099

07:34:57,110 --> 07:34:55,040

when it's time to close the hatch i mean

4100

07:35:01,430 --> 07:34:57,120

you need to go a little more a little

4101
07:35:05,430 --> 07:35:03,910
okay right here you say put the dcm uh

4102
07:35:13,030 --> 07:35:05,440
sus vcc

4103
07:35:17,270 --> 07:35:15,030
nasa astronauts mike hopkins and victor

4104
07:35:19,350 --> 07:35:17,280
glover are back inside the crew lock

4105
07:35:21,750 --> 07:35:19,360
portion of the quest airlock with the

4106
07:35:27,670 --> 07:35:21,760
thermal cover closed more than a five

4107
07:35:34,310 --> 07:35:29,670
it looks good i don't see any gaps from

4108
07:35:34,320 --> 07:35:56,830
copy that thank you

4109
07:35:56,840 --> 07:36:19,590
foreign yeah

4110
07:36:25,750 --> 07:36:22,310
this view of jackson astronaut japanese

4111
07:36:28,788 --> 07:36:25,760
aerospace exploration agency

4112
07:36:33,270 --> 07:36:31,190
and nasa astronaut kate rubins

4113
07:36:35,190 --> 07:36:33,280

these two were maneuvering the canada

4114

07:36:36,948 --> 07:36:35,200

arm 2 from inside the international

4115

07:36:39,670 --> 07:36:36,958

space station today and helping victor

4116

07:36:43,190 --> 07:36:39,680

glover reach where he needed to be

4117

07:37:06,310 --> 07:36:45,510

and hopper confirmed your scu is

4118

07:37:12,868 --> 07:37:10,310

okay too seu is connected

4119

07:37:16,230 --> 07:37:12,878

okay copy that a reminder a tcb setting

4120

07:37:18,070 --> 07:37:16,240

of 8 will minimize the scu cooling time

4121

07:37:26,548 --> 07:37:18,080

and with that you guys can switch water

4122

07:37:26,558 --> 07:37:34,628

one water off pv2 water off

4123

07:37:50,708 --> 07:37:35,910

copy that that starts our two minute

4124

07:37:54,948 --> 07:37:53,030

rubens and naguchi in your screen now

4125

07:37:56,628 --> 07:37:54,958

are standing by to help the astronauts

4126
07:37:58,150 --> 07:37:56,638
out of their suits after

4127
07:38:01,830 --> 07:37:58,160
depressurization of the crew lock

4128
07:38:05,830 --> 07:38:03,750
the start of depressurization will mark

4129
07:38:07,510 --> 07:38:05,840
the end of the spacewalk but will be on

4130
07:38:10,548 --> 07:38:07,520
the air until the astronauts remove

4131
07:38:16,230 --> 07:38:12,070
there's a lot of stuff in here it wants

4132
07:38:16,240 --> 07:38:33,670
shall be all

4133
07:38:36,708 --> 07:38:35,110
okay farmer now i'm seeing a little bit

4134
07:38:38,388 --> 07:38:36,718
of a gap in the thermal cover but it's

4135
07:38:40,150 --> 07:38:38,398
maybe two inches

4136
07:38:50,388 --> 07:38:40,160
on the forward side

4137
07:38:50,398 --> 07:38:58,310
copy that that's a good config

4138
07:38:58,320 --> 07:39:44,548

everyone

4139

07:39:47,670 --> 07:39:45,670

okay that's the completion of the

4140

07:39:49,510 --> 07:39:47,680

two-minute timer again verifying the

4141

07:39:51,670 --> 07:39:49,520

hatchway is clear

4142

07:39:53,270 --> 07:39:51,680

and verify also that the handle position

4143

07:40:04,548 --> 07:39:53,280

is per the hatch decal then you can

4144

07:40:11,110 --> 07:40:06,230

i'm going to come down your way a little

4145

07:40:13,990 --> 07:40:11,120

bit louder yeah i'm uh

4146

07:40:16,230 --> 07:40:14,000

as far forward as i can get standby i

4147

07:40:18,070 --> 07:40:16,240

can give you maybe a little more

4148

07:40:28,070 --> 07:40:18,080

about that

4149

07:40:28,080 --> 07:41:12,070

um

4150

07:41:16,230 --> 07:41:14,070

five hours and 15 minutes into today's

4151
07:41:32,230 --> 07:41:16,240
spacewalk and victor glover working to

4152
07:41:36,468 --> 07:41:33,990
i need to go down a little bit more my

4153
07:41:46,230 --> 07:41:36,478
foot's cold or something okay

4154
07:41:46,240 --> 07:42:09,750
ah perfect

4155
07:42:09,760 --> 07:42:13,590
all right

4156
07:42:19,430 --> 07:42:17,990
they're closing decals is not

4157
07:42:22,548 --> 07:42:19,440
it's just

4158
07:42:25,830 --> 07:42:22,558
at least i didn't see it yeah

4159
07:42:26,628 --> 07:42:25,840
okay so let's

4160
07:42:28,788 --> 07:42:26,638
put

4161
07:42:31,670 --> 07:42:28,798
it in the lock

4162
07:42:33,990 --> 07:42:31,680
before you move it oh no once you put it

4163
07:42:36,548 --> 07:42:34,000

in the locked position for the last

4164

07:42:40,468 --> 07:42:36,558

position i put it in lock yep

4165

07:42:40,478 --> 07:42:59,110

okay going counterclockwise

4166

07:43:04,070 --> 07:43:01,510

copy that hatch closed and lock

4167

07:43:13,350 --> 07:43:04,080

with that hopper you can switch on the

4168

07:43:18,868 --> 07:43:15,990

and that's a check oxygen emu one and

4169

07:43:22,310 --> 07:43:18,878

two are already open

4170

07:43:38,868 --> 07:43:22,320

yep good call uh next switch power ev1

4171

07:43:38,878 --> 07:43:42,708

18.6

4172

07:44:04,788 --> 07:43:45,750

good words on your dcm switch power to

4173

07:44:08,468 --> 07:44:07,030

the quest airlock hatch is now closed as

4174

07:44:13,510 --> 07:44:08,478

the astronauts prepare for

4175

07:44:18,230 --> 07:44:15,830

okay with that over to you soichi to

4176
07:44:23,590 --> 07:44:18,240
continue with crewlock repress on the

4177
07:44:28,868 --> 07:44:26,310
happy father thanks for your help and uh

4178
07:44:31,830 --> 07:44:28,878
if you and you be too uh ready for the

4179
07:44:33,670 --> 07:44:31,840
cool cool look we press

4180
07:44:35,910 --> 07:44:33,680
we are ready

4181
07:44:54,150 --> 07:44:35,920
everyone need to set all through

4182
07:45:00,070 --> 07:44:57,190
and uh so number two check the ev hatch

4183
07:45:01,350 --> 07:45:00,080
empty of close

4184
07:45:03,510 --> 07:45:01,360
close

4185
07:45:06,948 --> 07:45:03,520
okay check great okay now we are

4186
07:45:10,070 --> 07:45:06,958
starting to uh uh we press ib hatch

4187
07:45:12,548 --> 07:45:10,080
equalization valve photo off to norm and

4188
07:45:15,350 --> 07:45:12,558

we'll keep it very very slow if you guys

4189

07:45:32,548 --> 07:45:15,360

are ready we're starting the repress

4190

07:45:39,110 --> 07:45:34,868

houston station uh we press start at

4191

07:45:39,120 --> 07:45:46,788

houston copy0617

4192

07:45:49,910 --> 07:45:48,788

and if you are needed to express alert

4193

07:45:55,750 --> 07:45:49,920

down

4194

07:46:00,948 --> 07:45:58,948

and the idiom how do you like the rate

4195

07:46:02,548 --> 07:46:00,958

of rippers

4196

07:46:05,030 --> 07:46:02,558

really too sorry

4197

07:46:07,270 --> 07:46:05,040

good job no worse

4198

07:46:17,750 --> 07:46:07,280

i'll be a good place

4199

07:46:22,150 --> 07:46:19,990

the beginning of repressurization marks

4200

07:46:26,468 --> 07:46:22,160

the official end of the space walk at 12

4201
07:46:32,230 --> 07:46:28,948
bringing today's total to a 5 hour and

4202
07:47:57,670 --> 07:46:32,240
19 minute space walk beginning at 6 56

4203
07:48:03,510 --> 07:48:00,388
today's spacewalk which started at 6 56

4204
07:48:07,030 --> 07:48:03,520
a.m central time has now completed

4205
07:48:09,670 --> 07:48:07,040
wrapping up at 12 16 pm central time

4206
07:48:13,910 --> 07:48:09,680
marking a 5 hour and 20 minute space

4207
07:48:16,070 --> 07:48:13,920
walk for mike hopkins and victor glover

4208
07:48:18,070 --> 07:48:16,080
repressurization continues in the crew

4209
07:48:19,990 --> 07:48:18,080
lock portion of the quest airlock

4210
07:48:21,270 --> 07:48:20,000
meanwhile this view from the equipment

4211
07:48:23,510 --> 07:48:21,280
lock side

4212
07:48:24,868 --> 07:48:23,520
you have soichinoguchi and kate rubins

4213
07:48:32,468 --> 07:48:24,878

stepping the astronauts through their

4214

07:48:37,030 --> 07:48:35,430

uh yeah you can increase a little bit

4215

07:48:40,788 --> 07:48:37,040

okay we're gonna slightly increase the

4216

07:48:45,510 --> 07:48:42,868

okay wait increase how do you like the

4217

07:49:24,548 --> 07:48:45,520

speed using one maybe two

4218

07:49:29,030 --> 07:49:26,628

media and eb2 the next section is when

4219

07:49:30,548 --> 07:49:29,040

the cool look at the 4.0 you will hear

4220

07:49:34,070 --> 07:49:30,558

the electron

4221

07:49:37,030 --> 07:49:34,080

and the cool look at five we will uh

4222

07:49:39,510 --> 07:49:37,040

close the equalization valve to r

4223

07:49:42,150 --> 07:49:39,520

and you guys expect numbers

4224

07:50:06,548 --> 07:49:42,160

i'll copy what

4225

07:50:10,388 --> 07:50:08,948

as refreshation continues a look back at

4226
07:50:12,548 --> 07:50:10,398
what the astronauts accomplished on

4227
07:50:14,548 --> 07:50:12,558
today's spacewalk mike hopkins and

4228
07:50:16,310 --> 07:50:14,558
victor glover completed the battery

4229
07:50:19,510 --> 07:50:16,320
replacement work that began in january

4230
07:50:20,948 --> 07:50:19,520
2017 by securing the final lithium ion

4231
07:50:23,350 --> 07:50:20,958
battery to the international space

4232
07:50:26,548 --> 07:50:23,360
station and installing the final adapter

4233
07:50:28,628 --> 07:50:26,558
plate that completes the power circuit

4234
07:50:30,708 --> 07:50:28,638
they also drilled one bolt to

4235
07:50:31,990 --> 07:50:30,718
secure the dcsu or the direct current

4236
07:50:34,788 --> 07:50:32,000
switching unit

4237
07:50:36,788 --> 07:50:34,798
before mike hawkins moved to remove an h

4238
07:50:41,910 --> 07:50:36,798

fixture which helps prepare the space

4239

07:50:47,270 --> 07:50:45,670

victor glover moved on to a cp3 hd

4240

07:50:49,510 --> 07:50:47,280

camera installation on the starboard

4241

07:50:51,670 --> 07:50:49,520

truss

4242

07:50:53,990 --> 07:50:51,680

and mike hopkins completed the japanese

4243

07:50:56,150 --> 07:50:54,000

experiment module remote manipulator

4244

07:50:57,750 --> 07:50:56,160

system upgrade for a new camera there as

4245

07:51:00,150 --> 07:50:57,760

well

4246

07:51:03,910 --> 07:51:00,160

the duo worked together to complete an

4247

07:51:05,830 --> 07:51:03,920

upgrade for a cp-13 hd camera installed

4248

07:51:07,590 --> 07:51:05,840

outside the us lab

4249

07:51:11,670 --> 07:51:07,600

and that completed the major tasks for

4250

07:51:13,990 --> 07:51:11,680

the day so they moved on to get aheads

4251
07:51:15,510 --> 07:51:14,000
mike hawkins completed an additional h

4252
07:51:17,830 --> 07:51:15,520
fixture removal

4253
07:51:20,388 --> 07:51:17,840
meanwhile victor glover worked on an

4254
07:51:21,990 --> 07:51:20,398
articulating portable foot restraint

4255
07:51:24,708 --> 07:51:22,000
helping configure that for a future

4256
07:51:29,350 --> 07:51:27,270
glover also removed and replaced an

4257
07:51:31,590 --> 07:51:29,360
airlock magnet that will help the

4258
07:51:33,830 --> 07:51:31,600
thermal cover stay in place

4259
07:51:35,910 --> 07:51:33,840
and hopkins took photos of the exterior

4260
07:51:37,990 --> 07:51:35,920
of the space station to document its

4261
07:51:39,910 --> 07:51:38,000
current state

4262
07:51:52,788 --> 07:51:39,920
that brought us to a 5 hour and 20

4263
07:51:52,798 --> 07:51:57,350

uh how do you like the raid

4264

07:52:01,110 --> 07:51:59,270

okay if you want to go up a little

4265

07:52:03,110 --> 07:52:01,120

youtube ps2

4266

07:52:05,270 --> 07:52:03,120

that's not even two years with

4267

07:52:09,830 --> 07:52:05,280

thank uh thank you

4268

07:54:18,230 --> 07:52:10,628

and

4269

07:54:22,628 --> 07:54:20,070

with the completion of today's spacewalk

4270

07:54:25,670 --> 07:54:22,638

we have a look at the updated numbers it

4271

07:54:27,830 --> 07:54:25,680

was 234th spacewalk in support of space

4272

07:54:28,868 --> 07:54:27,840

station assembly maintenance and

4273

07:54:30,708 --> 07:54:28,878

upgrades

4274

07:54:33,910 --> 07:54:30,718

it was a second spacewalk conducted this

4275

07:54:35,430 --> 07:54:33,920

year and the third for expedition 64.

4276
07:54:37,590 --> 07:54:35,440
one of those being conducted out of the

4277
07:54:39,510 --> 07:54:37,600
poisk module and two out of the quest

4278
07:54:41,590 --> 07:54:39,520
module which you saw today

4279
07:54:42,628 --> 07:54:41,600
this was the fourth spacewalk of hopkins

4280
07:54:46,150 --> 07:54:42,638
career

4281
07:54:48,310 --> 07:54:46,160
for a total of 25 hours and 14 minutes

4282
07:54:51,110 --> 07:54:48,320
it was a second to spacewalk of glover's

4283
07:54:53,750 --> 07:54:51,120
career for a total of 12 hours and 16

4284
07:54:56,230 --> 07:54:53,760
minutes today's spacewalk lasted five

4285
07:54:59,350 --> 07:54:56,240
hours and 20 minutes in total

4286
07:55:01,510 --> 07:54:59,360
and of the 234 spacewalks that have

4287
07:55:03,270 --> 07:55:01,520
occurred in support of station assembly

4288
07:55:06,868 --> 07:55:03,280

maintenance and upgrades

4289

07:55:59,750 --> 07:55:06,878

totals 61 days 7 hours and 7 minutes of

4290

07:56:05,830 --> 07:56:01,350

all right everyone maybe two uh how do

4291

07:56:10,948 --> 07:56:08,150

if it is good if you need to go up a

4292

07:56:13,430 --> 07:56:10,958

little bit i'm okay if you want same

4293

07:56:32,310 --> 07:56:13,440

okay i assume it will be a 4.0 so we're

4294

07:56:32,320 --> 07:57:19,190

so

4295

07:57:23,910 --> 07:57:21,110

we're in a satellite handover

4296

07:57:26,628 --> 07:57:23,920

international space station spacewalk

4297

07:57:30,070 --> 07:57:26,638

having wrapped up at five

4298

07:57:32,708 --> 07:57:30,080

at 12 16 p.m central time and lasting 5

4299

07:57:34,388 --> 07:57:32,718

hours and 20 minutes repressurization

4300

07:58:05,590 --> 07:57:34,398

continues in the crew lock portion of

4301
07:58:16,468 --> 07:58:07,270
sc 5.0

4302
07:58:21,350 --> 07:58:18,708
the ev1 ev2

4303
07:58:23,590 --> 07:58:21,360
id hatch equalization valve is off and

4304
07:58:26,948 --> 07:58:23,600
now starting two minutes timing

4305
07:58:28,868 --> 07:58:26,958
roger that and i show 5.1 as the final

4306
08:00:03,030 --> 07:58:28,878
copy 5.1

4307
08:00:08,310 --> 08:00:05,590
suicide gucci of jaxa and kate rubins of

4308
08:00:10,388 --> 08:00:08,320
nasa monitoring the repressurization

4309
08:00:13,590 --> 08:00:10,398
of the crew lock portion of the quest

4310
08:00:22,708 --> 08:00:15,750
again today's spacewalk lasting 5 hours

4311
08:00:31,030 --> 08:00:26,708
houston station the p1 is 248 i need one

4312
08:00:31,040 --> 08:00:37,750
houston copies and concurs

4313
08:00:42,708 --> 08:00:40,468

drew from uh 81

4314

08:00:45,910 --> 08:00:42,718

just want to say thanks to

4315

08:00:46,948 --> 08:00:45,920

the entire ifs upgrades 2 team

4316

08:00:48,388 --> 08:00:46,958

um

4317

08:00:50,388 --> 08:00:48,398

farmer and

4318

08:00:52,150 --> 08:00:50,398

vincent and everybody else that worked

4319

08:00:55,110 --> 08:00:52,160

this one well done

4320

08:00:57,830 --> 08:00:55,120

sorry we got out a little late but uh

4321

08:00:59,830 --> 08:00:57,840

i think we had a very very very good day

4322

08:01:01,670 --> 08:00:59,840

and really appreciate you guys that

4323

08:01:04,468 --> 08:01:01,680

everything was solid

4324

08:01:09,190 --> 08:01:04,478

and made it easy to execute so thanks

4325

08:01:12,388 --> 08:01:10,948

yeah thanks hopper appreciate it uh you

4326

08:01:14,230 --> 08:01:12,398

guys did a great job today thanks for

4327

08:01:16,788 --> 08:01:14,240

being flexible uh we got a ton of stuff

4328

08:01:26,948 --> 08:01:16,798

done and uh made a station a much more

4329

08:01:35,830 --> 08:01:28,948

if you guys uh leave the door on time

4330

08:01:39,510 --> 08:01:37,910

the houston station

4331

08:01:47,990 --> 08:01:39,520

the p2 is

4332

08:01:54,388 --> 08:01:50,070

airlock houston copies your go to

4333

08:01:59,830 --> 08:01:57,670

be on ub2 uh check switch grub heaters

4334

08:02:02,788 --> 08:01:59,840

rff

4335

08:02:03,750 --> 08:02:02,798

c1 off pv2 off

4336

08:02:05,270 --> 08:02:03,760

right

4337

08:02:09,670 --> 08:02:05,280

if you wanted to check gloss for

4338

08:02:09,680 --> 08:02:15,030

anyone no change on my gloves

4339

08:02:19,110 --> 08:02:16,708

okay there's a warning about the craft

4340

08:02:22,310 --> 08:02:19,120

checklist obviously doesn't apply to us

4341

08:02:28,070 --> 08:02:22,320

okay next is action eb1 ev2 o2 actuator

4342

08:02:32,830 --> 08:02:31,190

v1 ib db2 ib

4343

08:02:36,070 --> 08:02:32,840

hey next

4344

08:02:38,628 --> 08:02:36,080

is iv hatch equalization while we're

4345

08:02:40,230 --> 08:02:38,638

moving into norm ev members expect

4346

08:02:47,510 --> 08:02:40,240

electron

4347

08:02:54,548 --> 08:02:50,230

and acquisition valve is open slightly

4348

08:02:54,558 --> 08:03:26,150

give me one good go maybe two good to go

4349

08:03:30,708 --> 08:03:28,548

maybe you're able to if at any time you

4350

08:03:32,868 --> 08:03:30,718

want to decrease the speed

4351
08:04:30,310 --> 08:03:32,878
say out live otherwise i want to slowly

4352
08:06:01,350 --> 08:04:31,830
if you are needed to

4353
08:06:05,030 --> 08:06:03,190
coming up on 20 minutes since completion

4354
08:06:07,430 --> 08:06:05,040
of today's spacewalk which is the

4355
08:06:11,468 --> 08:06:07,440
repressurization beginning of the crew

4356
08:06:11,478 --> 08:06:16,788
repressurization continues

4357
08:08:29,990 --> 08:06:17,590
to

4358
08:08:33,990 --> 08:08:32,310
as repressurization continues in the

4359
08:08:35,910 --> 08:08:34,000
crew lock portion of the quest airlock

4360
08:08:40,948 --> 08:08:35,920
another look back at all of the tasks

4361
08:08:45,910 --> 08:08:42,868
the battery upgrades that began in

4362
08:08:48,310 --> 08:08:45,920
january 2017 were completed today when a

4363
08:08:50,388 --> 08:08:48,320

final lithium-ion battery was secured to

4364

08:08:52,150 --> 08:08:50,398

the international space station and a

4365

08:08:56,868 --> 08:08:52,160

final adapter plate was installed

4366

08:08:56,878 --> 08:09:01,830

mike hopkins also removed an h fixture

4367

08:09:08,230 --> 08:09:04,310

and three cameras were installed as well

4368

08:09:10,708 --> 08:09:08,240

a cp3 camera an hd camera that is

4369

08:09:12,868 --> 08:09:10,718

on the starboard truss the japanese

4370

08:09:14,468 --> 08:09:12,878

experiment module remote manipulator

4371

08:09:17,830 --> 08:09:14,478

system camera

4372

08:09:18,830 --> 08:09:17,840

and a cp-13 hd camera installed outside

4373

08:09:21,430 --> 08:09:18,840

the us

4374

08:09:23,830 --> 08:09:21,440

lab the astronauts completed all of

4375

08:09:25,510 --> 08:09:23,840

their major tasks today allowing them

4376
08:09:27,830 --> 08:09:25,520
the opportunity to move into their get

4377
08:09:29,350 --> 08:09:27,840
ahead task which included another h

4378
08:09:31,190 --> 08:09:29,360
fixture removal preparing the

4379
08:09:34,150 --> 08:09:31,200
international space station for future

4380
08:09:35,990 --> 08:09:34,160
power upgrades

4381
08:09:37,990 --> 08:09:36,000
and victor glover worked to configure an

4382
08:09:41,110 --> 08:09:38,000
articulating portable foot restraint or

4383
08:09:43,590 --> 08:09:41,120
apfr for a future spacewalk

4384
08:09:45,590 --> 08:09:43,600
he also removed and replaced an airlock

4385
08:09:46,628 --> 08:09:45,600
magnet to help keep the thermal cover

4386
08:09:49,030 --> 08:09:46,638
closed

4387
08:09:50,548 --> 08:09:49,040
meanwhile mike hopkins took photos of

4388
08:09:52,548 --> 08:09:50,558

the international space station to

4389

08:09:54,230 --> 08:09:52,558

document its current state

4390

08:11:24,788 --> 08:09:54,240

that brought today's spacewalk to 5

4391

08:11:24,798 --> 08:11:52,708

i'm going to stay this way

4392

08:11:52,718 --> 08:12:29,590

bye

4393

08:12:33,030 --> 08:12:31,590

airlock houston space to ground one for

4394

08:12:34,788 --> 08:12:33,040

words on now

4395

08:12:38,310 --> 08:12:34,798

the next procedure one decimal two four

4396

08:12:38,320 --> 08:12:42,628

yeah one two four zero

4397

08:12:47,590 --> 08:12:45,110

okay switching we don't think uh you're

4398

08:12:49,590 --> 08:12:47,600

going to need step one

4399

08:12:52,708 --> 08:12:49,600

we will take care of step four and you

4400

08:12:58,628 --> 08:12:52,718

do not have to perform step five or six

4401
08:13:04,628 --> 08:13:03,030
step skip step one and you take four

4402
08:13:09,110 --> 08:13:04,638
five

4403
08:13:09,120 --> 08:15:01,350
okay

4404
08:15:01,360 --> 08:15:22,150
uh

4405
08:15:50,468 --> 08:15:45,350
um

4406
08:15:52,468 --> 08:15:50,478
this was the 234th spacewalk in support

4407
08:15:53,670 --> 08:15:52,478
of station assembly maintenance and

4408
08:15:55,510 --> 08:15:53,680
upgrades

4409
08:15:58,070 --> 08:15:55,520
it was the second spacewalk of the year

4410
08:15:59,990 --> 08:15:58,080
but the third for expedition 64. one

4411
08:16:02,708 --> 08:16:00,000
having occurred out of the poisk module

4412
08:16:05,190 --> 08:16:02,718
and two out of the quest module as we

4413
08:16:07,750 --> 08:16:05,200

saw today it was the fourth spacewalk of

4414

08:16:10,468 --> 08:16:07,760

mike hopkins career totaling 25 hours

4415

08:16:12,628 --> 08:16:10,478

and 14 minutes in all and the second for

4416

08:16:15,270 --> 08:16:12,638

victor glover who now has 12 hours and

4417

08:16:17,990 --> 08:16:15,280

16 minutes of spacewalking time

4418

08:16:19,910 --> 08:16:18,000

today's spacewalk lasted 5 hours and 20

4419

08:16:21,670 --> 08:16:19,920

minutes and of all of the spacewalks

4420

08:16:24,388 --> 08:16:21,680

conducted at the international space

4421

08:16:26,628 --> 08:16:24,398

station they have totaled 61 days seven

4422

08:16:28,308 --> 08:16:26,638

hours and seven minutes of spacewalking

4423

08:16:31,110 --> 08:16:28,318

time

4424

08:16:34,150 --> 08:16:31,120

houston station none one now the crew of

4425

08:16:36,308 --> 08:16:34,160

people is almost zero so if you guys

4426
08:16:44,948 --> 08:16:36,318
concur we're moving on to the one

4427
08:16:52,230 --> 08:16:47,750
herlock houston we are checking and we

4428
08:17:09,510 --> 08:16:54,548
happy so well moving on to out of the

4429
08:17:15,110 --> 08:17:12,308
we are now officially in the first pva

4430
08:17:35,750 --> 08:17:15,120
and we will we will now open the

4431
08:17:40,308 --> 08:17:38,070
with repressurization complete jack's

4432
08:17:42,230 --> 08:17:40,318
astronaut suicina gucci prepares to open

4433
08:17:43,990 --> 08:17:42,240
the hatch between the crew lock and the

4434
08:18:40,070 --> 08:17:44,000
equipment lock portion of the quest

4435
08:18:40,080 --> 08:19:02,948
thank you

4436
08:19:02,958 --> 08:20:09,430
yup i think that's a good plan

4437
08:20:09,440 --> 08:20:27,590
uh

4438
08:20:31,350 --> 08:20:30,070

nasa astronaut kate rubens now working

4439

08:20:34,150 --> 08:20:31,360

to move

4440

08:20:35,510 --> 08:20:34,160

mike hopkins our ev1 or extravehicular

4441

08:20:37,590 --> 08:20:35,520

crew member one

4442

08:20:39,750 --> 08:20:37,600

into the equipment lock portion of the

4443

08:21:41,110 --> 08:20:39,760

quest airlock where she and suicina

4444

08:21:45,430 --> 08:21:42,468

yeah you need to hopper i'm going to

4445

08:21:47,590 --> 08:21:45,440

take your safer from here so uh when you

4446

08:21:58,708 --> 08:21:47,600

grab on to the hunger

4447

08:22:30,230 --> 08:22:01,110

airlock houston space to ground one crew

4448

08:22:34,948 --> 08:22:32,308

suicide and gucci has removed mike

4449

08:22:36,308 --> 08:22:34,958

hopkins safer or simplified aid for eva

4450

08:22:38,548 --> 08:22:36,318

rescue

4451
08:22:41,030 --> 08:22:38,558
and as you saw we didn't need that today

4452
08:22:42,708 --> 08:22:41,040
but always useful to have just in case

4453
08:22:44,468 --> 08:22:42,718
that would help the astronaut maneuver

4454
08:22:45,990 --> 08:22:44,478
back to the international space station

4455
08:22:48,628 --> 08:22:46,000
should they become detached for any

4456
08:25:20,788 --> 08:22:48,638
reason however they are always using

4457
08:25:25,110 --> 08:25:22,708
with hopkins back inside the equipment

4458
08:25:26,628 --> 08:25:25,120
lock portion of the quest air lock

4459
08:25:27,670 --> 08:25:26,638
rubens reuben zindaguchi will work to

4460
08:25:29,750 --> 08:25:27,680
maneuver

4461
08:25:33,750 --> 08:25:29,760
glover back into the equipment lock

4462
08:25:37,430 --> 08:25:35,270
this is where they will help the space

4463
08:25:39,270 --> 08:25:37,440

walkers doff their spacesuits after

4464

08:25:42,548 --> 08:25:39,280

today's five hour and 20 minutes

4465

08:25:46,230 --> 08:25:42,558

spacewalk starting at 6 56 a.m

4466

08:25:48,230 --> 08:25:46,240

central time and ending at 12 15 p.m

4467

08:27:24,948 --> 08:25:48,240

central time

4468

08:27:29,990 --> 08:27:26,388

the international space station is

4469

08:27:31,510 --> 08:27:30,000

currently flying 262 statute miles

4470

08:27:33,670 --> 08:27:31,520

to the over

4471

08:27:35,350 --> 08:27:33,680

the south pacific ocean to the west of

4472

08:27:37,270 --> 08:27:35,360

french polynesia

4473

08:27:39,910 --> 08:27:37,280

as you can see both spacewalkers are now

4474

08:27:43,430 --> 08:27:39,920

back inside the equipment log portion of

4475

08:27:48,070 --> 08:27:45,910

and nasa astronaut victor glover's safer

4476

08:29:56,468 --> 08:27:48,080

or simplified aid for eva rescue has

4477

08:30:00,468 --> 08:29:58,070

you can see the workstation that allows

4478

08:30:02,868 --> 08:30:00,478

for connections to tools and tethers has

4479

08:30:04,948 --> 08:30:02,878

been removed from victor glover the

4480

08:30:09,990 --> 08:30:04,958

astronauts now preparing to doff their

4481

08:30:13,590 --> 08:30:11,590

another look back at everything they

4482

08:30:14,308 --> 08:30:13,600

accomplished today completing all of

4483

08:30:16,948 --> 08:30:14,318

their

4484

08:30:19,590 --> 08:30:16,958

scheduled tasks and even several of

4485

08:30:21,270 --> 08:30:19,600

their get ahead tasks

4486

08:30:23,430 --> 08:30:21,280

first the spacewalkers completed the

4487

08:30:26,230 --> 08:30:23,440

battery upgrades that began in january

4488

08:30:29,350 --> 08:30:26,240

2017 by driving a final bolt into a

4489

08:30:31,110 --> 08:30:29,360

lithium-ion battery and installing a

4490

08:30:33,510 --> 08:30:31,120

final adapter plate to complete the

4491

08:30:36,070 --> 08:30:33,520

power circuit they also installed a bolt

4492

08:30:36,868 --> 08:30:36,080

into a dcsu or direct current switching

4493

08:30:39,910 --> 08:30:36,878

unit

4494

08:30:41,590 --> 08:30:39,920

before mike hawkins moved to remove an h

4495

08:30:43,110 --> 08:30:41,600

fixture

4496

08:30:46,468 --> 08:30:43,120

that prepares the international space

4497

08:30:48,628 --> 08:30:46,478

station for future power upgrades

4498

08:30:52,388 --> 08:30:48,638

there were three cameras upgraded or

4499

08:30:55,030 --> 08:30:52,398

replaced today the first was a cp3 hd

4500

08:30:56,788 --> 08:30:55,040

camera at the starboard truss

4501
08:30:59,030 --> 08:30:56,798
there was also a camera replaced on the

4502
08:31:02,150 --> 08:30:59,040
japanese experiment module remote

4503
08:31:05,670 --> 08:31:02,160
manipulator system

4504
08:31:09,190 --> 08:31:05,680
and a cp-13 hd camera installed outside

4505
08:31:13,110 --> 08:31:11,430
that completed the main scheduled tasks

4506
08:31:15,510 --> 08:31:13,120
for our spacewalkers

4507
08:31:17,350 --> 08:31:15,520
and they moved into get-ahead tasks

4508
08:31:19,430 --> 08:31:17,360
beginning with another age fixture

4509
08:31:21,430 --> 08:31:19,440
removal by hopkins

4510
08:31:23,270 --> 08:31:21,440
and apfr or

4511
08:31:25,670 --> 08:31:23,280
articulating portable foot restraint

4512
08:31:27,110 --> 08:31:25,680
configuration for a future spacewalk by

4513
08:31:29,430 --> 08:31:27,120

victor glover

4514

08:31:31,750 --> 08:31:29,440

glover also removed and replaced an

4515

08:31:33,030 --> 08:31:31,760

airlock magnet to help thermal cover

4516

08:31:35,510 --> 08:31:33,040

stay closed

4517

08:31:37,350 --> 08:31:35,520

and hopkins took photos of the exterior

4518

08:31:41,750 --> 08:31:37,360

of the station to document its current

4519

08:31:46,308 --> 08:31:43,430

from the time the space walker switched

4520

08:31:48,150 --> 08:31:46,318

their suits to internal power at 6 56

4521

08:31:50,788 --> 08:31:48,160

a.m central time this morning it took

4522

08:31:52,948 --> 08:31:50,798

them five hours and 20 minutes to

4523

08:31:55,670 --> 08:31:52,958

complete the aforementioned tasks

4524

08:33:13,190 --> 08:31:55,680

concluding the spacewalk at 12 16 pm

4525

08:33:16,548 --> 08:33:14,708

the installation of the battery

4526
08:33:18,788 --> 08:33:16,558
completed today as well as the three

4527
08:34:40,070 --> 08:33:18,798
cameras have all been reported to be in

4528
08:34:44,150 --> 08:34:41,670
hopkins and glover are now removing

4529
08:34:45,190 --> 08:34:44,160
their spacewalk gloves which can be very

4530
08:34:47,510 --> 08:34:45,200
rigid

4531
08:34:49,190 --> 08:34:47,520
to use in the during a space walk

4532
08:34:52,150 --> 08:34:49,200
outside the international space station

4533
08:34:55,030 --> 08:34:52,160
so the suit is kept at a pressure of 4.3

4534
08:35:18,308 --> 08:34:55,040
psi or pounds per square inch to make

4535
08:35:22,230 --> 08:35:20,308
and victor glover's all smiles after

4536
08:35:24,788 --> 08:35:22,240
having his helmet removed today being

4537
08:37:47,030 --> 08:35:24,798
his second spacewalk after completing

4538
08:37:50,948 --> 08:37:48,948

gucci and kate rubins working to remove

4539

08:38:19,270 --> 08:37:50,958

the helmet from mike hopkins today's

4540

08:38:23,110 --> 08:38:21,030

now that both astronauts have their

4541

08:38:25,110 --> 08:38:23,120

helmets removed we are going to wrap up

4542

08:38:27,590 --> 08:38:25,120

today's coverage thanks so much for

4543

08:38:29,670 --> 08:38:27,600

tuning in to the spacewalk today where

4544

08:38:32,388 --> 08:38:29,680

mike hawkins and victor glover completed

4545

08:38:34,948 --> 08:38:32,398

the final upgrades of the battery power

4546

08:38:36,230 --> 08:38:34,958

system as well as installed three new

4547

08:38:38,628 --> 08:38:36,240

cameras

4548

08:38:40,388 --> 08:38:38,638

we are looking forward to two other evas

4549

08:38:42,070 --> 08:38:40,398

or spacewalks in the future and we hope

4550

08:38:44,708 --> 08:38:42,080

you'll join us for those as well so stay

4551

08:38:46,948 --> 08:38:44,718

tuned for more information but for today

4552

08:39:32,480 --> 08:38:46,958

that's it for us this is mission control