



1
00:00:13,749 --> 00:00:11,509
good morning and welcome this is mission

2
00:00:15,350 --> 00:00:13,759
control houston you're getting a live

3
00:00:17,029 --> 00:00:15,360
view right now of the equipment lock

4
00:00:19,189 --> 00:00:17,039
section of the quest airlock aboard the

5
00:00:20,630 --> 00:00:19,199
international space station you can see

6
00:00:22,470 --> 00:00:20,640
the crew here getting ready to support

7
00:00:25,109 --> 00:00:22,480
the third space walk of the year

8
00:00:27,029 --> 00:00:25,119
conducted by nasa astronaut raj achari

9
00:00:28,870 --> 00:00:27,039
and european space agency astronaut

10
00:00:30,790 --> 00:00:28,880
matthias maher

11
00:00:32,630 --> 00:00:30,800
chari and maurer are suited up and

12
00:00:34,470 --> 00:00:32,640
getting ready to exit the station's

13
00:00:36,630 --> 00:00:34,480

quest airlock for a six and a half hour

14

00:00:39,030 --> 00:00:36,640

spacewalk to replace hoses on the

15

00:00:41,030 --> 00:00:39,040

radiator beam valve module and make

16

00:00:42,470 --> 00:00:41,040

other upgrades to the station as well

17

00:00:44,310 --> 00:00:42,480

we'll get into more detail about their

18

00:00:54,709 --> 00:00:44,320

space watching walking tasks in just a

19

00:00:58,389 --> 00:00:56,229

chary is wearing the spacesuit with a

20

00:01:01,349 --> 00:00:58,399

red stripe so you can see him

21

00:01:03,750 --> 00:01:01,359

getting outfitted for his safer unit now

22

00:01:05,270 --> 00:01:03,760

maurer is on the unmarked space suit on

23

00:01:06,550 --> 00:01:05,280

the left of your screen

24

00:01:08,070 --> 00:01:06,560

again we're in the equipment lock

25

00:01:10,230 --> 00:01:08,080

section of the quest airlock aboard the

26
00:01:12,070 --> 00:01:10,240
international space station now and soon

27
00:01:14,070 --> 00:01:12,080
our spacewalkers will be moved into the

28
00:01:16,149 --> 00:01:14,080
crew lock just on the other side of the

29
00:01:17,510 --> 00:01:16,159
door behind them

30
00:01:20,390 --> 00:01:17,520
we're going to be talking a lot today

31
00:01:22,070 --> 00:01:20,400
about the radiator beam valve module

32
00:01:24,310 --> 00:01:22,080
essentially the space station has six

33
00:01:26,550 --> 00:01:24,320
radiators with two radiator beam valve

34
00:01:29,109 --> 00:01:26,560
modules each so 12 total

35
00:01:31,429 --> 00:01:29,119
the radiator beam valve module or rbvm

36
00:01:33,510 --> 00:01:31,439
as you might hear it right here

37
00:01:35,990 --> 00:01:33,520
as you might have hear it referred to is

38
00:01:37,429 --> 00:01:36,000

a box that allows ground control

39

00:01:39,109 --> 00:01:37,439

the ground to control the ammonia

40

00:01:40,630 --> 00:01:39,119

flowing through the radiators to cool

41

00:01:42,550 --> 00:01:40,640

the space station

42

00:01:44,789 --> 00:01:42,560

they work similar to how your car radiator

43

00:01:46,149 --> 00:01:44,799

radiator cools the engine

44

00:01:48,389 --> 00:01:46,159

one of the hoses that connects the

45

00:01:50,630 --> 00:01:48,399

radiator to the rbbm was found to be

46

00:01:52,710 --> 00:01:50,640

leaking about four years ago and was

47

00:01:54,149 --> 00:01:52,720

sent back to earth for repair it was

48

00:02:18,550 --> 00:01:54,159

flown back to the station and our

49

00:02:23,270 --> 00:02:20,309

so chari and mar are in their extra

50

00:02:25,030 --> 00:02:23,280

vehicular mobility units or emu's

51
00:02:26,790 --> 00:02:25,040
when out on the spacewalk these suits

52
00:02:29,670 --> 00:02:26,800
provide life support and communications

53
00:02:31,910 --> 00:02:29,680
to the astronauts who wear them

54
00:02:33,509 --> 00:02:31,920
the safer unit is what's being attached

55
00:02:35,589 --> 00:02:33,519
to the back of the spacesuit and that's

56
00:02:45,670 --> 00:02:35,599
what chari and mar are getting outfitted

57
00:02:49,910 --> 00:02:47,270
safer is an acronym that stands for

58
00:02:51,830 --> 00:02:49,920
simplified aid for eva rescue the safer

59
00:02:53,910 --> 00:02:51,840
units are a bit like a jet pack they're

60
00:02:54,869 --> 00:02:53,920
worn during spacewalks as a precaution

61
00:02:58,470 --> 00:02:54,879
only

62
00:03:00,550 --> 00:02:58,480
that the astronauts were to become

63
00:03:02,390 --> 00:03:00,560

untethered from the space station you'll

64

00:03:04,229 --> 00:03:02,400

hear all throughout the coverage our

65

00:03:05,750 --> 00:03:04,239

ground iv stephanie wilson today asking

66

00:03:10,710 --> 00:03:05,760

the crew to check on their tethers and

67

00:03:13,589 --> 00:03:11,910

however if they were to become

68

00:03:15,350 --> 00:03:13,599

untethered the astronauts would use

69

00:05:37,830 --> 00:03:15,360

their safer units to propel themselves

70

00:05:40,870 --> 00:05:39,590

today's spacewalk comes just eight days

71

00:05:43,670 --> 00:05:40,880

after the space station's previous

72

00:05:45,830 --> 00:05:43,680

spacewalk on march 15th nasa astronauts

73

00:05:47,590 --> 00:05:45,840

kayla baron and raj atari donned their

74

00:05:48,790 --> 00:05:47,600

spacesuits and went outside to prepare

75

00:05:51,270 --> 00:05:48,800

the space station for future

76

00:05:52,870 --> 00:05:51,280

installation of rollout solar arrays

77

00:05:55,510 --> 00:05:52,880

it was charlie's first spacewalk

78

00:05:57,350 --> 00:05:55,520

clocking in at 6 hours and 54 minutes

79

00:05:58,870 --> 00:05:57,360

today the honor of first spacewalk goes

80

00:06:01,110 --> 00:05:58,880

to matthias maurer

81

00:06:03,189 --> 00:06:01,120

you may hear mauer referred to as ev2

82

00:06:17,909 --> 00:06:03,199

and chary as ev1 by our ground iv

83

00:06:21,670 --> 00:06:20,309

charlie is with the red striped suit on

84

00:06:23,990 --> 00:06:21,680

the right of your screen getting

85

00:06:26,070 --> 00:06:24,000

outfitted with his safer unit

86

00:06:28,150 --> 00:06:26,080

mars to the left

87

00:06:30,309 --> 00:06:28,160

nasa astronauts tom marshburn and kayla

88

00:06:32,710 --> 00:06:30,319

barron are wearing the blue shirts you

89

00:06:35,830 --> 00:06:32,720

can see kayla baron helping out raj

90

00:06:37,830 --> 00:06:35,840

atari get a safer unit on on screen now

91

00:06:41,350 --> 00:06:37,840

center of your screen

92

00:06:43,189 --> 00:06:41,360

tom marshburn should be seen floating

93

00:06:45,749 --> 00:06:43,199

across your screen as well

94

00:06:47,590 --> 00:06:45,759

tom marshburn is the suit iv kayla baron

95

00:06:49,110 --> 00:06:47,600

is his assist today

96

00:06:50,629 --> 00:06:49,120

that means that they helped mara and

97

00:06:52,309 --> 00:06:50,639

chary put their spacesuits on and

98

00:06:54,469 --> 00:06:52,319

conduct a leak check which happened just

99

00:06:56,309 --> 00:06:54,479

a few moments ago and other system

100

00:07:00,950 --> 00:06:56,319

checks before helping our spacewalkers

101
00:07:04,230 --> 00:07:02,790
once our spacewalkers step outside

102
00:07:05,749 --> 00:07:04,240
marshburn and baron will continue to

103
00:07:12,230 --> 00:07:05,759
support today's operation at the

104
00:07:17,270 --> 00:07:15,029
tom marshburn is on screen now assisting

105
00:07:19,830 --> 00:07:17,280
kayla barron with our space suited

106
00:07:21,589 --> 00:07:19,840
astronaut rajatari chari is now moving

107
00:07:57,270 --> 00:07:21,599
to the crew lock section of the quest

108
00:08:00,629 --> 00:07:58,790
the crew began their day just after

109
00:08:02,230 --> 00:08:00,639
midnight central time today but the crew

110
00:08:05,189 --> 00:08:02,240
has been preparing for today's spacewalk

111
00:08:07,589 --> 00:08:05,199
all week long chary marshburn baron and

112
00:08:09,350 --> 00:08:07,599
mar had conference with the spacewalk

113
00:08:11,589 --> 00:08:09,360

officers on the ground on friday and

114

00:08:13,749 --> 00:08:11,599

sunday to go over the procedures on

115

00:08:15,189 --> 00:08:13,759

monday chari and mar have the

116

00:08:16,629 --> 00:08:15,199

opportunity to practice with some of the

117

00:08:18,390 --> 00:08:16,639

connectors that they'll be working with

118

00:08:20,390 --> 00:08:18,400

today and configure the tools that

119

00:08:22,390 --> 00:08:20,400

they'll be meeting with them today

120

00:08:25,510 --> 00:08:22,400

yesterday chary amar preps the equipment

121

00:08:27,110 --> 00:08:25,520

lock that mara is in now and all four

122

00:09:37,990 --> 00:08:27,120

met with the spacewalk officers via

123

00:09:41,590 --> 00:09:40,070

earlier today before the spacewalking

124

00:09:43,750 --> 00:09:41,600

astronauts got outfitted into their

125

00:09:45,829 --> 00:09:43,760

spacesuits they wore masks that allow

126

00:09:48,310 --> 00:09:45,839

them to breathe pure oxygen

127

00:09:49,990 --> 00:09:48,320

to purge nitrogen from their bodies

128

00:09:51,990 --> 00:09:50,000

earlier today just before our coverage

129

00:09:54,389 --> 00:09:52,000

began they completed another portion of

130

00:09:57,509 --> 00:09:54,399

their pre-breathe exercise known as

131

00:10:03,430 --> 00:09:57,519

in-suit light exercise or aisle

132

00:10:07,829 --> 00:10:05,350

this exercise involves moving their arms

133

00:10:09,829 --> 00:10:07,839

and legs as part of the exercise these

134

00:10:11,990 --> 00:10:09,839

movements help increase their metabolic

135

00:10:13,829 --> 00:10:12,000

rate and continue to help purge excess

136

00:10:15,269 --> 00:10:13,839

nitrogen from their blood

137

00:10:17,190 --> 00:10:15,279

doing so

138

00:10:19,350 --> 00:10:17,200

causes the spacewalking astronauts to

139

00:10:21,509 --> 00:10:19,360

avoid getting the bends also known as

140

00:10:23,190 --> 00:10:21,519

decompression sickness if you've ever

141

00:10:24,550 --> 00:10:23,200

gone scuba diving you may be trained on

142

00:10:26,230 --> 00:10:24,560

how to avoid the bends while diving

143

00:10:27,750 --> 00:10:26,240

underwater as well just like our

144

00:10:32,790 --> 00:10:27,760

astronauts when they go into the vacuum

145

00:10:36,710 --> 00:10:34,630

that device you see on the left of your

146

00:10:38,710 --> 00:10:36,720

screen is the safer unit looks like

147

00:11:37,269 --> 00:10:38,720

european space agency astronaut matthias

148

00:11:40,389 --> 00:11:38,790

you're getting a live view now of

149

00:11:42,310 --> 00:11:40,399

mission control

150

00:11:44,310 --> 00:11:42,320

you may be familiar with the term capcom

151

00:11:45,990 --> 00:11:44,320

or capsule communicator this is the

152

00:11:48,069 --> 00:11:46,000

person in mission control who talks to

153

00:11:49,829 --> 00:11:48,079

the astronauts in space but when there's

154

00:11:51,750 --> 00:11:49,839

an operation like a spacewalk this job

155

00:11:53,670 --> 00:11:51,760

is actually split into two

156

00:11:55,430 --> 00:11:53,680

in this case the capcom is communicating

157

00:11:57,509 --> 00:11:55,440

with the astronauts inside of the space

158

00:11:59,590 --> 00:11:57,519

station while stephanie wilson our

159

00:12:01,829 --> 00:11:59,600

ground iv is communicating with our

160

00:12:03,350 --> 00:12:01,839

spacewalkers today you'll likely hear

161

00:12:04,870 --> 00:12:03,360

her voice many times during today's

162

00:12:07,110 --> 00:12:04,880

coverage

163

00:12:09,350 --> 00:12:07,120

alex konolykos is serving as capcom for

164

00:12:10,790 --> 00:12:09,360

the rest of the crew paul kanye is the

165

00:12:20,550 --> 00:12:10,800

flight director overseeing today's

166

00:12:23,670 --> 00:12:22,069

we'll be taking your questions during

167

00:12:25,030 --> 00:12:23,680

our coverage today so if you have a

168

00:12:26,470 --> 00:12:25,040

question about what you're seeing please

169

00:12:28,949 --> 00:12:26,480

head over to twitter and submit your

170

00:12:59,590 --> 00:12:28,959

question using ask nasa and we'll be

171

00:13:03,430 --> 00:13:01,430

we're back in the quest airlock of the

172

00:13:06,069 --> 00:13:03,440

international space station with nasa

173

00:13:08,550 --> 00:13:06,079

astronaut tom marshburn on the left in

174

00:13:10,870 --> 00:13:08,560

wearing the blue kayla baron in the blue

175

00:13:12,790 --> 00:13:10,880

on the right outfitting european space

176

00:13:15,190 --> 00:13:12,800

agency astronaut matthias maurer into

177

00:13:17,190 --> 00:13:15,200

his safer unit and then moving him into

178

00:13:19,350 --> 00:13:17,200

the crew lock so that depressurization

179

00:13:47,670 --> 00:13:19,360

can begin we expect this to happen in

180

00:13:51,269 --> 00:13:49,670

our flight director paul kanye just

181

00:13:53,430 --> 00:13:51,279

issued a go no-go poll for

182

00:13:55,430 --> 00:13:53,440

depressurization he'll be pulling the

183

00:13:56,870 --> 00:13:55,440

room here in mission control as well as

184

00:13:58,550 --> 00:13:56,880

our spacewalk officers and all

185

00:14:00,710 --> 00:13:58,560

supporting today to make sure that we

186

00:16:27,670 --> 00:14:00,720

would go for their depressurization

187

00:16:32,150 --> 00:16:30,069

matthias marin this space suit uh front

188

00:16:34,629 --> 00:16:32,160

and center with no stripes on it

189

00:16:39,350 --> 00:16:34,639

unmarked is making his way into the crew

190

00:16:43,430 --> 00:16:41,670

this is the next step until we go for

191

00:16:45,670 --> 00:16:43,440

depressurization

192

00:16:47,509 --> 00:16:45,680

the pounds per square inch or psi that

193

00:16:49,509 --> 00:16:47,519

we experience here on the ground is

194

00:16:51,030 --> 00:16:49,519

about 14.7

195

00:16:53,350 --> 00:16:51,040

at normal operating pressure the

196

00:16:55,670 --> 00:16:53,360

spacesuits are pressurized to about 4.3

197

00:16:57,670 --> 00:16:55,680

psi that's about what you'd experience

198

00:16:59,269 --> 00:16:57,680

if you were standing at an elevation of

199

00:17:01,189 --> 00:16:59,279

30 000 feet

200

00:17:02,629 --> 00:17:01,199

when astronauts go into the crew lock

201
00:17:04,710 --> 00:17:02,639
we'll be able to give updates as the

202
00:17:06,870 --> 00:17:04,720
pressure steadily goes down and then we

203
00:17:56,950 --> 00:17:06,880
expect them to pause for a leak check

204
00:17:56,960 --> 00:22:42,149
dylan

205
00:22:46,710 --> 00:22:44,870
radiator valve beam module

206
00:22:48,630 --> 00:22:46,720
these hoses brought ammonia through the

207
00:22:51,029 --> 00:22:48,640
station's heat rejecting radiators to

208
00:22:53,510 --> 00:22:51,039
keep systems at the proper temperature

209
00:22:55,110 --> 00:22:53,520
back in 2017 nasa found that ammonia was

210
00:22:57,750 --> 00:22:55,120
leaking and that the jumpers were the

211
00:22:59,909 --> 00:22:57,760
likely culprit so in march of 2018

212
00:23:01,830 --> 00:22:59,919
almost four years ago today astronauts

213
00:23:04,149 --> 00:23:01,840

drew feustel and ricky arnold conducted

214

00:23:05,510 --> 00:23:04,159

a spacewalk to remove them the hoses

215

00:23:07,270 --> 00:23:05,520

have since made their way back to earth

216

00:23:10,070 --> 00:23:07,280

for refurbishment and are ready to be

217

00:23:12,149 --> 00:23:10,080

installed once again by mara and chari

218

00:23:14,950 --> 00:23:12,159

the duo will also complete a variety of

219

00:23:17,190 --> 00:23:14,960

other tasks including installing uh

220

00:23:19,350 --> 00:23:17,200

power and data data cables to the

221

00:23:20,789 --> 00:23:19,360

bartolomeo science platform

222

00:23:22,230 --> 00:23:20,799

and replace the high definition camera

223

00:23:23,190 --> 00:23:22,240

mounted on the outside of the space

224

00:23:24,870 --> 00:23:23,200

station

225

00:23:27,190 --> 00:23:24,880

sandy fletcher is our lead spacewalk

226

00:23:28,710 --> 00:23:27,200

officer in mission control today in this

227

00:23:38,850 --> 00:23:28,720

animation she'll tell you about today's

228

00:23:45,510 --> 00:23:41,430

[Music]

229

00:23:46,630 --> 00:23:45,520

ev1 with red stripes and ev2 with white

230

00:23:50,149 --> 00:23:46,640

stripes

231

00:23:54,390 --> 00:23:50,159

degrass the crew lock with tool bags

232

00:23:56,549 --> 00:23:54,400

ev2 goes to the forward face of station

233

00:23:59,510 --> 00:23:56,559

then port to a crew equipment

234

00:24:03,190 --> 00:23:59,520

translation aid cart

235

00:24:06,720 --> 00:24:03,200

ev2 stows the tool bag

236

00:24:11,269 --> 00:24:06,730

while ev1 follows the same path

237

00:24:18,870 --> 00:24:14,950

ev1 retrieves a portable foot restraint

238

00:24:22,310 --> 00:24:18,880

and installs it in the robotic arm

239

00:24:24,870 --> 00:24:22,320

after ev1 ingresses the foot restraint

240

00:24:25,830 --> 00:24:24,880

the robotic arm operator flies the crew

241

00:24:29,029 --> 00:24:25,840

member

242

00:24:31,490 --> 00:24:29,039

to the most inboard port radiator beam

243

00:24:33,510 --> 00:24:31,500

valve module work site

244

00:24:34,950 --> 00:24:33,520

[Music]

245

00:24:38,870 --> 00:24:34,960

meanwhile

246

00:24:42,390 --> 00:24:38,880

ev2 follows the nader handrail path

247

00:24:48,149 --> 00:24:42,400

and picks up a previously deployed cable

248

00:24:53,909 --> 00:24:51,990

ev2 deploys the ethernet cable along the

249

00:24:56,230 --> 00:24:53,919

handrails

250

00:24:59,110 --> 00:24:56,240

then translates zenith to the camera

251
00:25:01,590 --> 00:24:59,120
port 8 worksite

252
00:25:04,149 --> 00:25:01,600
the end of the cable is pre-positioned

253
00:25:05,720 --> 00:25:04,159
at the camera stanchion base

254
00:25:12,390 --> 00:25:05,730
for later in the eva

255
00:25:19,350 --> 00:25:15,909
ev2 retraces the path back to the crew

256
00:25:22,710 --> 00:25:19,360
equipment translation aid cart

257
00:25:25,110 --> 00:25:22,720
drops off the now empty real bag

258
00:25:30,230 --> 00:25:25,120
and takes a different bag to the u.s

259
00:25:35,830 --> 00:25:33,750
ev2 takes a cable adapter

260
00:25:38,230 --> 00:25:35,840
from the tool bag

261
00:25:41,190 --> 00:25:38,240
and translates to the starboard end cone

262
00:25:46,149 --> 00:25:41,200
of the european space agency's

263
00:25:51,750 --> 00:25:48,870

eb-2 installs the jumper which passes

264

00:25:54,830 --> 00:25:51,760

power and data from columbus to the

265

00:25:58,230 --> 00:25:54,840

bartolomeo external

266

00:25:59,830 --> 00:25:58,240

platform ev2 goes to the bartolomeo

267

00:26:02,230 --> 00:25:59,840

platform

268

00:26:04,470 --> 00:26:02,240

and closes several cable clamps on the

269

00:26:06,470 --> 00:26:04,480

zenith side

270

00:26:08,950 --> 00:26:06,480

this allows future robotic arm

271

00:26:11,110 --> 00:26:08,960

operations to install payloads on the

272

00:26:12,630 --> 00:26:11,120

platform

273

00:26:15,590 --> 00:26:12,640

ev2

274

00:26:17,669 --> 00:26:15,600

returns to the crewlock bag on the us

275

00:26:20,310 --> 00:26:17,679

laboratory module

276

00:26:23,750 --> 00:26:20,320

and continues forward in port

277

00:26:26,710 --> 00:26:23,760

to the japanese space agency's

278

00:26:28,710 --> 00:26:26,720

kivo module

279

00:26:30,149 --> 00:26:28,720

a section of the thermal blanket has

280

00:26:32,950 --> 00:26:30,159

flipped open

281

00:26:35,269 --> 00:26:32,960

and ev2 will close the flap

282

00:26:37,029 --> 00:26:35,279

and secure it to handrails with a wire

283

00:26:40,710 --> 00:26:37,039

tie

284

00:26:42,860 --> 00:26:40,720

me too returns to the bag on the us

285

00:26:47,990 --> 00:26:42,870

laboratory module

286

00:26:51,830 --> 00:26:48,000

[Music]

287

00:26:54,870 --> 00:26:51,840

ev1 installs two ammonia line jumpers

288

00:26:56,870 --> 00:26:54,880

which were removed on an earlier eva

289

00:26:59,190 --> 00:26:56,880

because of a small leak

290

00:27:00,870 --> 00:26:59,200

jumpers were refurbished leak checked

291

00:27:03,510 --> 00:27:00,880

and re-flown

292

00:27:06,870 --> 00:27:03,520

after mating the jumper's fluid quick

293

00:27:08,230 --> 00:27:06,880

disconnects ev1 will make two electrical

294

00:27:12,549 --> 00:27:08,240

connectors

295

00:27:18,710 --> 00:27:15,269

after completing the jumper task

296

00:27:24,310 --> 00:27:18,720

the robotic arm operator flies ev1

297

00:27:29,830 --> 00:27:26,070

ev2

298

00:27:33,029 --> 00:27:29,840

meets ev1 at the camera port worksite

299

00:27:34,549 --> 00:27:33,039

after retrieving the new wireless access

300

00:27:37,269 --> 00:27:34,559

port capable

301
00:27:38,390 --> 00:27:37,279
external high definition camera

302
00:27:39,590 --> 00:27:38,400
from the crew lock

303
00:27:41,430 --> 00:27:39,600
[Music]

304
00:27:43,750 --> 00:27:41,440
the two crew members

305
00:27:45,990 --> 00:27:43,760
exchange tool bags

306
00:27:47,990 --> 00:27:46,000
after which ev2

307
00:27:50,549 --> 00:27:48,000
takes ev1's

308
00:27:54,710 --> 00:27:50,559
tool bag back to the crew equipment

309
00:27:56,950 --> 00:27:54,720
translation aid cart and stows it ev2

310
00:28:00,230 --> 00:27:56,960
retrieves a different tool bag and

311
00:28:03,269 --> 00:28:00,240
translates to the port 4 integrated

312
00:28:06,230 --> 00:28:03,279
electronics assembly worksite

313
00:28:08,630 --> 00:28:06,240

several bolts on the four alpha side

314

00:28:09,909 --> 00:28:08,640

will be released and re-torqued at a

315

00:28:11,990 --> 00:28:09,919

lower setting

316

00:28:13,990 --> 00:28:12,000

this will make any future robotics

317

00:28:17,669 --> 00:28:14,000

replacement operations of those

318

00:28:21,430 --> 00:28:17,679

equipment boxes easier to perform

319

00:28:27,269 --> 00:28:21,440

then ev2 rejoins ev1

320

00:28:34,470 --> 00:28:30,389

while ev2 was re-torquing the four alpha

321

00:28:36,950 --> 00:28:34,480

bolts ev1 replaced the existing external

322

00:28:40,870 --> 00:28:36,960

high definition camera with one that

323

00:28:43,909 --> 00:28:40,880

provides improved two-way high data rate

324

00:28:48,710 --> 00:28:43,919

communications between external payloads

325

00:28:53,990 --> 00:28:51,510

to ensure the new wireless access port

326

00:28:56,789 --> 00:28:54,000

cable does not interfere with the new

327

00:28:59,510 --> 00:28:56,799

camera group's ability to pin and tilt

328

00:29:02,710 --> 00:28:59,520

the crew installs a strap to hold the

329

00:29:06,789 --> 00:29:04,149

ev2

330

00:29:09,909 --> 00:29:06,799

mates the wireless cable

331

00:29:19,990 --> 00:29:09,919

to the ethernet cable routed earlier in

332

00:29:25,909 --> 00:29:23,110

after the camera changeout is complete

333

00:29:30,149 --> 00:29:25,919

ev1 is flown to the nader side of

334

00:29:34,710 --> 00:29:30,159

station to the port radiator grapple bar

335

00:29:41,750 --> 00:29:38,710

ev1 installs two t-handle tools which

336

00:29:43,269 --> 00:29:41,760

will allow the radiator grapple bar

337

00:29:51,029 --> 00:29:43,279

to be used

338

00:29:55,190 --> 00:29:53,430

ev1 is then returned

339

00:29:57,430 --> 00:29:55,200
to the forward face

340

00:29:59,830 --> 00:29:57,440
of the space station

341

00:30:02,710 --> 00:29:59,840
egresses the robotic arm

342

00:30:05,430 --> 00:30:02,720
and returns the foot restraint

343

00:30:08,710 --> 00:30:05,440
to the port cart

344

00:30:10,389 --> 00:30:08,720
while ev1 performs the t-handle tool

345

00:30:14,389 --> 00:30:10,399
installation

346

00:30:15,909 --> 00:30:14,399
ev2 translates to a panel on the f side

347

00:30:19,029 --> 00:30:15,919
of the truss

348

00:30:21,750 --> 00:30:19,039
ev2 moves an electrical connector from a

349

00:30:24,549 --> 00:30:21,760
non-functional connector to a cable

350

00:30:26,389 --> 00:30:24,559
which can provide power

351
00:30:27,990 --> 00:30:26,399
ev2

352
00:30:29,909 --> 00:30:28,000
then picks up

353
00:30:35,340 --> 00:30:29,919
tool bags

354
00:30:35,350 --> 00:30:44,470
[Music]

355
00:30:51,590 --> 00:30:48,149
after ev2 retrieves another hardware bag

356
00:30:53,830 --> 00:30:51,600
from the crew lock

357
00:30:55,750 --> 00:30:53,840
they translate slightly starboard on the

358
00:30:57,990 --> 00:30:55,760
forward face

359
00:30:59,840 --> 00:30:58,000
and manipulate three electrical

360
00:31:03,350 --> 00:30:59,850
connectors

361
00:31:09,509 --> 00:31:06,470
once that is complete the v2

362
00:31:12,590 --> 00:31:09,519
routes a power cable along the starboard

363
00:31:19,509 --> 00:31:12,600

nader handrail path

364

00:31:23,190 --> 00:31:19,519

[Music]

365

00:31:25,590 --> 00:31:23,200

ev1 picks up the remaining tool bags and

366

00:31:27,990 --> 00:31:25,600

depending on timing

367

00:31:30,310 --> 00:31:28,000

returns to the crew lock

368

00:31:33,590 --> 00:31:30,320

or assist ev2

369

00:31:35,430 --> 00:31:33,600

in routing the cable zenith to the pump

370

00:31:38,789 --> 00:31:35,440

module

371

00:31:42,070 --> 00:31:38,799

this completes the plan tasks for the

372

00:31:46,149 --> 00:31:42,080

radiator beam valve module jumper

373

00:31:50,110 --> 00:31:48,549

return to the crew lock

374

00:31:59,269 --> 00:31:50,120

and ingress

375

00:32:04,310 --> 00:32:00,870

section of the quest airlock on the

376

00:32:06,789 --> 00:32:04,320

american side of the space station

377

00:32:09,509 --> 00:32:06,799

who you see on screen is caleb barron in

378

00:32:12,149 --> 00:32:09,519

the back of the equipment lock and tom

379

00:32:14,950 --> 00:32:12,159

marshburn there are suit iv or

380

00:32:17,190 --> 00:32:14,960

suit ivs today on the other side of the

381

00:32:20,310 --> 00:32:17,200

hatch there astronauts raja chari and m

382

00:32:22,710 --> 00:32:20,320

t as mar are inside the crew lock

383

00:32:24,389 --> 00:32:22,720

at 6 57 our flight director gave the go

384

00:32:26,070 --> 00:32:24,399

for depressurization

385

00:32:28,230 --> 00:32:26,080

and the pressure inside the crew lock is

386

00:32:31,350 --> 00:32:28,240

steadily going down it's at hovering at

387

00:32:33,909 --> 00:32:31,360

about nine psi right now and decreasing

388

00:32:35,750 --> 00:32:33,919

at five psi we will expect a momentary

389

00:32:39,300 --> 00:32:35,760

hold just to make sure there are no weak

390

00:32:39,310 --> 00:32:51,830

[Music]

391

00:32:56,070 --> 00:32:53,750

malware and chari do have their

392

00:32:57,830 --> 00:32:56,080

microphones on so you may be able to

393

00:32:58,870 --> 00:32:57,840

hear the crew in the crib lock on the

394

00:33:00,789 --> 00:32:58,880

other side of the wall there

395

00:33:48,580 --> 00:33:00,799

communicating with tom marshburn and

396

00:34:17,669 --> 00:33:57,970

[Music]

397

00:34:25,800 --> 00:34:17,679

airlocks houston we copy good medic

398

00:34:25,810 --> 00:34:45,349

[Music]

399

00:35:32,550 --> 00:35:00,829

uh

400

00:35:47,270 --> 00:35:34,710

the crew lock is now approaching almost

401
00:35:50,069 --> 00:35:48,550
if you're just joining us this morning

402
00:35:52,950 --> 00:35:50,079
you're watching the third spacewalk of

403
00:35:55,109 --> 00:35:52,960
2022 where nasa astronaut raj atari and

404
00:35:57,109 --> 00:35:55,119
european space agency astronaut matthias

405
00:35:58,790 --> 00:35:57,119
maher have suited up and are getting

406
00:36:00,710 --> 00:35:58,800
ready to exit the international space

407
00:36:02,310 --> 00:36:00,720
station they're expected to spend about

408
00:36:03,910 --> 00:36:02,320
six and a half hours completing some

409
00:36:05,109 --> 00:36:03,920
maintenance tasks on the station's

410
00:36:07,270 --> 00:36:05,119
exterior

411
00:36:09,190 --> 00:36:07,280
and their main objective is to replace

412
00:36:18,250 --> 00:36:09,200
hoses on one of the station's radiator

413
00:36:43,750 --> 00:36:34,100

[Music]

414

00:36:43,760 --> 00:36:51,870

the crew lock is now inside six psi

415

00:36:51,880 --> 00:37:07,109

[Music]

416

00:37:10,790 --> 00:37:09,190

once the crew log reaches about 5 psi

417

00:37:12,230 --> 00:37:10,800

the ground here the ground crew here in

418

00:37:14,390 --> 00:37:12,240

mission control will verify that there

419

00:37:16,710 --> 00:37:14,400

are no leaks in either of the spacesuits

420

00:37:19,030 --> 00:37:16,720

and if all goes well as expected

421

00:37:21,750 --> 00:37:19,040

depressurization can go down to can

422

00:37:23,190 --> 00:37:21,760

continue to go down to volume

423

00:37:24,950 --> 00:37:23,200

they'll do one more check and receive a

424

00:37:26,550 --> 00:37:24,960

go to turn their spacesuits on to

425

00:37:28,870 --> 00:37:26,560

internal battery power which marks the

426

00:37:31,270 --> 00:37:28,880

official start time of the spacewalk but

427

00:37:34,150 --> 00:37:31,280

before we that can happen we're

428

00:38:05,589 --> 00:37:34,160

depressurizing depressurizing the crew

429

00:38:09,190 --> 00:38:07,589

astronauts kayla baron and tom marshburn

430

00:38:11,829 --> 00:38:09,200

are on your screen now these are not our

431

00:38:13,670 --> 00:38:11,839

spacewalking astronauts but our suit ivs

432

00:38:34,069 --> 00:38:13,680

they're monitoring the depressurization

433

00:38:38,950 --> 00:38:36,870

after that dv1 and ev2 switch your

434

00:38:41,109 --> 00:38:38,960

display switch to status until leak

435

00:38:43,670 --> 00:38:41,119

check question mark is displayed

436

00:38:45,910 --> 00:38:43,680

and then take display to yes for two

437

00:38:55,270 --> 00:38:45,920

seconds so long yes and then follow

438

00:38:59,670 --> 00:38:57,270

you just heard the voice of kayla baron

439

00:39:26,710 --> 00:38:59,680

indicating that we are at 5 psi and are

440

00:39:31,030 --> 00:39:29,349

you heard the callouts for ev1 and ev2

441

00:39:33,430 --> 00:39:31,040

you might hear that referred to a couple

442

00:39:35,910 --> 00:39:33,440

of times for our coverage today ev1 is

443

00:39:37,349 --> 00:39:35,920

now nasa astronaut raj atari

444

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

trouble hearing you wanted to make sure

445

00:39:41,510 --> 00:39:39,040

you're configuring for an automatic

446

00:39:44,470 --> 00:39:41,520

complete check yep eb-1 in the lead

447

00:39:46,310 --> 00:39:44,480

check and just watching the countdown

448

00:39:47,910 --> 00:39:46,320

and that was the voice of raja tara you

449

00:39:50,310 --> 00:39:47,920

just heard ev1

450

00:39:54,950 --> 00:39:50,320

ev2 is european space agency astronaut

451
00:40:00,470 --> 00:39:57,910
ev1 leaks are complete

452
00:40:02,150 --> 00:40:00,480
elise check complete ev1 cv2 leak

453
00:40:12,470 --> 00:40:02,160
complete

454
00:40:12,480 --> 00:40:33,170
82.

455
00:40:33,180 --> 00:40:45,030
[Music]

456
00:40:48,150 --> 00:40:46,950
actuator is an epa

457
00:41:04,550 --> 00:40:48,160
db2

458
00:41:08,890 --> 00:41:05,750
is an

459
00:41:17,270 --> 00:41:08,900
see depressed one man knife is open

460
00:41:19,510 --> 00:41:17,280
[Music]

461
00:41:21,750 --> 00:41:19,520
ev1 and 2 monitor your suit pressure

462
00:41:23,430 --> 00:41:21,760
gauge is less than five decimal five if

463
00:41:38,780 --> 00:41:23,440

it ever is greater than five decimal

464

00:41:38,790 --> 00:41:55,349

[Applause]

465

00:42:13,990 --> 00:41:56,870

and the checks were good and we are

466

00:42:36,790 --> 00:42:16,309

we're now inside four psi into inside

467

00:42:42,150 --> 00:42:39,430

matias wait for my go but on my go when

468

00:43:13,990 --> 00:42:42,160

we get to 2.0 pounds we'll be taking the

469

00:43:14,000 --> 00:43:35,430

ugh

470

00:44:51,910 --> 00:43:38,390

the psi of the airlock is now within

471

00:44:56,790 --> 00:44:54,950

the psi is approaching two psi in the

472

00:45:00,230 --> 00:44:56,800

crew lock uh kayla baron had

473

00:45:01,829 --> 00:45:00,240

communicated with our ev2 matthias mar

474

00:45:03,510 --> 00:45:01,839

just a moment ago that there are some

475

00:45:39,860 --> 00:45:03,520

steps that he needs to complete when the

476

00:45:39,870 --> 00:45:49,030

[Music]

477

00:45:53,190 --> 00:45:51,670

power switch is off

478

00:45:56,309 --> 00:45:53,200

houston wanted to confirm you're ready

479

00:45:57,430 --> 00:45:56,319

to copy each other config

480

00:46:12,950 --> 00:45:57,440

yes

481

00:46:12,960 --> 00:46:16,790

is for my 3d workstation

482

00:46:23,750 --> 00:46:18,550

and

483

00:46:25,910 --> 00:46:23,760

small hook is on my right even extender

484

00:46:35,910 --> 00:46:25,920

okay closed

485

00:46:43,650 --> 00:46:37,550

question for it

486

00:46:43,660 --> 00:46:52,470

[Music]

487

00:46:52,480 --> 00:47:03,050

is

488

00:47:03,060 --> 00:47:09,589

[Music]

489

00:47:14,550 --> 00:47:11,910

and the gate is closed

490

00:47:18,150 --> 00:47:14,560

black on black

491

00:47:22,710 --> 00:47:19,670

five together

492

00:47:24,790 --> 00:47:22,720

effective attack is on my left

493

00:47:27,589 --> 00:47:24,800

receiving extenders

494

00:47:29,349 --> 00:47:27,599

i have my red hooks on my weaving

495

00:47:31,349 --> 00:47:29,359

extender the data source light from

496

00:47:33,910 --> 00:47:31,359

device

497

00:47:35,190 --> 00:47:33,920

i have the red wheels

498

00:47:37,270 --> 00:47:35,200

which is

499

00:47:39,750 --> 00:47:37,280

unlocked

500

00:47:42,230 --> 00:47:39,760

on the red wheel i also have an aet

501
00:47:44,150 --> 00:47:42,240
which i need later on on columbus

502
00:47:47,109 --> 00:47:44,160
time to fairlead

503
00:47:49,670 --> 00:47:47,119
red wheel anchor hook the yellow hook

504
00:47:51,750 --> 00:47:49,680
is connected to the three wheels the

505
00:47:53,190 --> 00:47:51,760
case is

506
00:47:54,069 --> 00:47:53,200
black

507
00:47:56,950 --> 00:47:54,079
and

508
00:48:00,950 --> 00:47:56,960
the screen hook from the green wheel

509
00:48:05,030 --> 00:48:03,430
my clean wheel anchor hook

510
00:48:06,790 --> 00:48:05,040
which is labeled

511
00:48:07,829 --> 00:48:06,800
with a white

512
00:48:09,589 --> 00:48:07,839
space

513
00:48:11,270 --> 00:48:09,599

and a true on it

514

00:48:13,270 --> 00:48:11,280

or this is

515

00:48:16,390 --> 00:48:13,280

its case is close like

516

00:48:17,670 --> 00:48:16,400

flag on black connected to razor's

517

00:48:19,829 --> 00:48:17,680

waist server

518

00:48:22,309 --> 00:48:19,839

and i have both in my hands uh also

519

00:48:23,990 --> 00:48:22,319

rises wake server based loads like on

520

00:48:25,030 --> 00:48:24,000

snap in my hand over two risers to

521

00:48:27,030 --> 00:48:25,040

continue

522

00:48:28,549 --> 00:48:27,040

the other end of that uh left weight

523

00:48:31,430 --> 00:48:28,559

center that you have i can see is on my

524

00:48:34,230 --> 00:48:31,440

left ring extender and those gate closed

525

00:48:37,349 --> 00:48:34,240

box black on black

526
00:48:38,390 --> 00:48:37,359
extender is a red and white screw hook

527
00:48:40,710 --> 00:48:38,400
glass

528
00:48:43,270 --> 00:48:40,720
closed let's knock on black that runs to

529
00:48:45,510 --> 00:48:43,280
a single safety feather reel

530
00:48:48,150 --> 00:48:45,520
with the large hook on my mini

531
00:48:50,470 --> 00:48:48,160
workstation with a white tape label ev1

532
00:48:54,790 --> 00:48:50,480
single

533
00:48:54,800 --> 00:49:00,069
on my mini workstation i have

534
00:49:05,349 --> 00:49:04,150
a white hook hook labeled speedy one

535
00:49:06,950 --> 00:49:05,359
pack

536
00:49:07,990 --> 00:49:06,960
that runs

537
00:49:09,990 --> 00:49:08,000
the

538
00:49:11,510 --> 00:49:10,000

green reel

539

00:49:13,510 --> 00:49:11,520

green rail has the green hook going to

540

00:49:16,549 --> 00:49:13,520

the red wheel and the yellow hooks on

541

00:49:18,870 --> 00:49:16,559

the green reel both are unlocked

542

00:49:20,309 --> 00:49:18,880

the yellow book tiger hook is locked

543

00:49:21,589 --> 00:49:20,319

black on black

544

00:49:24,150 --> 00:49:21,599

green hook

545

00:49:26,870 --> 00:49:24,160

is unlocked

546

00:49:29,270 --> 00:49:26,880

we got the red reel

547

00:49:31,990 --> 00:49:29,280

true hook is labeled

548

00:49:34,630 --> 00:49:32,000

red one and that's on my right

549

00:49:35,670 --> 00:49:34,640

d-ring extender locked gate closed black

550

00:49:36,950 --> 00:49:35,680

on black

551

00:49:40,150 --> 00:49:36,960

also coming from my right three-ring

552

00:49:41,589 --> 00:49:40,160

extender i have a crew hook attached to

553

00:49:45,670 --> 00:49:41,599

a waist feather

554

00:49:47,430 --> 00:49:45,680

that's on my right any workstation

555

00:49:48,390 --> 00:49:47,440

and that is also get closed lock off

556

00:49:50,230 --> 00:49:48,400

that block on that right to your

557

00:49:51,910 --> 00:49:50,240

incentive

558

00:49:54,150 --> 00:49:51,920

all right roger we may have missed it

559

00:49:56,549 --> 00:49:54,160

but did you report your left waist other

560

00:50:08,150 --> 00:49:56,559

small hook is on your d-ring extender

561

00:50:12,549 --> 00:50:10,150

okay copy that and could you both just

562

00:50:14,710 --> 00:50:12,559

confirm that your reels are unlocked

563

00:50:17,430 --> 00:50:14,720

yeah so even two folks here's unlocked

564

00:50:20,630 --> 00:50:17,440

daddy one corrector i have three reels

565

00:50:24,390 --> 00:50:22,549

okay roger that i think from our

566

00:50:29,349 --> 00:50:24,400

perspective that's a good tether config

567

00:50:35,750 --> 00:50:31,430

and houston concurs that's a good tether

568

00:50:35,760 --> 00:50:41,670

good morning

569

00:50:46,150 --> 00:50:43,589

all right gentlemen we are now waiting

570

00:50:47,910 --> 00:50:46,160

for the crew lot to continue depressed

571

00:50:50,390 --> 00:50:47,920

when it is about zero you'll expect

572

00:50:53,750 --> 00:50:50,400

another alert tone and when we get less

573

00:50:56,390 --> 00:50:53,760

than 0.5 psi either for our telemetry in

574

00:50:58,950 --> 00:50:56,400

here on the pcs on your dcm or the ev

575

00:51:01,589 --> 00:50:58,960

hatch gauge you can take the ev hatch

576
00:51:03,750 --> 00:51:01,599
to open and remember we need to pause

577
00:51:06,230 --> 00:51:03,760
after unlocking it before actually

578
00:51:08,470 --> 00:51:06,240
opening the hatch

579
00:51:09,910 --> 00:51:08,480
but if you don't want to slide yep this

580
00:51:11,349 --> 00:51:09,920
way now

581
00:51:17,430 --> 00:51:11,359
a little moving towards that step just

582
00:51:30,230 --> 00:51:20,630
that position works for you yeah

583
00:51:34,549 --> 00:51:31,829
you just heard a number of voices there

584
00:51:37,190 --> 00:51:34,559
the first being ev2 matthias marrer and

585
00:51:38,950 --> 00:51:37,200
then similar words from ev1 rajatari

586
00:51:40,870 --> 00:51:38,960
they were just confirming their tether

587
00:51:42,470 --> 00:51:40,880
configuration essentially making sure

588
00:51:44,309 --> 00:51:42,480

that they have that everything that they

589

00:51:47,829 --> 00:51:44,319

need is in position where they need them

590

00:51:49,109 --> 00:51:47,839

to be and nothing is tangled

591

00:51:50,790 --> 00:51:49,119

they'll be tethered to the space station

592

00:51:52,870 --> 00:51:50,800

the whole time

593

00:51:54,069 --> 00:51:52,880

suit ivs kayla baron and tom marshburn

594

00:51:56,309 --> 00:51:54,079

are keeping a checklist of the

595

00:52:00,309 --> 00:51:56,319

configuration stephanie wilson our

596

00:52:02,230 --> 00:52:00,319

ground iv confirmed a good configuration

597

00:52:07,349 --> 00:52:02,240

we're at 5-0 millimeters of mercury

598

00:52:19,140 --> 00:52:10,150

the crew lock is now within one psi

599

00:52:35,910 --> 00:52:28,840

[Music]

600

00:52:39,670 --> 00:52:36,870

okay

601
00:52:41,670 --> 00:52:39,680
i think my right leg is hitting that bag

602
00:52:43,109 --> 00:52:41,680
so just keep an eye on it while i go out

603
00:53:00,230 --> 00:52:43,119
make sure i don't pull anything out

604
00:53:04,630 --> 00:53:02,470
that may need your help to pull my leg

605
00:53:06,470 --> 00:53:04,640
down away from that bag if you're able

606
00:53:07,670 --> 00:53:06,480
to

607
00:53:09,829 --> 00:53:07,680
put it down

608
00:53:46,390 --> 00:53:09,839
go towards the uia so i can get my

609
00:53:46,400 --> 00:54:04,470
uh

610
00:54:09,750 --> 00:54:07,589
just a moment ago ground iv stephanie

611
00:54:11,670 --> 00:54:09,760
wilson just issued her hellos to the

612
00:54:13,430 --> 00:54:11,680
crew this morning if you're just joining

613
00:54:15,670 --> 00:54:13,440

us for the first time this morning we

614

00:54:17,670 --> 00:54:15,680

have two nasa astronauts on screen tom

615

00:54:19,430 --> 00:54:17,680

marshburn and kayla baron they're

616

00:54:21,510 --> 00:54:19,440

actually assisting our spacewalkers they

617

00:54:23,910 --> 00:54:21,520

are not the spacewalkers themselves

618

00:54:25,510 --> 00:54:23,920

our spacewalkers are through the door

619

00:54:27,510 --> 00:54:25,520

that you see on the far side of the

620

00:54:29,829 --> 00:54:27,520

screen there there's a little window you

621

00:54:31,990 --> 00:54:29,839

may see our space walkers nasa astronaut

622

00:54:34,309 --> 00:54:32,000

raj achari and european space agency

623

00:54:35,670 --> 00:54:34,319

astronaut matthias maurer uh

624

00:54:36,789 --> 00:54:35,680

having their spacesuits sort of popping

625

00:54:39,109 --> 00:54:36,799

through the window you won't get a good

626

00:54:41,030 --> 00:54:39,119

look at them now depressurization is

627

00:54:43,349 --> 00:54:41,040

underway basically going from space

628

00:54:45,910 --> 00:54:43,359

station pressure to the vacuum of space

629

00:54:48,109 --> 00:54:45,920

what they might experience out there

630

00:54:51,190 --> 00:54:48,119

the pressure in there is at about

631

00:54:53,030 --> 00:54:51,200

0.75 psi getting down to zero

632

00:54:55,109 --> 00:54:53,040

once this step is complete all known as

633

00:54:56,549 --> 00:54:55,119

depressurization they'll be able to exit

634

00:55:03,910 --> 00:54:56,559

the international space station and

635

00:55:09,109 --> 00:55:06,549

their objectives for today are replacing

636

00:55:11,030 --> 00:55:09,119

hoses on the radiator beam valve module

637

00:55:13,030 --> 00:55:11,040

basically a system

638

00:55:14,630 --> 00:55:13,040

that assists the radiator one of six

639

00:55:17,589 --> 00:55:14,640

radiators on the international space

640

00:55:20,150 --> 00:55:17,599

station helps cooling

641

00:55:20,950 --> 00:55:20,160

looking for 26 10 millimeters of mercury

642

00:55:23,270 --> 00:55:20,960

to go

643

00:56:49,109 --> 00:55:23,280

looks like about 0.6 on the

644

00:56:53,510 --> 00:56:51,109

the next step in our procedures today is

645

00:56:55,910 --> 00:56:53,520

to receive the go from mission control

646

00:56:57,829 --> 00:56:55,920

here in houston to open the outer

647

00:56:59,750 --> 00:56:57,839

thermal hatch cover

648

00:57:01,510 --> 00:56:59,760

followed by that they'll be opening the

649

00:57:03,910 --> 00:57:01,520

inner hatch of the crew lock where the

650

00:58:49,190 --> 00:57:03,920

astronauts will emerge from

651
00:58:53,589 --> 00:58:50,870
the pressure in the crew lock is now

652
00:58:56,150 --> 00:58:53,599
approaching 0.5 psi getting down to

653
00:58:57,750 --> 00:58:56,160
about zero

654
00:58:59,589 --> 00:58:57,760
while our coverage today began about an

655
00:59:01,510 --> 00:58:59,599
hour ago the official start time of the

656
00:59:03,030 --> 00:59:01,520
space stop of the spacewalk will not

657
00:59:20,309 --> 00:59:03,040
officially be clocked until the suits

658
00:59:20,319 --> 00:59:38,789
ugh

659
00:59:38,799 --> 00:59:43,030
we have point five of the hatch gauge

660
00:59:46,789 --> 00:59:44,870
okay we're looking for a less than point

661
00:59:51,910 --> 00:59:46,799
five we have about a half a millimeter

662
00:59:57,910 --> 00:59:55,990
and we are below 26 by pcs you are go to

663
01:00:14,470 --> 00:59:57,920

open ev hatch for the decal remembering

664

01:00:14,480 --> 01:00:59,910

it's in unlatch within a second

665

01:01:03,829 --> 01:01:02,150

the hatch is open and patch keep is

666

01:01:07,190 --> 01:01:03,839

engaged

667

01:01:08,870 --> 01:01:07,200

roger that the emergency mpev is closed

668

01:01:10,150 --> 01:01:08,880

and i will turn you over to killer your

669

01:01:12,069 --> 01:01:10,160

ground to grounded

670

01:01:21,990 --> 01:01:12,079

thank you

671

01:01:24,230 --> 01:01:22,000

raja and matthias on your dcms

672

01:01:25,910 --> 01:01:24,240

take your power switches to bat stagger

673

01:01:27,480 --> 01:01:25,920

your switch throws and expect a warning

674

01:01:29,750 --> 01:01:27,490

tone

675

01:01:41,030 --> 01:01:29,760

[Music]

676
01:01:46,950 --> 01:01:42,789
bbq in

677
01:01:55,910 --> 01:01:49,910
copy take your display switches to pro

678
01:02:02,230 --> 01:01:58,390
here fractional display ev1 has a

679
01:02:12,630 --> 01:02:05,829
on the uia power ev1

680
01:02:19,190 --> 01:02:15,910
power ev1 is power 82

681
01:02:26,630 --> 01:02:22,470
matthias also checked power ev1 ev2 leds

682
01:02:26,640 --> 01:02:32,230
and i confirm four leds off

683
01:02:38,549 --> 01:02:35,109
on your dcms disconnect your scus from

684
01:02:48,630 --> 01:02:38,559
your dcm install the dcm cover and stow

685
01:02:54,950 --> 01:02:52,630
at 7 32 a.m central time 8 32 a.m

686
01:02:57,190 --> 01:02:54,960
eastern time is the official start time

687
01:02:59,750 --> 01:02:57,200
of this spacewalk marking the beginning

688
01:03:02,630 --> 01:02:59,760

of the 248th spacewalk in support of

689

01:03:05,510 --> 01:03:02,640

station assembly and maintenance chari

690

01:03:07,190 --> 01:03:05,520

and mar are expected to spend about 6.5

691

01:03:09,109 --> 01:03:07,200

hours replacing

692

01:03:10,870 --> 01:03:09,119

two hoses on the radiator beam valve

693

01:03:12,789 --> 01:03:10,880

module and a number of other maintenance

694

01:03:14,150 --> 01:03:12,799

tasks

695

01:03:15,589 --> 01:03:14,160

at the beginning of the spacewalk just

696

01:03:17,349 --> 01:03:15,599

moments ago when those spacesuits got

697

01:03:18,789 --> 01:03:17,359

turned on to internal battery power the

698

01:03:21,670 --> 01:03:18,799

space station was flying over the south

699

01:03:21,680 --> 01:03:38,549

copy

700

01:03:38,559 --> 01:03:50,390

man iso is closed

701
01:03:54,549 --> 01:03:52,789
thank you on your dcms

702
01:03:58,950 --> 01:03:54,559
take your temperature control valve to

703
01:03:58,960 --> 01:04:07,670
what

704
01:04:07,680 --> 01:04:16,309
that eb1 is

705
01:04:16,319 --> 01:04:21,990
take your water switches to on

706
01:04:22,000 --> 01:04:31,029
tv

707
01:04:33,990 --> 01:04:32,470
we're in a brief but expected handover

708
01:04:36,150 --> 01:04:34,000
period you're getting a live view of

709
01:04:39,670 --> 01:04:36,160
mission control in houston

710
01:04:43,829 --> 01:04:39,680
check it blank and bytes is off and also

711
01:04:46,309 --> 01:04:43,839
on eb2 check dcm cover closed

712
01:04:47,829 --> 01:04:46,319
our ground iv stephanie wilson is

713
01:04:50,069 --> 01:04:47,839

getting our spacewalkers through their

714

01:04:51,829 --> 01:04:50,079

final checks

715

01:04:55,430 --> 01:04:51,839

pretty soon we'll get a live view of

716

01:04:57,990 --> 01:04:55,440

them coming out the quest airlock

717

01:05:00,390 --> 01:04:58,000

and the dcm

718

01:05:01,910 --> 01:05:00,400

let's see if your fcu pouch

719

01:05:02,710 --> 01:05:01,920

came floating down by here by the hatch

720

01:05:03,910 --> 01:05:02,720

you don't have to get it now you can

721

01:05:05,190 --> 01:05:03,920

wait till i get out but just so you know

722

01:05:20,950 --> 01:05:05,200

it's over here

723

01:05:30,390 --> 01:05:23,270

my hands i'll just hold until i get out

724

01:05:42,720 --> 01:05:32,309

next is the temperature control valve

725

01:05:42,730 --> 01:05:48,789

[Music]

726
01:05:51,910 --> 01:05:50,309
you're getting a live look now at one of

727
01:05:53,589 --> 01:05:51,920
the many external cameras aboard the

728
01:05:57,670 --> 01:05:53,599
international space station looking at

729
01:06:02,710 --> 01:05:59,029
e1 is

730
01:06:02,720 --> 01:06:13,750
82

731
01:06:17,829 --> 01:06:15,829
copy all ev1 ev2

732
01:06:20,069 --> 01:06:17,839
you can take your visors as required

733
01:06:22,390 --> 01:06:20,079
it's currently dark but there'll be five

734
01:06:26,710 --> 01:06:22,400
minutes to the daylight transition

735
01:06:30,230 --> 01:06:28,870
and so we are ready for you

736
01:06:33,430 --> 01:06:30,240
to uh

737
01:06:37,589 --> 01:06:33,440
start to work egress for opening the uh

738
01:06:37,599 --> 01:06:43,190

ready stop it

739

01:06:45,750 --> 01:06:44,549

i'll just start

740

01:06:50,789 --> 01:06:45,760

the first i've got to go if we go ahead

741

01:06:50,799 --> 01:07:33,029

on the throttle cover

742

01:07:37,270 --> 01:07:35,430

okay the thermal cap

743

01:07:39,190 --> 01:07:37,280

strap is disconnected from the d-ring

744

01:07:42,710 --> 01:07:39,200

attached to the spillage

745

01:07:44,950 --> 01:07:42,720

thing and pulls top

746

01:07:48,800 --> 01:07:44,960

cupping you have six sharpie lines

747

01:07:48,810 --> 01:08:03,910

[Music]

748

01:08:08,309 --> 01:08:05,670

i think you said you see six sharpie

749

01:08:08,319 --> 01:08:20,390

for them six sharpies

750

01:08:24,149 --> 01:08:21,829

and just like that you're seeing a live

751
01:08:27,349 --> 01:08:24,159
view of a hatch thermal cover swinging

752
01:08:39,510 --> 01:08:29,030
ground iv stephanie wilson gave our

753
01:08:39,520 --> 01:08:58,630
uh

754
01:09:04,709 --> 01:09:00,070
once the space walkers are fully

755
01:09:09,749 --> 01:09:08,070
the fbv coach is trapped somewhere

756
01:09:13,829 --> 01:09:09,759
mine are yours

757
01:09:16,870 --> 01:09:15,349
once they've egressed their next steps

758
01:09:18,630 --> 01:09:16,880
are to grab their tool bags close the

759
01:09:46,390 --> 01:09:18,640
hatch thermal cover and turn their hekas

760
01:09:49,910 --> 01:09:48,630
hey i'm out i'm just getting my feathers

761
01:09:52,470 --> 01:09:49,920
out here

762
01:09:59,350 --> 01:09:52,480
i'll start playing around anchor hooks

763
01:10:02,470 --> 01:10:01,189

raj atari is the first one out the door

764

01:10:07,189 --> 01:10:02,480

today you'll see

765

01:10:09,990 --> 01:10:07,199

that it's raj atari as ev1 as he has the

766

01:10:12,310 --> 01:10:10,000

spacesuit with the red stripes

767

01:10:14,870 --> 01:10:12,320

roger we have the camera on you and we

768

01:10:17,590 --> 01:10:14,880

can see that you may have the

769

01:10:19,430 --> 01:10:17,600

camera bag egressing out with you just

770

01:10:34,110 --> 01:10:19,440

wanted to check that's what you'd like

771

01:10:52,149 --> 01:10:48,330

[Music]

772

01:10:54,870 --> 01:10:53,590

let me knock out the anchor hooks first

773

01:11:00,550 --> 01:10:54,880

so we've got load pass and then i'll

774

01:11:03,990 --> 01:11:02,229

we're an unexpected handover period

775

01:11:06,870 --> 01:11:04,000

between our team dress or tracking and

776

01:11:08,950 --> 01:11:06,880

data relay satellites that provide our

777

01:11:10,870 --> 01:11:08,960

video and audio communication one of

778

01:11:12,149 --> 01:11:10,880

many communications methods from the

779

01:11:15,030 --> 01:11:12,159

ground with the ground to the space

780

01:11:17,430 --> 01:11:15,040

station um right now astronaut rajatari

781

01:11:19,350 --> 01:11:17,440

is fully egressed from the quest airlock

782

01:11:26,390 --> 01:11:19,360

now we're waiting for eb2 matthias

783

01:11:30,790 --> 01:11:28,149

roger copy your plan to work the anchor

784

01:11:34,470 --> 01:11:30,800

hooks your anchor hook goes aft and

785

01:11:41,189 --> 01:11:34,480

matthias's anchor hook goes forward

786

01:11:45,430 --> 01:11:42,630

okay and the

787

01:11:48,070 --> 01:11:45,440

white hook anger hook label two

788

01:11:49,830 --> 01:11:48,080

which is the atm's hook is locked black

789

01:11:51,750 --> 01:11:49,840

on block on the floor they locked you

790

01:11:52,709 --> 01:11:51,760

right without the key it has a just low

791

01:12:15,510 --> 01:11:52,719

pass

792

01:12:15,520 --> 01:12:21,030

can you report the config of ev1 safety

793

01:12:26,950 --> 01:12:24,870

yes tether the ed1 my ev1 white speaker

794

01:12:31,030 --> 01:12:26,960

hook marked uv one single is on the ash

795

01:12:39,610 --> 01:12:32,950

copy that and we had a short handover we

796

01:12:39,620 --> 01:12:43,750

[Music]

797

01:12:47,590 --> 01:12:45,990

so i can see the camera bag i think the

798

01:12:49,430 --> 01:12:47,600

rut is wrapped around something on my

799

01:12:52,970 --> 01:12:49,440

right side so i'm trying

800

01:13:16,550 --> 01:12:52,980

where it's left on

801
01:13:16,560 --> 01:13:31,110
deployed so

802
01:13:33,110 --> 01:13:31,830
uh why don't we outside

803
01:13:34,229 --> 01:13:33,120
to get the bag can you get the bag

804
01:13:37,270 --> 01:13:34,239
inside well we can definitely watch the

805
01:13:40,790 --> 01:13:38,950
but don't i'll just obviously be careful

806
01:13:41,990 --> 01:13:40,800
i can't see what it's attached to back

807
01:13:42,950 --> 01:13:42,000
there

808
01:13:46,790 --> 01:13:42,960
can you

809
01:13:46,800 --> 01:14:07,510
exciting

810
01:14:14,630 --> 01:14:09,270
grab that with your hand and push it

811
01:14:16,470 --> 01:14:14,640
like towards your body forward left

812
01:14:18,550 --> 01:14:16,480
put your body forward left that might

813
01:14:21,430 --> 01:14:18,560

create some safer handle

814

01:14:34,950 --> 01:14:21,440

otherwise i need to come out

815

01:14:55,350 --> 01:14:36,870

have you heard from me so that i can

816

01:15:09,990 --> 01:14:57,270

okay now they move from the app store to

817

01:15:10,000 --> 01:15:25,550

are you clear to come out

818

01:15:25,560 --> 01:15:29,050

[Music]

819

01:15:35,430 --> 01:15:31,990

[Applause]

820

01:15:37,430 --> 01:15:35,440

i think i'm trying to find like you

821

01:15:43,750 --> 01:15:37,440

watching something on me

822

01:15:47,350 --> 01:15:45,350

the space station has moved into an

823

01:15:50,229 --> 01:15:47,360

orbital daytime approaching the southern

824

01:15:51,910 --> 01:15:50,239

tip of south america and we see european

825

01:15:53,669 --> 01:15:51,920

space agency astronaut matthias maura's

826

01:15:56,310 --> 01:15:53,679

feet poking out of the quest airlock

827

01:15:58,229 --> 01:15:56,320

there the spacewalker in our suit with

828

01:16:13,590 --> 01:15:58,239

the red stripes rajatari ingressed

829

01:16:13,600 --> 01:16:31,189

for you

830

01:16:42,310 --> 01:16:33,270

place is hitting the back of the hatch

831

01:16:42,320 --> 01:16:45,990

okay

832

01:16:46,000 --> 01:16:59,270

all right

833

01:17:02,550 --> 01:17:00,830

okay all

834

01:17:04,709 --> 01:17:02,560

right at each other first check our

835

01:17:06,709 --> 01:17:04,719

cutters are cleared not really

836

01:17:08,390 --> 01:17:06,719

just to get worse yeah and then we can

837

01:17:09,669 --> 01:17:08,400

sort out the bag and then the safer

838

01:17:11,590 --> 01:17:09,679

handle

839

01:17:13,830 --> 01:17:11,600

and roger matthias

840

01:17:16,470 --> 01:17:13,840

we concur with that we like having you

841

01:17:18,149 --> 01:17:16,480

egress get untangled we'll actually work

842

01:17:21,270 --> 01:17:18,159

with the safer handle first and then

843

01:17:25,430 --> 01:17:23,430

okay i don't know if we can get the

844

01:17:26,470 --> 01:17:25,440

handle back in with that bag wrap around

845

01:17:30,530 --> 01:17:26,480

it so

846

01:17:30,540 --> 01:17:36,630

[Music]

847

01:17:40,790 --> 01:17:38,790

our ev2 for the day is fully increased

848

01:17:42,630 --> 01:17:40,800

from the quest airlock

849

01:17:47,189 --> 01:17:42,640

untangling includes the current bag that

850

01:17:50,709 --> 01:17:49,350

okay so let's don't go staggering as

851

01:17:53,189 --> 01:17:50,719

you're done with jesus all right all

852

01:17:55,270 --> 01:17:53,199

right all right bags out of the way

853

01:18:04,790 --> 01:17:55,280

no you're safer if you need to pause to

854

01:18:07,590 --> 01:18:05,830

rotate

855

01:18:09,270 --> 01:18:07,600

all this stuff out of the way so i don't

856

01:18:19,910 --> 01:18:09,280

interfere with you but i think i can

857

01:18:19,920 --> 01:18:32,550

adaptation time dude

858

01:18:35,830 --> 01:18:33,830

yeah if you remember that it's got the

859

01:18:37,189 --> 01:18:35,840

two positions on the uh the pin when you

860

01:18:38,229 --> 01:18:37,199

put it back in so you get a part of the

861

01:18:39,110 --> 01:18:38,239

way in

862

01:18:40,550 --> 01:18:39,120

and then

863

01:18:44,790 --> 01:18:40,560

you have to seek it the rest of the way

864

01:18:49,590 --> 01:18:47,669

and uh roger matthias we have steps for

865

01:18:51,430 --> 01:18:49,600

this uh safer deploy with the hand

866

01:18:52,950 --> 01:18:51,440

controller module since you have your

867

01:18:55,510 --> 01:18:52,960

hands on it is it a good time for us to

868

01:18:57,350 --> 01:18:55,520

give you that

869

01:18:59,830 --> 01:18:57,360

i think yes okay

870

01:19:03,110 --> 01:18:59,840

do you have a camera on me yes

871

01:19:05,030 --> 01:19:03,120

i think i need to switch to my haircut

872

01:19:07,990 --> 01:19:05,040

uh we have a big picture external view

873

01:19:14,310 --> 01:19:08,000

of both of you

874

01:19:14,320 --> 01:19:17,430

it's gone

875

01:19:21,990 --> 01:19:19,830

good so i'm ready for the steps

876

01:19:26,550 --> 01:19:22,000

copy there's a caution be careful not to

877

01:19:30,070 --> 01:19:28,390

and i believe this one is already taken

878

01:19:33,110 --> 01:19:30,080

care of for roger you have he has a

879

01:19:37,910 --> 01:19:35,990

manual iso valve on the handle take it

880

01:19:44,950 --> 01:19:37,920

port to the left

881

01:19:44,960 --> 01:19:48,709

on the left that's the rival

882

01:19:48,719 --> 01:19:56,550

charging

883

01:20:02,950 --> 01:19:58,070

our space walker is now working through

884

01:20:08,950 --> 01:20:06,390

roger we need it to be up

885

01:20:16,310 --> 01:20:08,960

i'm sorry okay

886

01:20:19,350 --> 01:20:17,830

and then on the hand controller module

887

01:20:20,709 --> 01:20:19,360

we'd like you to check this

888

01:20:24,950 --> 01:20:20,719

configuration

889

01:20:27,910 --> 01:20:27,110

our switch is an oss

890

01:20:42,550 --> 01:20:27,920

and

891

01:20:48,470 --> 01:20:44,149

on our truss support

892

01:20:48,480 --> 01:20:56,629

copy

893

01:21:02,229 --> 01:20:58,390

now you can insert the hand control

894

01:21:06,550 --> 01:21:04,550

routing the umbilical

895

01:21:08,310 --> 01:21:06,560

as you remember from training that

896

01:21:18,310 --> 01:21:08,320

routing goes counterclockwise under the

897

01:21:33,830 --> 01:21:19,910

just tell me where you need to move

898

01:21:37,990 --> 01:21:35,990

oh i tried to close it

899

01:21:51,669 --> 01:21:38,000

and i remember there was a trick that

900

01:21:51,679 --> 01:22:14,629

and we concur

901
01:22:14,639 --> 01:22:19,669
nicely done

902
01:22:19,679 --> 01:22:25,020
all that translation adaptation complete

903
01:22:25,030 --> 01:22:36,629
[Music]

904
01:22:36,639 --> 01:22:40,629
correct

905
01:22:40,639 --> 01:22:43,830
that's the firm

906
01:22:47,030 --> 01:22:45,270
that's good

907
01:22:49,030 --> 01:22:47,040
then we can get uh

908
01:22:52,470 --> 01:22:49,040
we'll get your bag let me check here in

909
01:22:54,070 --> 01:22:52,480
a second to get all this word away

910
01:22:57,189 --> 01:22:54,080
so if you want me to climb back into

911
01:23:00,950 --> 01:22:59,270
oh the rbb unboxing sorry i just dropped

912
01:23:02,709 --> 01:23:00,960
it we just

913
01:23:07,270 --> 01:23:02,719

make sure we're not tangled with all the

914

01:23:07,280 --> 01:23:25,090

okay i start moving up

915

01:23:25,100 --> 01:23:30,870

[Music]

916

01:23:30,880 --> 01:23:40,550

need to rotate and bring my body out

917

01:23:40,560 --> 01:23:43,910

take your time

918

01:23:43,920 --> 01:23:51,110

we're not any rush

919

01:23:55,510 --> 01:23:53,430

roger one follow-up from your work with

920

01:23:57,030 --> 01:23:55,520

the hand controller module we would just

921

01:23:58,629 --> 01:23:57,040

like to confirm that the manual

922

01:24:00,310 --> 01:23:58,639

isolation valve

923

01:24:09,140 --> 01:24:00,320

that handle on the port left side is

924

01:24:12,629 --> 01:24:11,270

[Music]

925

01:24:14,950 --> 01:24:12,639

our spacewalker is now doing some

926

01:24:19,430 --> 01:24:14,960

close-out tasks at the airlock before

927

01:24:22,950 --> 01:24:20,870

they're making sure that nothing is

928

01:24:25,590 --> 01:24:22,960

tangled and that they have the equipment

929

01:24:27,350 --> 01:24:25,600

that they need that their heckas are on

930

01:24:28,870 --> 01:24:27,360

you may have heard chem chatter about

931

01:24:30,629 --> 01:24:28,880

them turning on their hekas this stands

932

01:24:33,510 --> 01:24:30,639

for high definition extravehicular

933

01:24:35,030 --> 01:24:33,520

activity mobility unit camera assembly

934

01:24:36,550 --> 01:24:35,040

in other words they're high definition

935

01:24:51,189 --> 01:24:36,560

cameras that allow us to see from the

936

01:24:54,790 --> 01:24:52,790

speaking of cameras one of the tasks

937

01:24:57,350 --> 01:24:54,800

that they have today

938

01:24:59,669 --> 01:24:57,360

is exchanging a camera on the external

939

01:25:01,270 --> 01:24:59,679

side of the international space station

940

01:25:03,430 --> 01:25:01,280

looks like rajatari inadvertently had

941

01:25:04,790 --> 01:25:03,440

taken out that bag but it will not be

942

01:25:06,790 --> 01:25:04,800

used right in the beginning of our

943

01:25:09,430 --> 01:25:06,800

spacewalk but will be retrieved later in

944

01:25:27,750 --> 01:25:09,440

the spacewalk for use

945

01:25:31,189 --> 01:25:29,510

this is that was

946

01:25:32,310 --> 01:25:31,199

p4

947

01:25:34,629 --> 01:25:32,320

blender

948

01:25:36,550 --> 01:25:34,639

which is now attached for my

949

01:25:45,590 --> 01:25:36,560

ert

950

01:25:50,229 --> 01:25:48,629

then i retrieve the small hook

951
01:25:54,310 --> 01:25:50,239
with the small hook

952
01:25:59,669 --> 01:25:57,030
copy the bag configuration roger you can

953
01:26:01,669 --> 01:25:59,679
turn your heka on

954
01:26:04,310 --> 01:26:01,679
and matias you can also stow the airlock

955
01:26:06,709 --> 01:26:04,320
waste tether large hook

956
01:26:12,149 --> 01:26:06,719
to the airlock d-ring extender or as you

957
01:26:34,310 --> 01:26:14,310
everyone might happen to god

958
01:26:38,070 --> 01:26:35,830
we're in a brief handover period and we

959
01:26:39,510 --> 01:26:38,080
hope to get our live views of the

960
01:26:41,669 --> 01:26:39,520
of the outside of the international

961
01:26:43,590 --> 01:26:41,679
space station back soon where our

962
01:26:47,990 --> 01:26:43,600
spacewalkers are getting ready to go on

963
01:26:51,510 --> 01:26:50,070

oh watch it as you come down here our

964

01:26:52,950 --> 01:26:51,520

spacewalkers will actually be working

965

01:26:55,510 --> 01:26:52,960

pretty independently from one another

966

01:26:57,189 --> 01:26:55,520

for the majority of the spacewalk nasa

967

01:26:58,709 --> 01:26:57,199

astronaut raj atari will be on the

968

01:27:01,669 --> 01:26:58,719

robotic arm for almost the entire

969

01:27:03,030 --> 01:27:01,679

spacewalk while ev-2 mitsius mar

970

01:27:04,709 --> 01:27:03,040

completes different tasks throughout the

971

01:27:06,629 --> 01:27:04,719

station's exterior basically taking a

972

01:27:14,709 --> 01:27:06,639

tour of the outside of the space station

973

01:27:19,510 --> 01:27:17,110

jesus what's the stuff

974

01:27:20,870 --> 01:27:19,520

okay oh let's see here

975

01:27:22,790 --> 01:27:20,880

come

976

01:27:26,149 --> 01:27:22,800

with me

977

01:27:28,870 --> 01:27:26,159

come on let me rotate in this official

978

01:27:42,629 --> 01:27:28,880

yeah then put my armpit my back with my

979

01:27:46,470 --> 01:27:45,030

okay right now i've got caps on with uh

980

01:27:48,470 --> 01:27:46,480

velcro i'll have to

981

01:27:49,830 --> 01:27:48,480

get that floor secure in a second

982

01:27:53,510 --> 01:27:49,840

if you want to get your bag so that's

983

01:27:58,149 --> 01:27:56,070

and then i think

984

01:28:00,390 --> 01:27:58,159

well let's get your bag stored up and

985

01:28:01,990 --> 01:28:00,400

i'll have you probably lay with your

986

01:28:03,430 --> 01:28:02,000

head towards you i can

987

01:28:13,430 --> 01:28:03,440

towards me and i can see if i can

988

01:28:13,440 --> 01:28:19,750

i'm going to actually your bag

989

01:28:35,830 --> 01:28:21,669

very slowly towards me because it's held

990

01:28:38,850 --> 01:28:38,840

uh

991

01:28:38,850 --> 01:28:45,430

[Music]

992

01:28:45,440 --> 01:28:59,990

uh

993

01:29:05,350 --> 01:29:01,270

oh

994

01:29:08,390 --> 01:29:07,430

while it's not tangled or distracting

995

01:29:10,790 --> 01:29:08,400

each other

996

01:29:15,110 --> 01:29:10,800

it is uh with my safety feather like

997

01:29:19,270 --> 01:29:16,950

i think it's your waist better actually

998

01:29:20,629 --> 01:29:19,280

yeah so for now if it's secure let's not

999

01:29:21,750 --> 01:29:20,639

worry about let's get the helmet on

1000

01:29:22,629 --> 01:29:21,760

right but

1001

01:29:31,030 --> 01:29:22,639

they could

1002

01:29:31,040 --> 01:29:33,430

okay

1003

01:29:38,550 --> 01:29:35,590

all right let's get the whole way off

1004

01:29:39,750 --> 01:29:38,560

and up go down very slowly come over

1005

01:29:41,430 --> 01:29:39,760

here

1006

01:29:44,470 --> 01:29:41,440

slowly towards

1007

01:29:48,390 --> 01:29:44,480

me but you're looking up into the hatch

1008

01:29:52,629 --> 01:29:50,229

and we're back with a live look of one

1009

01:29:54,229 --> 01:29:52,639

of the many external cameras on the

1010

01:29:55,830 --> 01:29:54,239

exterior of the international space

1011

01:29:57,830 --> 01:29:55,840

station looking at the outside of the

1012

01:29:59,110 --> 01:29:57,840

quest airlock okay so what i'm gonna

1013

01:30:00,310 --> 01:29:59,120

have you do is

1014

01:30:02,550 --> 01:30:00,320

find the

1015

01:30:04,070 --> 01:30:02,560

body position that you can hold

1016

01:30:11,590 --> 01:30:04,080

i'm gonna see if first i can try to

1017

01:30:16,550 --> 01:30:14,790

there is also a crib sheet for this uh

1018

01:30:20,149 --> 01:30:16,560

operation okay

1019

01:30:24,310 --> 01:30:21,990

and you guys are doing you're doing the

1020

01:30:26,229 --> 01:30:24,320

right thing minimizing motion and uh

1021

01:30:29,510 --> 01:30:26,239

making matthias as

1022

01:30:32,310 --> 01:30:29,520

stable and rigid as he can be

1023

01:30:36,310 --> 01:30:32,320

for i believe one velcro strap has come

1024

01:30:39,590 --> 01:30:38,229

so you're going to try to

1025

01:30:42,070 --> 01:30:39,600

the right is least you're going to try

1026

01:30:44,790 --> 01:30:42,080

to reroute that strap between the hut

1027

01:30:47,110 --> 01:30:44,800

plus interface

1028

01:30:51,590 --> 01:30:47,120

attaching the velcro strap to the

1029

01:31:12,950 --> 01:30:53,270

are you spinning enough that i can't

1030

01:31:27,910 --> 01:31:14,550

i'm holding on to you

1031

01:31:32,870 --> 01:31:30,790

okay the right velcro is re-engaged

1032

01:31:35,669 --> 01:31:32,880

they're both velcro straps your eyes now

1033

01:31:38,070 --> 01:31:35,679

i need to see if we can try to

1034

01:31:39,189 --> 01:31:38,080

engage or actually especially over you

1035

01:31:40,950 --> 01:31:39,199

for the next step basically i'm going to

1036

01:31:52,950 --> 01:31:40,960

try to re-engage the actual lock from

1037

01:31:52,960 --> 01:31:59,350

checking

1038

01:32:03,669 --> 01:32:02,390

hey left and right velcro's engaged

1039

01:32:05,189 --> 01:32:03,679

i'm going to translate on you again with

1040

01:32:14,229 --> 01:32:05,199

you see if i can

1041

01:32:14,239 --> 01:32:36,629

um

1042

01:32:38,790 --> 01:32:37,750

all right mess with this anymore i'm

1043

01:32:41,270 --> 01:32:38,800

also thinking maybe i should find

1044

01:32:43,189 --> 01:32:41,280

something direct to you on those helmets

1045

01:32:46,070 --> 01:32:43,199

so if it does come off so i'm trying to

1046

01:32:48,390 --> 01:32:46,080

reattach it it doesn't lose it

1047

01:32:49,990 --> 01:32:48,400

and roger matthias we're continuing to

1048

01:32:52,470 --> 01:32:50,000

talk about it also we like how you've

1049

01:32:54,629 --> 01:32:52,480

routed the strap what we propose is that

1050

01:32:57,110 --> 01:32:54,639

you close the thermal cover continue

1051
01:32:59,590 --> 01:32:57,120
with buddy checks while we discuss

1052
01:33:08,470 --> 01:32:59,600
any further work on the

1053
01:33:08,480 --> 01:33:12,550
looks like the magazine closed yep

1054
01:33:16,550 --> 01:33:14,310
our astronauts are now working to close

1055
01:33:19,510 --> 01:33:16,560
the hatch thermal cover

1056
01:33:22,950 --> 01:33:21,430
all right i'll start on you i can see

1057
01:33:24,229 --> 01:33:22,960
coming up soon they'll perform a series

1058
01:33:26,310 --> 01:33:24,239
of buddy checks checking out each

1059
01:33:29,189 --> 01:33:26,320
other's spacesuits and making sure all

1060
01:33:36,870 --> 01:33:30,790
if you yaw

1061
01:33:41,830 --> 01:33:38,470
one two three tabs up and both your

1062
01:33:43,270 --> 01:33:41,840
safer handles are down

1063
01:33:48,550 --> 01:33:43,280

happy

1064

01:33:54,149 --> 01:33:52,390
and your turlock bag is behind

1065

01:33:57,430 --> 01:33:54,159
you down by your left side so it looks

1066

01:34:00,390 --> 01:33:57,440
like it's a good config i see your

1067

01:34:12,550 --> 01:34:00,400
tethered pack running up to the forward

1068

01:34:12,560 --> 01:34:25,430
yes

1069

01:34:34,149 --> 01:34:27,189
once you get back out i can work on your

1070

01:34:37,669 --> 01:34:35,910
okay now your other way started like you

1071

01:34:39,430 --> 01:34:37,679
mentioned before is wrapped around the

1072

01:34:42,550 --> 01:34:39,440
knuckle of your brt

1073

01:34:44,709 --> 01:34:42,560
so if you take your left waist center

1074

01:34:46,950 --> 01:34:44,719
anchor hook

1075

01:34:48,629 --> 01:34:46,960
off your reading workstation

1076
01:34:50,470 --> 01:34:48,639
you're getting a view now of the tethers

1077
01:35:00,149 --> 01:34:50,480
that our space walkers rajatari and

1078
01:35:06,790 --> 01:35:01,990
and then run it under your brt and talk

1079
01:35:18,390 --> 01:35:15,830
all right

1080
01:35:22,310 --> 01:35:18,400
you're looking ready for a space walk

1081
01:35:22,320 --> 01:35:24,790
okay

1082
01:35:34,070 --> 01:35:26,550
are you ready for tickler

1083
01:35:38,229 --> 01:35:36,070
great view of nasa astronaut raja chary

1084
01:35:39,750 --> 01:35:38,239
now who you see in the red stripes with

1085
01:35:41,669 --> 01:35:39,760
the earth below

1086
01:35:43,189 --> 01:35:41,679
chari is assisting matthias mar to make

1087
01:35:45,020 --> 01:35:43,199
sure that his tethers are configured

1088
01:35:48,070 --> 01:35:45,030

correctly

1089

01:35:51,430 --> 01:35:48,080

[Music]

1090

01:35:53,700 --> 01:35:51,440

these three midi workstation taps are up

1091

01:35:56,870 --> 01:35:53,710

um

1092

01:35:56,880 --> 01:35:59,910

and

1093

01:36:02,870 --> 01:36:00,790

the

1094

01:36:04,790 --> 01:36:02,880

true love bundle

1095

01:36:07,830 --> 01:36:04,800

is nicely on your left and i think you

1096

01:36:09,750 --> 01:36:07,840

can easily manage it

1097

01:36:12,229 --> 01:36:09,760

in the safety table i see that the

1098

01:36:14,709 --> 01:36:12,239

advantage screw hook is safely attached

1099

01:36:16,709 --> 01:36:14,719

to the aft

1100

01:36:19,669 --> 01:36:16,719

e-ring on the airlock

1101

01:36:32,149 --> 01:36:19,679

it's real 23 it's unboxed and i see that

1102

01:36:37,109 --> 01:36:34,709

there is one small event which is on

1103

01:36:50,790 --> 01:36:37,119

your pct which is locked out you might

1104

01:36:54,629 --> 01:36:53,669

thank you

1105

01:36:56,149 --> 01:36:54,639

all right

1106

01:36:58,390 --> 01:36:56,159

i think that's body text complete i have

1107

01:36:59,510 --> 01:36:58,400

a for a baseline half jacket is dry my

1108

01:37:01,830 --> 01:36:59,520

gloves

1109

01:37:05,430 --> 01:37:01,840

uh do not have any new sludges on them

1110

01:37:10,870 --> 01:37:08,950

and for edg my hat is dry and my

1111

01:37:12,390 --> 01:37:10,880

gloves look pristine

1112

01:37:21,590 --> 01:37:12,400

like

1113

01:37:24,470 --> 01:37:23,189

all right i'm standing by for the helmet

1114

01:37:26,149 --> 01:37:24,480

i would minimize your movement for

1115

01:37:37,990 --> 01:37:26,159

another kid just your filter just held

1116

01:37:43,270 --> 01:37:40,070

roger matthias copy all

1117

01:37:47,830 --> 01:37:45,750

did buddy checks and copy your hat and

1118

01:37:55,910 --> 01:37:47,840

baseline gloves we're still discussing

1119

01:37:58,709 --> 01:37:57,350

trying to see what might be a good

1120

01:38:00,870 --> 01:37:58,719

position for me to work on this i'm

1121

01:38:02,790 --> 01:38:00,880

thinking

1122

01:38:04,950 --> 01:38:02,800

stay on the handle here i get behind you

1123

01:38:07,189 --> 01:38:04,960

in between the wagon wheel

1124

01:38:08,950 --> 01:38:07,199

back here i might be able to yeah get

1125

01:38:10,550 --> 01:38:08,960

some

1126

01:38:28,870 --> 01:38:10,560

punch myself in there enough to work on

1127

01:38:32,950 --> 01:38:31,830

uh

1128

01:38:50,790 --> 01:38:32,960

this way a little bit more let's see if

1129

01:38:53,910 --> 01:38:52,310

and kill i'll refer to you obviously you

1130

01:38:56,149 --> 01:38:53,920

guys have the sheet ideas i

1131

01:38:58,310 --> 01:38:56,159

can rent for this table that i'm

1132

01:39:00,149 --> 01:38:58,320

pointing at with my left hand and then

1133

01:39:02,070 --> 01:39:00,159

try to work it back on the latches that

1134

01:39:06,629 --> 01:39:02,080

way if i miss at least i get a wreck to

1135

01:39:10,870 --> 01:39:09,189

and roger matthias we're still talking

1136

01:39:13,830 --> 01:39:10,880

about it but what we're thinking is

1137

01:39:15,270 --> 01:39:13,840

using a wire tie to keep

1138

01:39:17,430 --> 01:39:15,280

matias

1139

01:39:19,030 --> 01:39:17,440

to better secure matthias's helmet

1140

01:39:25,350 --> 01:39:19,040

camera but we're still discussing stand

1141

01:39:28,950 --> 01:39:27,270

you just heard ground iv stephanie

1142

01:39:30,950 --> 01:39:28,960

wilson relay to the crew that they're

1143

01:39:33,590 --> 01:39:30,960

working on a fix

1144

01:39:34,870 --> 01:39:33,600

for matthias's

1145

01:39:37,030 --> 01:39:34,880

helmet camera

1146

01:39:41,990 --> 01:39:37,040

do you think using a wire tie

1147

01:39:42,000 --> 01:39:50,229

i kept what one of my wires tying it to

1148

01:39:54,310 --> 01:39:52,830

like the sizer knob or something like

1149

01:39:59,030 --> 01:39:54,320

that start to look for something i would

1150

01:40:02,470 --> 01:40:01,510

and we have some initial thoughts but uh

1151
01:40:06,070 --> 01:40:02,480
let me

1152
01:40:06,080 --> 01:41:09,030
okay

1153
01:41:11,669 --> 01:41:10,229
all right

1154
01:41:14,790 --> 01:41:11,679
that's my vip here while we have some

1155
01:41:17,750 --> 01:41:15,910
do you want me

1156
01:41:19,270 --> 01:41:17,760
i know i thought it was putting it

1157
01:41:25,470 --> 01:41:19,280
higher up on my body so i can get to it

1158
01:41:30,390 --> 01:41:27,510
[Music]

1159
01:41:32,709 --> 01:41:30,400
roger mathias we're still uh discussing

1160
01:41:35,189 --> 01:41:32,719
we do have some steps that we're pulling

1161
01:41:38,470 --> 01:41:35,199
together we appreciate your patience

1162
01:42:03,830 --> 01:41:38,480
you can hang out for a bit and perhaps

1163
01:42:03,840 --> 01:42:16,470

uh

1164

01:42:20,070 --> 01:42:17,990

what the crew is working through now is

1165

01:42:21,669 --> 01:42:20,080

a camera and helmet light assembly that

1166

01:42:23,669 --> 01:42:21,679

just doesn't want to stay secured into

1167

01:42:26,390 --> 01:42:23,679

place the ground right now is working a

1168

01:42:28,870 --> 01:42:26,400

solution possibly using some wire ties

1169

01:42:31,109 --> 01:42:28,880

but still talking amongst themselves on

1170

01:42:32,470 --> 01:42:31,119

a solution

1171

01:42:34,229 --> 01:42:32,480

basically they just don't want to

1172

01:42:36,470 --> 01:42:34,239

interfere with the spacesuits or the

1173

01:42:38,390 --> 01:42:36,480

ability for the spacewalkers

1174

01:42:40,149 --> 01:42:38,400

life support units to get in the way or

1175

01:42:42,790 --> 01:42:40,159

anything to be compromised there but as

1176
01:44:19,750 --> 01:42:42,800
soon as we have a fix our spacewalkers

1177
01:44:19,760 --> 01:44:42,709
um

1178
01:44:42,719 --> 01:45:07,750
foreign

1179
01:45:12,229 --> 01:45:09,669
you're getting a live view of the quest

1180
01:45:14,229 --> 01:45:12,239
airlock with two space walkers rajatari

1181
01:45:16,149 --> 01:45:14,239
in the spacesuit with the red stripes

1182
01:45:17,990 --> 01:45:16,159
you can see his legs poking out there

1183
01:45:20,550 --> 01:45:18,000
and european space agency

1184
01:45:23,910 --> 01:45:20,560
astronaut matthias mar

1185
01:45:25,830 --> 01:45:23,920
they began their space walk

1186
01:45:28,070 --> 01:45:25,840
and are getting ready to go out to their

1187
01:45:30,629 --> 01:45:28,080
work site but first the

1188
01:45:32,709 --> 01:45:30,639

crew here on the ground is working on a

1189

01:45:34,550 --> 01:45:32,719

solution to matthias mars camera and

1190

01:45:54,629 --> 01:45:34,560

helmet light assembly kind of keeping it

1191

01:45:54,639 --> 01:46:00,870

um

1192

01:46:00,880 --> 01:46:52,790

uh

1193

01:46:52,800 --> 01:47:10,709

yes i think so it could be

1194

01:47:10,719 --> 01:48:39,830

uh

1195

01:48:43,830 --> 01:48:41,910

roger matthias just checking in we're

1196

01:48:44,950 --> 01:48:43,840

still working at the plan is coming

1197

01:49:52,070 --> 01:48:44,960

together i should be back with you

1198

01:49:52,080 --> 01:50:17,189

uh

1199

01:50:20,790 --> 01:50:18,950

a solution to the loose camera and

1200

01:50:22,470 --> 01:50:20,800

helmet light assembly

1201

01:50:23,669 --> 01:50:22,480

part of the helmet section of the

1202

01:50:25,669 --> 01:50:23,679

spacesuit

1203

01:50:27,270 --> 01:50:25,679

for matthias mower is in work with the

1204

01:50:29,589 --> 01:50:27,280

ground crew here

1205

01:50:31,990 --> 01:50:29,599

our next step is to hear from our ground

1206

01:50:34,070 --> 01:50:32,000

iv basically the capcom of a spacewalk

1207

01:50:36,149 --> 01:50:34,080

nasa astronaut stephanie wilson is

1208

01:50:45,830 --> 01:50:36,159

expected to give some words to the crew

1209

01:50:49,669 --> 01:50:47,669

roger matthias the plan has come

1210

01:50:51,350 --> 01:50:49,679

together thank you for your patience so

1211

01:50:53,830 --> 01:50:51,360

what i'd like to do is

1212

01:50:55,589 --> 01:50:53,840

kind of read the steps as a big picture

1213

01:50:59,030 --> 01:50:55,599

get your comments and assessment and

1214

01:51:02,070 --> 01:51:00,149

okay

1215

01:51:04,390 --> 01:51:02,080

and the plan includes

1216

01:51:05,589 --> 01:51:04,400

using two long wire ties roger from your

1217

01:51:07,750 --> 01:51:05,599

brt

1218

01:51:09,109 --> 01:51:07,760

so you're going to use those wire ties

1219

01:51:12,149 --> 01:51:09,119

to secure

1220

01:51:13,910 --> 01:51:12,159

to the safer towers

1221

01:51:16,709 --> 01:51:13,920

you'd wrap one end of the wire tie

1222

01:51:18,950 --> 01:51:16,719

around the right e-hip gimbal

1223

01:51:22,149 --> 01:51:18,960

while matthias attempts to hold the emu

1224

01:51:24,629 --> 01:51:22,159

tv e-hip assembly onto his helmet

1225

01:51:26,790 --> 01:51:24,639

the tie dyn the tie down should not

1226
01:51:28,390 --> 01:51:26,800
should minimize impin impingement into

1227
01:51:29,910 --> 01:51:28,400
the thruster areas

1228
01:51:31,910 --> 01:51:29,920
and the preference is to route around

1229
01:51:34,310 --> 01:51:31,920
the vertical safer tower to minimize the

1230
01:51:36,070 --> 01:51:34,320
possibility of the wire tie sliding

1231
01:51:37,669 --> 01:51:36,080
toward the thrusters

1232
01:51:39,830 --> 01:51:37,679
then you'll wrap the open end of the

1233
01:51:47,990 --> 01:51:39,840
wire tie around the safer around the

1234
01:51:50,870 --> 01:51:49,030
so

1235
01:51:53,109 --> 01:51:50,880
read that back to earth

1236
01:51:54,870 --> 01:51:53,119
i think you said i'm going basically

1237
01:51:57,189 --> 01:51:54,880
taking a long wire tie

1238
01:51:59,990 --> 01:51:57,199

and going around

1239

01:52:02,470 --> 01:52:00,000

the dimple

1240

01:52:04,310 --> 01:52:02,480

and then down to the safer tower

1241

01:52:05,510 --> 01:52:04,320

and what i've been uh explaining you're

1242

01:52:11,430 --> 01:52:05,520

talking about the vertical part of the

1243

01:52:15,109 --> 01:52:12,310

right

1244

01:52:17,750 --> 01:52:15,119

and the safer tower it's kind of at the

1245

01:52:20,390 --> 01:52:17,760

it's an upside down I so you'll be

1246

01:52:22,790 --> 01:52:20,400

wrapping the other end of the wire tie

1247

01:52:25,430 --> 01:52:22,800

around the

1248

01:52:30,790 --> 01:52:25,440

horizontal portion and keeping it clear

1249

01:52:34,709 --> 01:52:33,030

okay i think uh

1250

01:52:39,830 --> 01:52:34,719

almost following the same routing as the

1251

01:52:39,840 --> 01:52:43,830

yeah that's correct

1252

01:52:48,310 --> 01:52:45,510

all right i will start putting that into

1253

01:52:51,030 --> 01:52:48,320

work i'll work on his right side first

1254

01:52:55,430 --> 01:52:53,030

once you find whatever a stable position

1255

01:52:57,669 --> 01:52:55,440

is for you that i can kind of push

1256

01:52:59,830 --> 01:52:57,679

around and you won't move yeah i have a

1257

01:53:01,990 --> 01:52:59,840

steady proficiency okay

1258

01:53:04,310 --> 01:53:02,000

and i'll try to

1259

01:53:05,100 --> 01:53:04,320

answer myself

1260

01:53:07,990 --> 01:53:05,110

um

1261

01:53:09,750 --> 01:53:08,000

[Applause]

1262

01:53:12,629 --> 01:53:09,760

i'm gonna kind of use you to translate

1263

01:53:33,589 --> 01:53:12,639

on them or to brace myself as i'm doing

1264

01:53:37,430 --> 01:53:35,430
ground iv stephanie wilson just

1265

01:53:39,510 --> 01:53:37,440
communicated the plan that

1266

01:53:44,229 --> 01:53:39,520
our eva team here on the ground came up

1267

01:53:48,390 --> 01:53:46,390
essentially astronaut raj atari is going

1268

01:53:50,070 --> 01:53:48,400
to use one of the wire ties on his body

1269

01:53:51,350 --> 01:53:50,080
restraint tether one of the tethers

1270

01:53:53,430 --> 01:53:51,360
keeping him to the international space

1271

01:53:55,430 --> 01:53:53,440
station it was decided that these wire

1272

01:53:57,189 --> 01:53:55,440
ties will not be used throughout the

1273

01:53:59,189 --> 01:53:57,199
space station so they're available to

1274

01:54:01,669 --> 01:53:59,199
use on matthias mower's camera and

1275

01:54:03,189 --> 01:54:01,679
helmet assem light assembly

1276

01:54:06,310 --> 01:54:03,199

he'll be attaching it to part of the

1277

01:54:09,830 --> 01:54:06,320

safer unit making sure to be careful

1278

01:54:11,669 --> 01:54:09,840

of not interfering with the safer units

1279

01:54:13,189 --> 01:54:11,679

ability to safely get matthias mower

1280

01:54:46,070 --> 01:54:13,199

back to the space station in the event

1281

01:54:49,990 --> 01:54:47,669

you're getting a live view of mission

1282

01:54:51,990 --> 01:54:50,000

control in houston now the international

1283

01:54:53,910 --> 01:54:52,000

space station's flight control room

1284

01:54:55,990 --> 01:54:53,920

where flight controllers are talking

1285

01:54:58,070 --> 01:54:56,000

amongst themselves on a solution to the

1286

01:54:59,830 --> 01:54:58,080

camera and helmet light assembly they've

1287

01:55:01,750 --> 01:54:59,840

gotten instructions for nasa astronaut

1288

01:55:02,629 --> 01:55:01,760

raj atari on how to secure that into

1289

01:55:04,229 --> 01:55:02,639

place

1290

01:55:06,390 --> 01:55:04,239

and are just making sure that the path

1291

01:56:45,669 --> 01:55:06,400

is correct and agreed upon by everyone

1292

01:56:49,189 --> 01:56:47,990

once this solution has been worked

1293

01:56:51,510 --> 01:56:49,199

i think what you're talking about i've

1294

01:56:53,270 --> 01:56:51,520

got pre-twisted what i'm trying to do is

1295

01:56:55,270 --> 01:56:53,280

use the red hook

1296

01:56:58,470 --> 01:56:55,280

put more twists into it to essentially

1297

01:56:59,990 --> 01:56:58,480

tighten this down more

1298

01:57:02,070 --> 01:57:00,000

when a solution has been worked nasa

1299

01:57:03,990 --> 01:57:02,080

astronaut raj achary will

1300

01:57:05,830 --> 01:57:04,000

work to configure the robotic arm and

1301

01:57:08,149 --> 01:57:05,840

write it out to the radiator beam valve

1302

01:57:21,669 --> 01:57:08,159

module while matias mar routes an

1303

01:57:25,030 --> 01:57:23,510

well i guess one caution with this the

1304

01:57:27,430 --> 01:57:25,040

key is you probably

1305

01:57:28,870 --> 01:57:27,440

won't be able to like manipulate the

1306

01:57:30,390 --> 01:57:28,880

aiming of your lights you just have to

1307

01:57:32,310 --> 01:57:30,400

be careful when you're up there yeah

1308

01:57:34,629 --> 01:57:32,320

that makes sense yeah

1309

01:57:39,669 --> 01:57:34,639

if you could aim it i think if you could

1310

01:57:42,070 --> 01:57:41,030

all right i'm pulling me around here

1311

01:57:44,070 --> 01:57:42,080

damn we're all done with this left

1312

01:57:45,910 --> 01:57:44,080

gender safety feathers again

1313

01:57:47,510 --> 01:57:45,920

hanging all over your

1314

01:58:19,669 --> 01:57:47,520

back here trying to

1315

01:58:24,950 --> 01:58:22,470

do you have k.u back certainly

1316

01:58:26,870 --> 01:58:24,960

roger we do not and we're also uh about

1317

01:58:31,830 --> 01:58:26,880

two minutes from uh

1318

01:58:34,709 --> 01:58:33,030

i would kind of like you to see this

1319

01:58:37,430 --> 01:58:34,719

before i do the other side

1320

01:58:41,109 --> 01:58:37,440

just go i'm not wasting pounding

1321

01:58:47,669 --> 01:58:43,910

i'll hold here then until you get a view

1322

01:58:51,109 --> 01:58:49,589

your helmet lights matias on that right

1323

01:58:53,750 --> 01:58:51,119

side look like they're in line and

1324

01:58:54,870 --> 01:58:53,760

they're probably positioned

1325

01:58:56,149 --> 01:58:54,880

the left side will have to change a

1326

01:58:58,310 --> 01:58:56,159

little bit but i think the right size is

1327

01:59:01,030 --> 01:58:58,320

good yeah what you could do is like you

1328

01:59:02,950 --> 01:59:01,040

could slap these uh

1329

01:59:05,669 --> 01:59:02,960

the wire side so that it's like less of

1330

01:59:07,750 --> 01:59:05,679

an obstacle when i move around oh yeah a

1331

01:59:11,030 --> 01:59:07,760

good point we try to

1332

01:59:25,510 --> 01:59:13,109

and roger matthias also for your essay

1333

01:59:37,320 --> 01:59:27,109

i think that body position worked pretty

1334

01:59:37,330 --> 01:59:43,030

[Music]

1335

01:59:45,510 --> 01:59:44,310

handrail on this side it doesn't go all

1336

01:59:46,870 --> 01:59:45,520

the way around but we try let's try

1337

01:59:48,629 --> 01:59:46,880

we'll try it looks like it's a camera

1338

01:59:50,149 --> 01:59:48,639

view and have you yaw see if that works

1339

02:00:39,030 --> 01:59:50,159

might be the easiest thing but hold on

1340

02:00:39,040 --> 02:00:54,790

great

1341

02:00:58,149 --> 02:00:56,310

we're waiting for our live views of the

1342

02:01:01,430 --> 02:00:58,159

international space station to come back

1343

02:01:02,950 --> 02:01:01,440

as we hand off between satellites uh

1344

02:01:04,390 --> 02:01:02,960

once we get our live view back the folks

1345

02:01:07,589 --> 02:01:04,400

here in mission control will evaluate

1346

02:01:09,830 --> 02:01:07,599

raj acharya's work securing the

1347

02:01:33,669 --> 02:01:09,840

lights and camera assembly it looks like

1348

02:01:33,679 --> 02:01:40,229

roger matthias we're back with you on ku

1349

02:01:40,239 --> 02:01:51,510

okay

1350

02:02:08,229 --> 02:01:52,950

exactly sure what you see your maca that

1351
02:02:12,709 --> 02:02:11,109
roger nice work um we like what we see

1352
02:02:14,149 --> 02:02:12,719
uh on that side

1353
02:02:19,189 --> 02:02:14,159
so if you can repeat it on the other

1354
02:02:19,199 --> 02:02:25,510
good try

1355
02:02:29,430 --> 02:02:27,109
if you're able before you swing all the

1356
02:02:39,510 --> 02:02:29,440
way around uh

1357
02:02:43,030 --> 02:02:41,109
with their visuals back it looks like

1358
02:02:45,430 --> 02:02:43,040
the ground here just confirmed with nasa

1359
02:02:47,510 --> 02:02:45,440
astronaut raj atari that the camera and

1360
02:02:49,910 --> 02:02:47,520
helmet light assembly on matthias mowers

1361
02:03:05,720 --> 02:02:49,920
spacesuit looks good to them

1362
02:03:05,730 --> 02:03:41,750
[Music]

1363
02:03:45,589 --> 02:03:43,510

since the crew has spent considerable

1364

02:03:47,830 --> 02:03:45,599

time working on matthias mauer's camera

1365

02:03:49,109 --> 02:03:47,840

and helmet light attached to his helmet

1366

02:03:50,950 --> 02:03:49,119

there

1367

02:03:53,910 --> 02:03:50,960

the crew here on the ground is now

1368

02:03:55,430 --> 02:03:53,920

discussing what procedures we'll be able

1369

02:03:58,470 --> 02:03:55,440

to get to today

1370

02:04:00,629 --> 02:03:58,480

of course the priority of today's tasks

1371

02:04:03,669 --> 02:04:00,639

is the radiator beam valve module it was

1372

02:04:05,270 --> 02:04:03,679

not expected to take the whole spacewalk

1373

02:04:06,950 --> 02:04:05,280

so now they're discussing what other

1374

02:04:27,750 --> 02:04:06,960

maintenance tasks that were planned

1375

02:04:31,830 --> 02:04:29,109

all right once while i use use a

1376

02:04:49,990 --> 02:04:31,840

translation eight here

1377

02:04:58,069 --> 02:04:51,160

yes

1378

02:04:58,079 --> 02:05:27,610

i know you found it

1379

02:05:27,620 --> 02:06:22,229

[Music]

1380

02:06:22,239 --> 02:06:35,589

here you are

1381

02:06:38,310 --> 02:06:37,350

then i need to let you go

1382

02:06:40,550 --> 02:06:38,320

actually this guy if you can hold

1383

02:06:47,510 --> 02:06:40,560

favorite position yeah

1384

02:06:52,229 --> 02:06:50,790

another little closer to you though

1385

02:07:00,149 --> 02:06:52,239

got it rounded i'm just trying to get

1386

02:07:00,159 --> 02:07:16,390

the url here

1387

02:07:16,400 --> 02:07:50,550

uh

1388

02:07:53,669 --> 02:07:52,069

so to recap today's events our

1389

02:07:56,149 --> 02:07:53,679

spacewalkers today switched their suits

1390

02:07:57,270 --> 02:07:56,159

to internal battery power at 7 32 a.m

1391

02:07:59,990 --> 02:07:57,280

central time

1392

02:08:01,830 --> 02:08:00,000

when they exited the hatch matthias mar

1393

02:08:03,189 --> 02:08:01,840

had trouble keeping his helmet camera

1394

02:08:04,470 --> 02:08:03,199

and light firmly attached to the

1395

02:08:06,709 --> 02:08:04,480

spacesuit

1396

02:08:09,030 --> 02:08:06,719

the spacewalk team here on the ground

1397

02:08:11,830 --> 02:08:09,040

came up with a solution for raj acharya

1398

02:08:14,069 --> 02:08:11,840

to use one of his wire ties on one of

1399

02:08:16,629 --> 02:08:14,079

the tethers of his spacesuit to secure

1400

02:08:18,790 --> 02:08:16,639

it into place

1401

02:08:20,310 --> 02:08:18,800

so even though the matthias is

1402

02:08:22,550 --> 02:08:20,320

experiencing a problem with his

1403

02:08:24,470 --> 02:08:22,560

spacesuit the crew is in good health

1404

02:08:26,149 --> 02:08:24,480

this has nothing to do

1405

02:08:27,669 --> 02:08:26,159

with our astronaut they're both

1406

02:08:29,510 --> 02:08:27,679

completely fine

1407

02:09:11,910 --> 02:08:29,520

we just need to secure the helmet into

1408

02:09:15,830 --> 02:09:14,149

and i had it with flips off so

1409

02:09:22,470 --> 02:09:15,840

hopefully they come back to

1410

02:09:22,480 --> 02:09:27,430

every position in here

1411

02:09:32,709 --> 02:09:28,470

you stay where you're at did you want to

1412

02:09:49,669 --> 02:09:32,719

let go of my mws and streamline yourself

1413

02:09:49,679 --> 02:10:02,629

uh

1414

02:10:02,639 --> 02:10:27,109

i think this is work better

1415

02:11:23,189 --> 02:10:28,629

okay there's three twists now let's

1416

02:11:23,199 --> 02:11:53,109

oh

1417

02:11:56,470 --> 02:11:54,550

okay uh

1418

02:12:04,229 --> 02:11:56,480

let's do the routing for that one so if

1419

02:12:08,550 --> 02:12:06,470

roger nice work we are happy with that

1420

02:12:11,910 --> 02:12:08,560

routing

1421

02:12:17,030 --> 02:12:14,470

now that we have completed that work

1422

02:12:18,310 --> 02:12:17,040

we're going to reset as you could think

1423

02:12:20,790 --> 02:12:18,320

of it

1424

02:12:23,589 --> 02:12:20,800

i'll get a glove and half check from you

1425

02:12:25,910 --> 02:12:23,599

we'll start the initial test tasks for

1426

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

this eva as we have planned and as are

1427

02:12:30,390 --> 02:12:28,800

written and we'll assess as we go the

1428

02:12:32,470 --> 02:12:30,400

task at the end

1429

02:12:34,950 --> 02:12:32,480

i heard your reference earlier to gray

1430

02:12:36,950 --> 02:12:34,960

tape i like that that does fix all as

1431

02:12:38,310 --> 02:12:36,960

this teamwork you guys did a nice job

1432

02:12:41,350 --> 02:12:38,320

working together and working through

1433

02:12:42,709 --> 02:12:41,360

this and we're here with you and uh we

1434

02:12:44,550 --> 02:12:42,719

will get the

1435

02:12:46,709 --> 02:12:44,560

get the tasks accomplished for this eba

1436

02:12:49,109 --> 02:12:46,719

nice work

1437

02:12:50,550 --> 02:12:49,119

thank you thanks killer thank you let's

1438

02:12:52,149 --> 02:12:50,560

uh clean up our tethers and stuff

1439

02:12:54,470 --> 02:12:52,159

because i know we've crossed a few times

1440

02:12:55,750 --> 02:12:54,480

there matias trying to translate on one

1441

02:12:56,950 --> 02:12:55,760

another so

1442

02:12:58,550 --> 02:12:56,960

take your time and we'll take funny

1443

02:13:02,229 --> 02:12:58,560

checks once we are happy with their

1444

02:13:05,910 --> 02:13:03,910

and we're now able to see the helmet

1445

02:13:08,550 --> 02:13:05,920

camera views of both of our spacewalking

1446

02:13:10,870 --> 02:13:08,560

astronauts today raj atari on the left

1447

02:13:25,189 --> 02:13:10,880

who's our ev1 and mathias mara on the

1448

02:13:25,199 --> 02:13:49,910

okay i verified my anchor hooks

1449

02:13:54,470 --> 02:13:52,229

now that matthias mower has his camera

1450

02:13:56,470 --> 02:13:54,480

and helmet light fully secured and is

1451

02:13:57,750 --> 02:13:56,480

not interfering with his safer unit in

1452

02:13:59,270 --> 02:13:57,760

any way

1453

02:14:00,790 --> 02:13:59,280

they're going to go on as if they just

1454

02:14:02,709 --> 02:14:00,800

got out the door

1455

02:14:05,189 --> 02:14:02,719

we are about a minute an hour and 12

1456

02:14:07,669 --> 02:14:05,199

minutes into our spacewalk here today

1457

02:14:08,870 --> 02:14:07,679

just beginning our tasks now

1458

02:14:12,790 --> 02:14:08,880

they're going to do buddy checks right

1459

02:14:14,149 --> 02:14:12,800

now and tether checks now

1460

02:14:15,830 --> 02:14:14,159

i can see your

1461

02:14:18,229 --> 02:14:15,840

bundle on the left side looks pretty

1462

02:14:20,069 --> 02:14:18,239

secure and back out of your way

1463

02:14:21,430 --> 02:14:20,079

after their buddy checks conclude

1464

02:14:24,950 --> 02:14:21,440

they'll make their way to their first

1465

02:14:30,229 --> 02:14:27,350

terms of site i see my anchor hook mark

1466

02:14:34,310 --> 02:14:30,239

tv one single on they have to use

1467

02:14:38,629 --> 02:14:36,229

like that

1468

02:14:46,200 --> 02:14:38,639

yeah they're still locked

1469

02:14:46,210 --> 02:14:50,550

[Music]

1470

02:14:50,560 --> 02:14:52,830

number

1471

02:14:57,669 --> 02:14:55,589

one and my right

1472

02:14:58,950 --> 02:14:57,679

face another pack is attached with the

1473

02:15:00,470 --> 02:14:58,960

workstation and the right gear extender

1474

02:15:04,470 --> 02:15:00,480

that's the dropping later

1475

02:15:07,830 --> 02:15:05,830

around quite a bit when i was crawling

1476

02:15:14,069 --> 02:15:07,840

on you i think yeah we try to reconcile

1477

02:15:14,079 --> 02:15:18,550

match up the door open

1478

02:15:21,910 --> 02:15:20,069

you're getting a good view now of nasa

1479

02:15:24,149 --> 02:15:21,920

astronaut raj atari you can tell because

1480

02:15:25,669 --> 02:15:24,159

he's got the red stripes on his legs

1481

02:15:27,189 --> 02:15:25,679

um in just a moment you should be able

1482

02:15:29,189 --> 02:15:27,199

to see two bright lights shining out

1483

02:15:30,629 --> 02:15:29,199

from his helmet those are the

1484

02:15:32,629 --> 02:15:30,639

those are the lights that were we were

1485

02:15:34,069 --> 02:15:32,639

fixing on the camera of matthias mowers

1486

02:15:37,830 --> 02:15:34,079

helmet who's

1487

02:15:39,589 --> 02:15:37,840

you're looking at his point of view now

1488

02:15:41,669 --> 02:15:39,599

all right so let me have a body check on

1489

02:15:44,950 --> 02:15:41,679

you actually

1490

02:15:44,960 --> 02:15:49,730

like four cameras for our live stores

1491

02:15:49,740 --> 02:16:02,149

[Music]

1492

02:16:05,189 --> 02:16:04,390

yes it goes down

1493

02:16:07,189 --> 02:16:05,199

so

1494

02:16:09,030 --> 02:16:07,199

in the safety nether configuration you

1495

02:16:10,870 --> 02:16:09,040

report this so you could be in the good

1496

02:16:12,550 --> 02:16:10,880

shape for me all right

1497

02:16:13,830 --> 02:16:12,560

i think with that killer if you're ready

1498

02:16:18,629 --> 02:16:13,840

we'll have mathias guard heading up the

1499

02:16:22,470 --> 02:16:20,870

nice work good checks uh we are ready

1500

02:16:25,350 --> 02:16:22,480

for matthias to start his translation up

1501
02:16:29,189 --> 02:16:27,109
that's good and let me know once you're

1502
02:16:33,190 --> 02:16:29,199
on top of that yeah all right take it

1503
02:16:37,589 --> 02:16:35,429
sounds great and when you get to phase

1504
02:16:43,669 --> 02:16:37,599
one there's a caution avoid contact with

1505
02:16:43,679 --> 02:16:48,870
my old friend

1506
02:16:48,880 --> 02:16:54,629
old buddy old friend

1507
02:16:54,639 --> 02:17:14,629
selling high forbidden

1508
02:17:14,639 --> 02:17:33,429
then you have to see the store

1509
02:17:38,709 --> 02:17:35,589
your chatterback looks good down between

1510
02:17:49,990 --> 02:17:38,719
your legs

1511
02:17:50,000 --> 02:18:09,349
and walking parts

1512
02:18:13,349 --> 02:18:11,429
the first stop for our spacewalkers is

1513
02:18:14,709 --> 02:18:13,359

the crew equipment translation aid cart

1514

02:18:17,429 --> 02:18:14,719

or cetacart

1515

02:18:19,589 --> 02:18:17,439

where matthias maurer is going to be

1516

02:18:21,830 --> 02:18:19,599

headed the cedar cart is an aid to the

1517

02:18:23,750 --> 02:18:21,840

spacewalkers and a spot where the

1518

02:18:26,230 --> 02:18:23,760

spacewalkers can attach equipment when

1519

02:18:28,230 --> 02:18:26,240

they need to stow something

1520

02:18:30,150 --> 02:18:28,240

mar will stow his tool bag to the seat

1521

02:18:32,230 --> 02:18:30,160

of cart while raj atari follows the same

1522

02:18:33,750 --> 02:18:32,240

path shortly after and retrieves a

1523

02:18:35,110 --> 02:18:33,760

portable foot restraint from the same

1524

02:18:37,270 --> 02:18:35,120

cedar cart

1525

02:18:39,190 --> 02:18:37,280

this portable foot restraint attaches to

1526
02:19:18,950 --> 02:18:39,200
the station's robotic arm so the arm can

1527
02:19:45,669 --> 02:19:20,230
turns a little sideways here so i'll

1528
02:19:48,790 --> 02:19:47,190
our spacewalkers have now left the

1529
02:20:00,830 --> 02:19:48,800
airlock and are making their way to the

1530
02:20:00,840 --> 02:20:07,429
card kathy matthias

1531
02:20:14,830 --> 02:20:11,110
coming up on the fourth seater card

1532
02:20:16,630 --> 02:20:14,840
that's where i need to catch my

1533
02:20:18,070 --> 02:20:16,640
luggage

1534
02:20:20,950 --> 02:20:18,080
that's correct you'll stow the bag

1535
02:20:26,790 --> 02:20:20,960
bundle with the external adjustable and

1536
02:20:26,800 --> 02:20:42,830
work

1537
02:20:47,590 --> 02:20:44,389
now

1538
02:20:52,790 --> 02:20:50,790

raja kayla and tom are with you no rush

1539

02:20:54,710 --> 02:20:52,800

but when you're ready we are go for your

1540

02:21:04,469 --> 02:20:54,720

safety tire swap and apfr installing

1541

02:21:07,910 --> 02:21:05,750

you just heard the voice of nasa

1542

02:21:10,309 --> 02:21:07,920

astronaut tom marshburn you saw him

1543

02:21:11,910 --> 02:21:10,319

earlier in our coverage helping our

1544

02:21:14,950 --> 02:21:11,920

space walkers into their spacesuits

1545

02:21:17,190 --> 02:21:14,960

today now he and kayla barron have moved

1546

02:21:20,309 --> 02:21:17,200

to the robotic arm

1547

02:21:22,469 --> 02:21:20,319

operations area

1548

02:21:25,110 --> 02:21:22,479

they'll be taking turns flying raj atari

1549

02:21:27,110 --> 02:21:25,120

on the robotic arm

1550

02:21:30,230 --> 02:21:27,120

the today stowage you'll retrieve the

1551
02:22:02,870 --> 02:21:30,240
wire tie caddy from the p4 kulak bag and

1552
02:22:10,120 --> 02:22:04,230
and the

1553
02:22:10,130 --> 02:22:16,550
[Applause]

1554
02:22:16,560 --> 02:22:23,349
the cards

1555
02:22:36,790 --> 02:22:25,590
and copyright we see you in route to the

1556
02:22:40,950 --> 02:22:38,950
i get on the other side here but yes

1557
02:22:42,230 --> 02:22:40,960
before you go later and they have you

1558
02:22:43,830 --> 02:22:42,240
check this make sure i haven't entangled

1559
02:22:45,270 --> 02:22:43,840
your cutter

1560
02:22:55,349 --> 02:22:45,280
yeah so

1561
02:23:00,389 --> 02:22:58,150
taking them off

1562
02:23:04,630 --> 02:23:00,399
my wi-fi source

1563
02:23:04,640 --> 02:23:31,110

takeoff

1564

02:24:10,630 --> 02:23:33,190

your feather is

1565

02:24:15,030 --> 02:24:12,550

i've got my eyes on your counter now you

1566

02:24:18,070 --> 02:24:15,040

can focus

1567

02:24:19,830 --> 02:24:18,080

taking off my velcro then i will be

1568

02:24:26,230 --> 02:24:19,840

moving

1569

02:25:16,469 --> 02:24:29,750

matthias next is your green hook

1570

02:25:16,479 --> 02:25:26,630

on me

1571

02:25:30,469 --> 02:25:28,630

you get our local picked up and they'll

1572

02:25:33,670 --> 02:25:30,479

push your target below it and then

1573

02:25:47,429 --> 02:25:35,190

if it's

1574

02:25:47,439 --> 02:25:59,910

okay

1575

02:25:59,920 --> 02:26:33,110

foreign

1576

02:26:36,710 --> 02:26:34,950

51.

1577

02:26:40,230 --> 02:26:36,720

let's check the wheels of course

1578

02:26:42,630 --> 02:26:41,110

and

1579

02:26:44,230 --> 02:26:42,640

as far as i can see

1580

02:26:45,349 --> 02:26:44,240

my safety feather is clear that it's

1581

02:26:49,190 --> 02:26:45,359

below your

1582

02:26:52,550 --> 02:26:49,200

left foot driver okay let's run it up

1583

02:26:59,429 --> 02:26:53,990

maybe i should move it to the door

1584

02:26:59,439 --> 02:27:31,990

right here

1585

02:27:38,230 --> 02:27:35,910

the ts1 raj is ready for you to move

1586

02:27:43,510 --> 02:27:38,240

next will be your translation on the p1

1587

02:27:46,389 --> 02:27:44,870

and you're bag to keep moving but yes

1588

02:27:49,110 --> 02:27:46,399

i'm above you down i think your colors

1589

02:27:50,230 --> 02:27:49,120

are clear i can see mine again you're so

1590

02:27:54,790 --> 02:27:50,240

i think that's because it's gone later

1591

02:27:54,800 --> 02:28:01,670

i was thought

1592

02:28:07,030 --> 02:28:04,950

there are two cautions as you translate

1593

02:28:09,349 --> 02:28:07,040

uh that way do not translate on the

1594

02:28:11,510 --> 02:28:09,359

radiator beam and avoid cyclic loading

1595

02:28:13,349 --> 02:28:11,520

and avoid kicking the radiator beam if

1596

02:28:14,710 --> 02:28:13,359

any contact wait two to five minutes to

1597

02:28:28,870 --> 02:28:14,720

allow for structural response to

1598

02:28:32,950 --> 02:28:30,550

hey about the fhrc stephanie on the

1599

02:28:41,030 --> 02:28:32,960

workout store in the rv vm bag

1600

02:28:44,070 --> 02:28:42,469

charlie just confirmed that he has the

1601
02:28:45,910 --> 02:28:44,080
tools that he'll need for the radiator

1602
02:28:47,349 --> 02:28:45,920
beam valve module

1603
02:28:49,429 --> 02:28:47,359
work site

1604
02:28:51,510 --> 02:28:49,439
first he's got to get his portable foot

1605
02:28:53,110 --> 02:28:51,520
restraint installed to the robotic arm

1606
02:28:55,990 --> 02:28:53,120
where then he'll he'll then mount the

1607
02:28:58,710 --> 02:28:56,000
arm and be moved to the work site

1608
02:29:01,110 --> 02:28:58,720
meanwhile matthias mar leaving the seat

1609
02:29:03,270 --> 02:29:01,120
of cart he'll grab some wire ties from

1610
02:29:05,030 --> 02:29:03,280
one of the bags and go retrieve a reel

1611
02:29:07,270 --> 02:29:05,040
of cables that is on the outside of the

1612
02:29:08,870 --> 02:29:07,280
international space station he'll use

1613
02:29:10,950 --> 02:29:08,880

these supplies and start routing an

1614

02:29:18,150 --> 02:29:10,960

ethernet cable on his way to the camera

1615

02:29:22,550 --> 02:29:20,230

he'll follow a path of handrails to help

1616

02:29:24,469 --> 02:29:22,560

him guide the cables

1617

02:29:26,389 --> 02:29:24,479

later in the spacewalk they'll

1618

02:29:28,070 --> 02:29:26,399

work to replace a camera routing this

1619

02:29:30,309 --> 02:29:28,080

ethernet cable ahead of time we'll save

1620

02:29:32,389 --> 02:29:30,319

some time later on

1621

02:29:38,790 --> 02:29:32,399

and then stow the wire tag caddy in the

1622

02:29:42,150 --> 02:29:39,160

work

1623

02:29:43,750 --> 02:29:42,160

[Applause]

1624

02:29:46,389 --> 02:29:43,760

you're getting a view now of the

1625

02:30:05,510 --> 02:29:46,399

station's robotic arm that raj atari

1626

02:30:09,910 --> 02:30:06,870

killer the uh

1627

02:30:12,790 --> 02:30:09,920

rbvm bag is tethered via aet for the

1628

02:30:15,030 --> 02:30:12,800

fhrc handrail i'm going to start working

1629

02:30:18,630 --> 02:30:15,040

on getting my safety tire pack onto the

1630

02:30:40,150 --> 02:30:18,640

uh service lead point

1631

02:30:40,160 --> 02:31:17,030

huh

1632

02:31:17,040 --> 02:31:50,940

yes

1633

02:31:55,030 --> 02:31:53,680

[Music]

1634

02:31:57,910 --> 02:31:55,040

[Applause]

1635

02:32:04,710 --> 02:31:57,920

hook locked good clothes black on black

1636

02:32:09,030 --> 02:32:07,030

copy that

1637

02:32:09,670 --> 02:32:09,040

right

1638

02:32:12,389 --> 02:32:09,680

uh place

1639

02:32:14,070 --> 02:32:12,399

b raised fender bread hook

1640

02:32:15,830 --> 02:32:14,080

hook and that's good closed lock lock

1641

02:32:19,190 --> 02:32:15,840

unlock going back into the counter swap

1642

02:32:19,200 --> 02:32:27,510

copy that that's a good plan

1643

02:32:31,270 --> 02:32:29,510

you just heard raja chari

1644

02:32:33,270 --> 02:32:31,280

speaking with the grounds talking about

1645

02:32:35,750 --> 02:32:33,280

configuring his tethers to prepare him

1646

02:32:40,790 --> 02:32:35,760

to get onto the station's robotic arm

1647

02:32:44,469 --> 02:32:42,150

you're getting a live view now of

1648

02:32:47,030 --> 02:32:44,479

matthias maurer he's routing an ethernet

1649

02:32:48,469 --> 02:32:47,040

cable that will support a camera once

1650

02:33:01,510 --> 02:32:48,479

they install it later on in the

1651
02:33:09,429 --> 02:33:04,790
and mathias is at 36.36 and attaching

1652
02:33:14,550 --> 02:33:11,110
we copy matthias and we have a great

1653
02:33:14,560 --> 02:33:31,349
actually 36.37

1654
02:33:31,359 --> 02:33:40,950
i believe it's just 36 yeah

1655
02:33:43,750 --> 02:33:42,630
you want to be to the aspect i

1656
02:33:47,750 --> 02:33:43,760
understand

1657
02:33:52,070 --> 02:33:49,190
and matthias

1658
02:33:54,870 --> 02:33:52,080
there's a couple of cable routes

1659
02:33:57,349 --> 02:33:54,880
you should be on the nader aft side so

1660
02:34:00,550 --> 02:33:57,359
we're expecting the series 3636 and

1661
02:34:05,190 --> 02:34:02,630
yes copyright and i just corrected honor

1662
02:34:09,270 --> 02:34:05,200
56 36.

1663
02:34:13,429 --> 02:34:11,030

our ground iv stephanie wilson just

1664

02:34:14,230 --> 02:34:13,439

confirmed with esa astronaut matthias

1665

02:34:16,550 --> 02:34:14,240

mar

1666

02:34:20,230 --> 02:34:16,560

that what he's doing is indeed correct

1667

02:34:22,550 --> 02:34:20,240

he's routing cables to uh camera port 8

1668

02:34:25,190 --> 02:34:22,560

um by way of hand drills so right now he

1669

02:34:27,990 --> 02:34:25,200

just installed the first of the ethernet

1670

02:34:29,750 --> 02:34:28,000

cables attaching it to a handrail

1671

02:35:03,030 --> 02:34:29,760

and is going in the correct direction on

1672

02:35:06,389 --> 02:35:05,349

you're getting a view now of mar inching

1673

02:35:09,110 --> 02:35:06,399

along

1674

02:35:11,110 --> 02:35:09,120

using wire ties to connect the ethernet

1675

02:35:13,349 --> 02:35:11,120

cable to those handrails

1676

02:35:15,510 --> 02:35:13,359

he'll follow along a path to the work

1677

02:35:18,230 --> 02:35:15,520

site and when he's finished retrace his

1678

02:35:21,670 --> 02:35:18,240

steps back to the cedar cart

1679

02:35:24,790 --> 02:35:23,030

unlocked

1680

02:35:26,630 --> 02:35:24,800

and runs up the

1681

02:35:28,070 --> 02:35:26,640

starboard side of the fourth seat of

1682

02:35:29,830 --> 02:35:28,080

cart and i have it on my hand i can't

1683

02:35:32,870 --> 02:35:29,840

see the number on it but it's the hand

1684

02:35:34,389 --> 02:35:32,880

rail sampler next to the grid bravo

1685

02:35:35,590 --> 02:35:34,399

which hopefully he detects that part of

1686

02:35:37,270 --> 02:35:35,600

the fuse is right until i come back to

1687

02:35:39,270 --> 02:35:37,280

get it later

1688

02:35:49,590 --> 02:35:39,280

then we copy hand rail sanchez next to a

1689

02:35:55,349 --> 02:35:51,990

and next is to retrieve the apfr from

1690

02:35:56,950 --> 02:35:55,359

the port cedar cart sew that on your brt

1691

02:35:58,550 --> 02:35:56,960

and as you prefer you can adjust the

1692

02:36:00,469 --> 02:35:58,560

pitch setting uh

1693

02:36:06,710 --> 02:36:00,479

with it installed on the cart or once

1694

02:36:13,349 --> 02:36:08,230

okay you're looking for a pitch of papa

1695

02:36:18,309 --> 02:36:16,230

oh this is way easier than the last psr

1696

02:36:32,550 --> 02:36:18,319

on the left eva

1697

02:37:01,110 --> 02:36:36,790

all right it'll be foxtrot 6.

1698

02:37:01,120 --> 02:37:27,110

copy 3670

1699

02:37:31,429 --> 02:37:29,590

you just saw the number 3670 peeking out

1700

02:37:33,990 --> 02:37:31,439

from one of the handrails

1701
02:37:35,429 --> 02:37:34,000
this means that matthias mar is right on

1702
02:37:37,590 --> 02:37:35,439
track and has

1703
02:37:39,270 --> 02:37:37,600
been routing the ethernet cable along

1704
02:38:11,030 --> 02:37:39,280
the hand drills correctly and he's now

1705
02:38:11,040 --> 02:38:23,110
uh

1706
02:38:28,550 --> 02:38:25,270
and the settings are in working on

1707
02:38:45,990 --> 02:38:28,560
getting the brt set up to take it out

1708
02:38:46,000 --> 02:39:18,309
uh

1709
02:39:22,469 --> 02:39:19,990
we just switched over to the live view

1710
02:39:25,030 --> 02:39:22,479
of nasa astronaut raj achari

1711
02:39:27,190 --> 02:39:25,040
that behind him is the robotic arm that

1712
02:39:29,349 --> 02:39:27,200
he'll be attached to shortly right now

1713
02:39:31,190 --> 02:39:29,359

he's working on configuring his tethers

1714

02:39:48,150 --> 02:39:31,200

and we'll shortly be installing the

1715

02:39:48,160 --> 02:39:59,910

uh

1716

02:39:59,920 --> 02:41:23,190

copy you've got 3686 in work

1717

02:41:26,550 --> 02:41:24,630

back now at the ceta cart of the

1718

02:41:28,710 --> 02:41:26,560

international space station where nasa

1719

02:41:30,790 --> 02:41:28,720

astronaut raj achari's got his hands on

1720

02:41:33,750 --> 02:41:30,800

the portable foot restraint be used to

1721

02:41:57,110 --> 02:41:33,760

attach the spacesuit to the robotic arm

1722

02:41:57,120 --> 02:42:01,429

instead of my brt

1723

02:42:04,870 --> 02:42:02,790

are you doing it yes

1724

02:42:06,309 --> 02:42:04,880

i have a 3810

1725

02:42:07,510 --> 02:42:06,319

been going

1726

02:42:23,910 --> 02:42:07,520

now

1727

02:42:29,429 --> 02:42:26,950

should be

1728

02:42:31,670 --> 02:42:29,439

and matthias for your translation you

1729

02:42:33,429 --> 02:42:31,680

would continue aft

1730

02:42:34,469 --> 02:42:33,439

you're looking next for

1731

02:42:42,230 --> 02:42:34,479

handrail

1732

02:42:46,550 --> 02:42:45,190

uh so i'm not going up p3 like i'm now

1733

02:42:48,630 --> 02:42:46,560

it's 6

1734

02:43:04,710 --> 02:42:48,640

001 isn't that the point where i follow

1735

02:43:09,269 --> 02:43:06,469

and

1736

02:43:11,269 --> 02:43:09,279

checking

1737

02:43:13,510 --> 02:43:11,279

yeah the next one i have in front of my

1738

02:43:16,150 --> 02:43:13,520

head is 3809

1739

02:43:19,349 --> 02:43:16,160

and we copy we see that um

1740

02:43:22,550 --> 02:43:19,359

we believe the previous one you put down

1741

02:43:27,429 --> 02:43:22,560

might make the routing uh a little bit

1742

02:43:33,349 --> 02:43:31,030

we believe you placed one at uh

1743

02:43:35,990 --> 02:43:33,359

3810 and we'd like you to undo that if

1744

02:43:36,870 --> 02:43:36,000

so

1745

02:43:38,870 --> 02:43:36,880

okay

1746

02:43:41,349 --> 02:43:38,880

uh the routing should however be the

1747

02:43:43,670 --> 02:43:41,359

same you know go around that corner here

1748

02:43:45,750 --> 02:43:43,680

you have a good view on it

1749

02:43:47,349 --> 02:43:45,760

otherwise it will have radiator

1750

02:44:04,550 --> 02:43:47,359

interference

1751

02:44:09,670 --> 02:44:07,429

matias we're discussing we do see uh the

1752

02:44:12,469 --> 02:44:09,680

concern with it going across that gap

1753

02:44:13,910 --> 02:44:12,479

but we think if you uh simply secure it

1754

02:44:16,150 --> 02:44:13,920

to

1755

02:44:19,190 --> 02:44:16,160

3809 and tend it around the gap that

1756

02:44:21,269 --> 02:44:19,200

should be good

1757

02:44:23,670 --> 02:44:21,279

all right

1758

02:44:26,389 --> 02:44:23,680

and we're discussing uh standby we've

1759

02:44:28,710 --> 02:44:26,399

been admiring your uh handy work with

1760

02:44:38,309 --> 02:44:28,720

the wire ties so stand by while we

1761

02:44:43,110 --> 02:44:40,469

astronaut stephanie wilson serving as

1762

02:44:45,269 --> 02:44:43,120

our ground iv today just communicating

1763

02:44:47,190 --> 02:44:45,279

with matthias mar it looks like he had

1764

02:44:49,670 --> 02:44:47,200

attached the ethernet cable that he's

1765

02:44:51,349 --> 02:44:49,680

routing to an incorrect

1766

02:44:53,269 --> 02:44:51,359

handrail and that there was a better one

1767

02:44:55,269 --> 02:44:53,279

that they had in mind originally however

1768

02:44:57,349 --> 02:44:55,279

the ground crew is communicating now to

1769

02:44:59,670 --> 02:44:57,359

see if the path that he had originally

1770

02:45:00,630 --> 02:44:59,680

set was actually okay and if we'll have

1771

02:45:02,710 --> 02:45:00,640

enough

1772

02:45:04,790 --> 02:45:02,720

wire to get to the work site and around

1773

02:45:07,510 --> 02:45:04,800

the corner if you can take up the slack

1774

02:45:10,309 --> 02:45:07,520

so that it's taut around the corner

1775

02:45:14,790 --> 02:45:10,319

when you place the wire tie

1776

02:45:14,800 --> 02:45:27,349

like this

1777

02:45:33,590 --> 02:45:29,670

we have a better view now

1778

02:45:38,150 --> 02:45:35,269

okay

1779

02:45:39,990 --> 02:45:38,160

so uh i understand i can't proceed in

1780

02:45:42,469 --> 02:45:40,000

case it was like this would be a

1781

02:45:45,429 --> 02:45:42,479

candidate to come back and

1782

02:45:45,439 --> 02:46:24,630

and we like your plan

1783

02:46:29,349 --> 02:46:27,110

all right the apfrs installed 12

1784

02:46:31,030 --> 02:46:29,359

pop-up topper fox

1785

02:46:34,870 --> 02:46:31,040

6

1786

02:46:34,880 --> 02:46:39,110

good pull twist test

1787

02:46:45,349 --> 02:46:41,910

help y'all and the pitch knob

1788

02:46:49,590 --> 02:46:45,359

is locked and can be depressed

1789

02:46:55,510 --> 02:46:53,030

copy that nice work with the apfr

1790

02:46:58,389 --> 02:46:55,520

you can go back and retrieve the rbv and

1791

02:46:59,510 --> 02:46:58,399

crew lock bag and stow it on your brt

1792

02:47:07,910 --> 02:46:59,520

stop it

1793

02:47:11,910 --> 02:47:09,750

he just heard the ground to talk to raj

1794

02:47:13,830 --> 02:47:11,920

atari about the apfr the articulating

1795

02:47:15,429 --> 02:47:13,840

portable foot restraint it looks like

1796

02:47:17,670 --> 02:47:15,439

chari's got it installed onto the

1797

02:47:20,309 --> 02:47:17,680

robotic arm and has now been instructed

1798

02:47:22,150 --> 02:47:20,319

to get his tool bag so he can go off to

1799

02:47:23,349 --> 02:47:22,160

the rbvm

1800

02:47:25,349 --> 02:47:23,359

worksite

1801
02:47:28,389 --> 02:47:25,359
meanwhile matthias mar is working to

1802
02:47:30,469 --> 02:47:28,399
route an ethernet cable he's doing that

1803
02:47:33,110 --> 02:47:30,479
in support of a later task in the

1804
02:47:34,389 --> 02:47:33,120
spacewalk to install a wireless access

1805
02:47:35,910 --> 02:47:34,399
port capable

1806
02:47:37,429 --> 02:47:35,920
hd camera

1807
02:47:39,590 --> 02:47:37,439
this is a camera that's mounted to the

1808
02:47:41,590 --> 02:47:39,600
outside of the space station

1809
02:47:44,550 --> 02:47:41,600
we've been upgrading the cameras as

1810
02:47:58,070 --> 02:47:44,560
we've gone the last two being installed

1811
02:47:58,080 --> 02:48:33,830
copy that no hurry

1812
02:48:33,840 --> 02:48:45,030
um

1813
02:48:45,040 --> 02:49:31,510

huh

1814

02:49:31,520 --> 02:49:43,830

um

1815

02:49:47,990 --> 02:49:45,750

well our space rockers go on with their

1816

02:49:50,150 --> 02:49:48,000

tasks raj atari connecting the portable

1817

02:49:52,790 --> 02:49:50,160

foot restraint to the robotic arm and

1818

02:49:54,550 --> 02:49:52,800

matismar routing some ethernet cables i

1819

02:49:56,389 --> 02:49:54,560

thought we could take some ask nasa

1820

02:49:58,309 --> 02:49:56,399

questions again if you have a question

1821

02:50:01,030 --> 02:49:58,319

about our operations today be sure to

1822

02:50:03,429 --> 02:50:01,040

head over to twitter and take and use

1823

02:50:05,510 --> 02:50:03,439

ask nasa to submit your question i have

1824

02:50:08,070 --> 02:50:05,520

one from bob here on twitter who's

1825

02:50:10,870 --> 02:50:08,080

asking did the ammonia's hose cause a

1826

02:50:12,870 --> 02:50:10,880

problem during the spacewalk

1827

02:50:15,990 --> 02:50:12,880

so no it didn't cause a problem during a

1828

02:50:18,550 --> 02:50:16,000

spacewalk but we found that the ammonia

1829

02:50:20,710 --> 02:50:18,560

was leaking from one of the hoses

1830

02:50:23,030 --> 02:50:20,720

uh fortuna so that

1831

02:50:25,830 --> 02:50:23,040

radiator had to be turned off because

1832

02:50:27,830 --> 02:50:25,840

the hoses were removed and a spacewalk

1833

02:50:29,590 --> 02:50:27,840

in 2018.

1834

02:50:30,870 --> 02:50:29,600

so that all went well and the hose was

1835

02:50:33,429 --> 02:50:30,880

brought back to the ground and

1836

02:50:35,030 --> 02:50:33,439

refurbished and sent back up but in the

1837

02:50:37,349 --> 02:50:35,040

meantime the radiator had to be turned

1838

02:50:40,550 --> 02:50:37,359

off fortunately the space station has

1839

02:50:42,710 --> 02:50:40,560

six radiators so it was still able to

1840

02:50:44,309 --> 02:50:42,720

cool the space station down

1841

02:50:46,469 --> 02:50:44,319

again kind of like the radiator of your

1842

02:50:48,230 --> 02:50:46,479

car works to cool down your engine

1843

02:50:50,469 --> 02:50:48,240

so we had five other ones fully

1844

02:50:53,190 --> 02:50:50,479

functional and then replacing the hoses

1845

02:50:54,790 --> 02:50:53,200

today just improves our capability for

1846

02:51:10,710 --> 02:50:54,800

that

1847

02:51:10,720 --> 02:51:17,269

it's three things

1848

02:51:17,279 --> 02:51:54,230

with a radiator

1849

02:52:11,590 --> 02:52:07,269

uh

1850

02:52:14,150 --> 02:52:11,600

ingress one double check on your the

1851
02:52:16,309 --> 02:52:14,160
safety tether pack that's on the arm can

1852
02:52:18,309 --> 02:52:16,319
you verify that the reel is unlocked i

1853
02:52:22,710 --> 02:52:18,319
believe i heard you call that but

1854
02:52:22,720 --> 02:52:43,990
copy thank you

1855
02:52:44,000 --> 02:52:59,910
uh

1856
02:53:03,990 --> 02:53:01,750
the space station is now in an orbital

1857
02:53:32,309 --> 02:53:04,000
daytime flying over the south pacific

1858
02:53:32,319 --> 02:53:44,070
ah

1859
02:54:27,750 --> 02:54:16,469
uh

1860
02:54:32,469 --> 02:54:30,230
you can see astronaut raja chary

1861
02:54:33,670 --> 02:54:32,479
egressing or getting aboard

1862
02:54:39,429 --> 02:54:33,680
the

1863
02:54:40,710 --> 02:54:39,439

station's robotics arm now

1864

02:54:42,469 --> 02:54:40,720

he'll be working to get into the

1865

02:54:44,389 --> 02:54:42,479

portable foot restraint which is what

1866

02:54:46,389 --> 02:54:44,399

we'll attach into the arm

1867

02:54:48,070 --> 02:54:46,399

nasa astronauts tom marshburn and kayla

1868

02:54:50,950 --> 02:54:48,080

baron will be inside of the space

1869

02:55:03,910 --> 02:54:50,960

station at the controls

1870

02:55:07,670 --> 02:55:05,750

all right uh tom i'm ready to go to the

1871

02:55:09,910 --> 02:55:07,680

rv vm back off position

1872

02:55:13,110 --> 02:55:09,920

i've got my tethers picked up from the

1873

02:55:17,110 --> 02:55:13,120

iss side vocal on the ingress handle and

1874

02:55:24,230 --> 02:55:19,190

we thought the we copy go for the

1875

02:55:28,070 --> 02:55:26,230

and the maneuver is about to begin with

1876

02:55:29,190 --> 02:55:28,080

a go from our flight director here raj

1877

02:55:31,670 --> 02:55:29,200

atari

1878

02:55:33,110 --> 02:55:31,680

is good to move to the work site at the

1879

02:55:35,269 --> 02:55:33,120

controls of caleb aaron and tom

1880

02:55:37,429 --> 02:55:35,279

marshburn

1881

02:55:56,870 --> 02:55:37,439

bb2 just lost the wi-fi to the old

1882

02:56:01,110 --> 02:55:59,190

if you

1883

02:56:05,349 --> 02:56:01,120

were able to tell could you could you

1884

02:56:09,990 --> 02:56:08,240

it's going straight and idea

1885

02:56:10,870 --> 02:56:10,000

[Music]

1886

02:56:13,269 --> 02:56:10,880

and

1887

02:56:14,230 --> 02:56:13,279

it i would say like it was maybe half a

1888

02:56:15,269 --> 02:56:14,240

meter

1889

02:56:16,870 --> 02:56:15,279

so

1890

02:56:18,389 --> 02:56:16,880

and it's

1891

02:56:30,309 --> 02:56:18,399

a bit faster

1892

02:56:30,319 --> 02:56:37,710

and we

1893

02:56:37,720 --> 02:56:52,870

copy to

1894

02:56:58,550 --> 02:56:55,190

as we wait to see motion on the robotic

1895

02:57:00,150 --> 02:56:58,560

arm with raj atari on board meanwhile on

1896

02:57:02,309 --> 02:57:00,160

another part of the international space

1897

02:57:04,389 --> 02:57:02,319

station astronaut matthias mar is about

1898

02:57:05,429 --> 02:57:04,399

three wire ties away from completing his

1899

02:57:07,670 --> 02:57:05,439

task

1900

02:57:10,309 --> 02:57:07,680

as soon as he's done

1901

02:57:12,710 --> 02:57:10,319

he'll begin too

1902

02:57:19,110 --> 02:57:12,720

departure rate was that uh half a meter

1903

02:57:25,910 --> 02:57:20,710

yeah yeah that's probably about right

1904

02:57:29,269 --> 02:57:27,750

once matthias is more once matthias

1905

02:57:31,349 --> 02:57:29,279

mario is done with his task he will

1906

02:57:38,309 --> 02:57:31,359

retrace his steps across the handrails

1907

02:58:03,670 --> 02:57:40,469

i'll just stand by as we set up for the

1908

02:58:21,670 --> 02:58:05,190

and i actually have a visual argument

1909

02:58:25,910 --> 02:58:23,990

roger we're starting motion seven meters

1910

02:58:28,150 --> 02:58:25,920

station zenith your head will be facing

1911

02:58:29,830 --> 02:58:28,160

starboard and zenith when we're done

1912

02:58:38,950 --> 02:58:29,840

wearing course rates

1913

02:58:44,469 --> 02:58:41,910

and he's off robotic arm operator tom

1914

02:58:48,710 --> 02:58:44,479

marshburn just confirmed with raj atari

1915

02:59:06,830 --> 02:58:50,630

oh yes

1916

02:59:11,910 --> 02:59:09,830

3804 and we're excited that raj is

1917

03:00:32,070 --> 02:59:11,920

having a chance to fly the smooth and

1918

03:00:37,830 --> 03:00:34,469

chari is now on the robotic arm in

1919

03:00:39,590 --> 03:00:37,840

flight to his workstation today

1920

03:00:41,910 --> 03:00:39,600

just crossed over the southern tip of

1921

03:01:49,910 --> 03:00:41,920

argentina as he had a second to take a

1922

03:01:53,590 --> 03:01:51,830

roger while you're on on the arm there's

1923

03:01:56,070 --> 03:01:53,600

a few get ahead steps that you can

1924

03:01:59,429 --> 03:01:56,080

perform retrieving the gopro from the

1925

03:02:01,590 --> 03:01:59,439

crew lock bag and powering it on

1926

03:02:03,349 --> 03:02:01,600

you can verify the light is blinking and

1927

03:02:07,830 --> 03:02:03,359

stow it on your mini workstation facing

1928

03:02:11,510 --> 03:02:09,590

and roger we are starting motion eight

1929

03:02:14,710 --> 03:02:11,520

meters off three meters later you'll be

1930

03:02:17,910 --> 03:02:15,750

you thought i can go ahead and turn it

1931

03:02:37,750 --> 03:02:17,920

on stephanie no pull it right that's

1932

03:02:42,790 --> 03:02:40,389

the canadarm2 is still in motion with

1933

03:02:45,269 --> 03:02:42,800

rajachary on board he's doing a couple

1934

03:02:47,269 --> 03:02:45,279

of ahead tasks like powering on a gopro

1935

03:02:49,190 --> 03:02:47,279

that he brought with him provides the

1936

03:02:50,630 --> 03:02:49,200

ground the opportunity to get an

1937

03:02:52,150 --> 03:02:50,640

astronaut's view of what they'll be

1938

03:02:54,790 --> 03:02:52,160

working on today

1939

03:02:57,030 --> 03:02:54,800

the involvement ismar is working on to

1940

03:02:59,349 --> 03:02:57,040

install the ethernet cable to the last

1941

03:03:01,269 --> 03:02:59,359

handrail as soon as he's done with that

1942

03:03:03,349 --> 03:03:01,279

he'll retrace his steps and head back to

1943

03:03:21,750 --> 03:03:03,359

the cedar cart where more equipment

1944

03:03:21,760 --> 03:03:51,269

um

1945

03:03:51,279 --> 03:04:09,510

roblox

1946

03:04:09,520 --> 03:04:14,710

it goes on

1947

03:04:18,790 --> 03:04:16,710

getting the cap keeper out as well

1948

03:04:27,030 --> 03:04:18,800

i think what i thought son you do is the

1949

03:04:31,670 --> 03:04:29,670

roger your last transmission was a bit

1950

03:04:33,429 --> 03:04:31,680

broken

1951

03:04:38,550 --> 03:04:33,439

i believe you said you've got the gopro

1952

03:04:41,670 --> 03:04:39,910

that's a good copy yep i'm putting the

1953

03:04:43,830 --> 03:04:41,680

cap keeper on the mini workstation but

1954

03:04:54,630 --> 03:04:43,840

leaving it right into the clubhouse bag

1955

03:05:25,269 --> 03:05:10,790

all right

1956

03:05:28,230 --> 03:05:27,110

happy roger you have the work site in

1957

03:05:30,550 --> 03:05:28,240

place

1958

03:05:32,150 --> 03:05:30,560

i'm getting some snaps and when the

1959

03:05:45,349 --> 03:05:32,160

convenient will take a glove and help

1960

03:05:51,030 --> 03:05:48,230

maybe a new smudge on my right

1961

03:06:00,070 --> 03:05:51,040

your finger at the first knuckle

1962

03:06:06,309 --> 03:06:03,830

copy dry help and smudge on your

1963

03:06:09,830 --> 03:06:06,319

right knuckle

1964

03:06:14,790 --> 03:06:11,590

the pet

1965

03:06:17,670 --> 03:06:14,800

is currently two hours four minutes

1966

03:06:23,429 --> 03:06:17,680

living in consumable is ev2 medics seven

1967

03:06:41,190 --> 03:06:25,429

to be honest

1968

03:06:45,670 --> 03:06:42,550

85

1969

03:06:47,269 --> 03:06:45,680

it's right below the racetrack and uh

1970

03:06:49,750 --> 03:06:47,279

yes

1971

03:06:51,990 --> 03:06:49,760

that's the page here

1972

03:06:54,309 --> 03:06:52,000

copy 36.85

1973

03:07:00,389 --> 03:06:54,319

and for raja there are a couple of

1974

03:07:06,309 --> 03:07:03,990

and for robo raja you are stand by one

1975

03:07:08,469 --> 03:07:06,319

stephanie roger we are in burns you're

1976

03:07:18,150 --> 03:07:08,479

gonna be moving two meters later a

1977

03:07:21,510 --> 03:07:19,830

for those two cautions i do not

1978

03:07:23,830 --> 03:07:21,520

translate on radiator beam and avoid

1979

03:07:25,830 --> 03:07:23,840

cyclic loading p clamps standoff and

1980

03:07:27,750 --> 03:07:25,840

radiator cinch bolt protrude into work

1981

03:07:51,349 --> 03:07:27,760

envelope do not contact with helmet

1982

03:07:56,150 --> 03:07:53,269

mar is now working on connecting the

1983

03:07:57,990 --> 03:07:56,160

very last of his ethernet cables

1984

03:08:00,870 --> 03:07:58,000

to the handrails

1985

03:08:03,670 --> 03:08:00,880

um the ground crew here just confirmed

1986

03:08:05,269 --> 03:08:03,680

that the amount of slack looks good so

1987

03:08:07,590 --> 03:08:05,279

he followed the path correctly and we'll

1988

03:08:09,990 --> 03:08:07,600

have plenty of margin for connecting the

1989

03:08:11,190 --> 03:08:10,000

camera later on um he's going to retrace

1990

03:08:13,990 --> 03:08:11,200

his steps

1991

03:08:16,870 --> 03:08:14,000

meanwhile raja jari is almost at his

1992

03:08:19,590 --> 03:08:16,880

work site he's got it in his sights and

1993

03:08:21,030 --> 03:08:19,600

tom marshburn relayed to him that motion

1994

03:08:34,150 --> 03:08:21,040

will begin once again to get him the

1995

03:08:38,469 --> 03:08:35,990

get my crew lock bag over to my right

1996

03:08:40,150 --> 03:08:38,479

side here

1997

03:08:46,950 --> 03:08:40,160

somebody has done that but it looks like

1998

03:08:54,469 --> 03:08:50,630

this is here brake jack

1999

03:08:59,990 --> 03:08:58,710

copy matthias and also copy raja and

2000

03:09:02,469 --> 03:09:00,000

as you're

2001
03:09:03,429 --> 03:09:02,479
configuring the crewlock bag you can

2002
03:09:05,190 --> 03:09:03,439
also

2003
03:09:54,780 --> 03:09:05,200
check other tethers and tools are clear

2004
03:09:58,550 --> 03:09:57,110
[Music]

2005
03:09:59,670 --> 03:09:58,560
remaining slack is attached to the

2006
03:10:01,990 --> 03:09:59,680
backpack

2007
03:10:09,590 --> 03:10:02,000
i was now picking up my weight back to

2008
03:10:14,070 --> 03:10:11,670
and we copy nice work with this cable

2009
03:10:17,190 --> 03:10:14,080
routing and we'll take a glove and help

2010
03:10:21,190 --> 03:10:18,870
okay

2011
03:10:23,830 --> 03:10:21,200
and for raja you

2012
03:10:27,269 --> 03:10:23,840
we're go for the gca to publish 65

2013
03:10:29,990 --> 03:10:27,279

centimeters body in and make sure your

2014

03:10:31,349 --> 03:10:30,000

body and your apr are clear

2015

03:10:32,790 --> 03:10:31,359

copy i've got the clearance i can see

2016

03:10:34,229 --> 03:10:32,800

the blue plate if i turn it over for you

2017

03:10:35,429 --> 03:10:34,239

if you want that video to look at that

2018

03:10:36,790 --> 03:10:35,439

if i have to come over to the radiator

2019

03:10:39,510 --> 03:10:36,800

and let's see if i go ahead with any

2020

03:10:41,750 --> 03:10:39,520

kind of yeah i quickly i have to strike

2021

03:10:42,790 --> 03:10:41,760

my class uh like like initially no

2022

03:10:44,630 --> 03:10:42,800

changes

2023

03:11:00,630 --> 03:10:44,640

i mean back to you stick out here you

2024

03:11:04,389 --> 03:11:03,590

nothing additional please proceed

2025

03:11:08,389 --> 03:11:04,399

all right

2026
03:11:08,399 --> 03:11:15,510
motion body in

2027
03:11:35,110 --> 03:11:16,710
good motion

2028
03:11:38,469 --> 03:11:36,389
i cannot clear the replay for the

2029
03:11:40,070 --> 03:11:38,479
radiator i can't do that clearance

2030
03:11:41,269 --> 03:11:40,080
so i can clear my head for the radiator

2031
03:11:48,790 --> 03:11:41,279
that's good

2032
03:11:52,389 --> 03:11:50,309
can to go we have you cleared by

2033
03:11:56,070 --> 03:11:52,399
parallax two camera reviews yep i'm

2034
03:11:56,080 --> 03:12:19,429
copy clear

2035
03:12:55,030 --> 03:12:21,269
i'm doing fine i'll make a feedback

2036
03:12:59,990 --> 03:12:55,990
all right

2037
03:13:05,110 --> 03:13:01,990
numbered in

2038
03:13:07,910 --> 03:13:05,120

141 in my hand looking at m1

2039

03:13:09,030 --> 03:13:07,920
and i've got the bail at 12 o'clock

2040

03:13:10,389 --> 03:13:09,040
if

2041

03:13:12,229 --> 03:13:10,399
that's the

2042

03:13:14,150 --> 03:13:12,239
docking lever locked

2043

03:13:15,590 --> 03:13:14,160
ready for next words here's any other

2044

03:13:17,990 --> 03:13:15,600
things you need to talk about before we

2045

03:13:19,590 --> 03:13:18,000
go into your tv blocks

2046

03:13:22,309 --> 03:13:19,600
no there's nothing for my side i have to

2047

03:13:23,990 --> 03:13:22,319
see the cards popping the bags if you

2048

03:13:30,870 --> 03:13:24,000
sleep and then i will make my way to

2049

03:13:35,269 --> 03:13:33,429
that sounds good matias raja for the

2050

03:13:37,269 --> 03:13:35,279
mate steps

2051

03:13:43,429 --> 03:13:37,279

inspect the female qd for debris or

2052

03:13:51,030 --> 03:13:45,670

verify qd is ready to mate by checking

2053

03:13:54,870 --> 03:13:52,790

i heard you report the locking colors in

2054

03:14:00,309 --> 03:13:54,880

the locked position check forward white

2055

03:14:14,229 --> 03:14:02,229

assess and counteract side loads prior

2056

03:14:18,229 --> 03:14:16,070

so chari is now working to install the

2057

03:14:19,830 --> 03:14:18,239

first of the two hoses that he'll be

2058

03:14:26,389 --> 03:14:19,840

installing between the radiator and the

2059

03:14:30,150 --> 03:14:28,309

since our hoses have two sides he is

2060

03:14:31,590 --> 03:14:30,160

first working on the radiator beam valve

2061

03:14:35,510 --> 03:14:31,600

module side

2062

03:14:42,710 --> 03:14:36,630

visible

2063

03:14:42,720 --> 03:15:02,469

perform visual gap test

2064

03:15:08,229 --> 03:15:04,229

that's a good mate you can remove the

2065

03:15:10,229 --> 03:15:08,239

red from the bale and if you're able to

2066

03:15:23,110 --> 03:15:10,239

place p782

2067

03:15:27,110 --> 03:15:24,870

and we just confirmed that the first

2068

03:15:32,870 --> 03:15:27,120

side of the first hose has been properly

2069

03:15:36,070 --> 03:15:34,309

there

2070

03:15:38,070 --> 03:15:36,080

he's working with standard male female

2071

03:15:40,710 --> 03:15:38,080

connectors also referred to as jack and

2072

03:15:43,830 --> 03:15:40,720

plug connectors he first mated the one

2073

03:15:45,349 --> 03:15:43,840

inch jumper on the rb vm side and then

2074

03:15:47,030 --> 03:15:45,359

he's going to move on to his second

2075

03:15:48,710 --> 03:15:47,040

jumper

2076

03:15:50,710 --> 03:15:48,720

then the robotic arm will move chary

2077

03:15:54,550 --> 03:15:50,720

just slightly over to the radiator side

2078

03:15:54,560 --> 03:15:59,830

underneath

2079

03:15:59,840 --> 03:16:28,630

copy

2080

03:16:32,309 --> 03:16:30,710

next is a three-quarter inch jumper i

2081

03:16:34,870 --> 03:16:32,319

believe uh

2082

03:16:40,309 --> 03:16:34,880

copy f-140

2083

03:16:43,590 --> 03:16:41,750

charlie just reported that he's going to

2084

03:16:45,510 --> 03:16:43,600

move on and start working on the second

2085

03:16:47,990 --> 03:16:45,520

hose that he's connecting to the

2086

03:16:49,910 --> 03:16:48,000

radiator beam valve module side again

2087

03:16:51,429 --> 03:16:49,920

he'll be switching over to the radiator

2088

03:16:55,630 --> 03:16:51,439

side and doing the same thing on the

2089

03:16:55,640 --> 03:17:21,910

done afterwards okay

2090

03:17:28,469 --> 03:17:23,030

take a few seconds to clean up these

2091

03:17:28,479 --> 03:17:52,950

copy that

2092

03:17:59,110 --> 03:17:55,750

apple's bag is on my vip

2093

03:18:01,030 --> 03:17:59,120

also the ert red attached it and i

2094

03:18:07,590 --> 03:18:01,040

disconnected now

2095

03:18:07,600 --> 03:18:11,190

copy that matthias

2096

03:18:15,349 --> 03:18:12,790

you'll translate to the green hook

2097

03:18:18,309 --> 03:18:15,359

location on the lab

2098

03:18:24,570 --> 03:18:18,319

and your green hook handrail is a

2099

03:18:24,580 --> 03:18:33,269

[Music]

2100

03:18:37,349 --> 03:18:35,110

is all done rounding his ethernet cables

2101
03:18:39,349 --> 03:18:37,359
and made his way back to the cedar cart

2102
03:18:42,070 --> 03:18:39,359
he grabbed a different bag of pool of

2103
03:18:44,469 --> 03:18:42,080
tools and is now about to go on his way

2104
03:18:47,030 --> 03:18:44,479
to the destiny module also known as the

2105
03:18:49,030 --> 03:18:47,040
us lab on his tour of the space station

2106
03:18:50,550 --> 03:18:49,040
today and he's going to stow some

2107
03:18:52,469 --> 03:18:50,560
equipment there

2108
03:18:54,070 --> 03:18:52,479
he'll grab a cable adapter from his bag

2109
03:18:55,750 --> 03:18:54,080
and then make his way a short distance

2110
03:19:02,790 --> 03:18:55,760
over to the far end of the european

2111
03:19:02,800 --> 03:19:07,429
mars in route now

2112
03:19:15,429 --> 03:19:09,349
i'm gonna take the congresswoman

2113
03:19:18,229 --> 03:19:16,830

okay

2114

03:19:19,910 --> 03:19:18,239

uh sounds like the keys to the good

2115

03:19:25,750 --> 03:19:19,920

spots they're ready for

2116

03:19:29,830 --> 03:19:27,590

copy the mate

2117

03:19:33,110 --> 03:19:29,840

f-141

2118

03:19:36,469 --> 03:19:33,120

i'm sorry f-140 to m2

2119

03:19:38,870 --> 03:19:36,479

the bale also goes to 12 o'clock

2120

03:19:41,750 --> 03:19:38,880

you can inspect the qd for debris or

2121

03:19:47,110 --> 03:19:45,349

expected no damage on the female side

2122

03:19:50,950 --> 03:19:47,120

verify the qd is ready to mate by

2123

03:19:55,750 --> 03:19:53,030

button the locking collar is unlocked

2124

03:19:57,590 --> 03:19:55,760

and the forward left band is not visible

2125

03:20:05,750 --> 03:19:57,600

copy assess and counteract side loads

2126
03:20:10,790 --> 03:20:08,790
the hose that you see on screen now will

2127
03:20:12,309 --> 03:20:10,800
have ammonia flowing through it to help

2128
03:20:29,110 --> 03:20:12,319
cool down the space station from the

2129
03:20:37,990 --> 03:20:31,349
perform snap back test and checkboard

2130
03:20:41,750 --> 03:20:39,590
it's that bad test floorboard bam is

2131
03:20:43,670 --> 03:20:41,760
visible and i do not see a gap between

2132
03:20:45,030 --> 03:20:43,680
it i can see the threads up against the

2133
03:20:58,229 --> 03:20:45,040
collar

2134
03:21:02,710 --> 03:21:00,309
charlie just confirmed that he has the

2135
03:21:04,309 --> 03:21:02,720
jumpers attached to the radiator beam

2136
03:21:06,710 --> 03:21:04,319
valve module

2137
03:21:09,269 --> 03:21:06,720
side this is the second hose that he's

2138
03:21:10,950 --> 03:21:09,279

attaching and just confirmed that he did

2139

03:21:16,950 --> 03:21:10,960

it and did a series of checks to confirm

2140

03:21:16,960 --> 03:21:48,389

[Music]

2141

03:21:53,110 --> 03:21:50,150

you may hear some technical chatter

2142

03:21:55,670 --> 03:21:53,120

between our ground iv stephanie wilson

2143

03:21:57,269 --> 03:21:55,680

with our spacewalkers today

2144

03:22:00,309 --> 03:21:57,279

when she says made

2145

03:22:02,309 --> 03:22:00,319

f-140 to m2 that's technical speak just

2146

03:22:04,469 --> 03:22:02,319

meaning that atari has

2147

03:22:33,190 --> 03:22:04,479

is go to attach the female side to the

2148

03:22:33,200 --> 03:22:42,950

copy that

2149

03:22:48,710 --> 03:22:46,950

i believe i stole the bag on 2009

2150

03:23:03,349 --> 03:22:48,720

that's the firm papa sewer you bag goes

2151
03:23:06,710 --> 03:23:05,030
and mathias could you hold your position

2152
03:23:13,110 --> 03:23:06,720
please we're checking something uh in

2153
03:23:17,670 --> 03:23:14,150
we can

2154
03:23:23,030 --> 03:23:17,680
stick the roger safety further and

2155
03:23:23,040 --> 03:23:27,190
i'm not really

2156
03:23:27,200 --> 03:23:38,790
okay now

2157
03:23:43,429 --> 03:23:41,110
mars now with the destiny module or the

2158
03:23:44,950 --> 03:23:43,439
us lab and he's going to be stowing some

2159
03:23:46,550 --> 03:23:44,960
equipment there so that he could make

2160
03:23:56,710 --> 03:23:46,560
his way over to the european space

2161
03:24:00,550 --> 03:23:58,790
once on columbus his goal is to install

2162
03:24:02,790 --> 03:24:00,560
a jumper that supplies power and data

2163
03:24:04,710 --> 03:24:02,800

from columbus to the bartolomeo science

2164

03:24:06,550 --> 03:24:04,720

platform he'll be working on the

2165

03:24:08,229 --> 03:24:06,560

columbus module's exterior for about a

2166

03:24:11,269 --> 03:24:08,239

half an hour

2167

03:24:14,790 --> 03:24:13,269

i believe this next one's just uh go

2168

03:24:16,229 --> 03:24:14,800

maneuver but uh

2169

03:24:19,830 --> 03:24:16,239

they can start setting that up on your

2170

03:24:19,840 --> 03:24:22,710

ready for your list

2171

03:24:27,190 --> 03:24:25,269

and you're right roger go ahead

2172

03:24:29,110 --> 03:24:27,200

why don't you get the arm uh option work

2173

03:24:31,110 --> 03:24:29,120

okay and

2174

03:24:32,790 --> 03:24:31,120

tell me yeah okay let's

2175

03:24:36,229 --> 03:24:32,800

go for the move to the radio back off

2176
03:24:38,550 --> 03:24:36,239
position my tools and feathers are clear

2177
03:24:44,630 --> 03:24:38,560
okay stand by for motion 65 centimeters

2178
03:24:48,870 --> 03:24:46,070
charlie was previously working on the

2179
03:24:51,190 --> 03:24:48,880
radiator beam valve module side and now

2180
03:24:53,190 --> 03:24:51,200
he's going to be moving on the robotic

2181
03:25:20,309 --> 03:24:53,200
arm just slightly to the other side of

2182
03:25:20,319 --> 03:25:33,110
we're starting motion now

2183
03:25:37,349 --> 03:25:34,950
matias for you once you have the papa

2184
03:25:38,870 --> 03:25:37,359
soru bag stowed you'll retrieve the

2185
03:25:40,790 --> 03:25:38,880
gopro

2186
03:25:43,269 --> 03:25:40,800
from it power it on throw it on your

2187
03:25:45,830 --> 03:25:43,279
mini workstation facing out and also

2188
03:25:47,990 --> 03:25:45,840

retrieve the papa's cable

2189

03:25:50,790 --> 03:25:48,000

with a mini workstation rent and i'll

2190

03:25:54,790 --> 03:25:50,800

have a few cautions to read to you

2191

03:25:59,269 --> 03:25:57,830

okay and the gopro is already powered on

2192

03:26:01,910 --> 03:25:59,279

i have a good

2193

03:26:04,229 --> 03:26:01,920

note on my mini workstation and

2194

03:26:05,590 --> 03:26:04,239

with the bionic i also attached the red

2195

03:26:09,670 --> 03:26:05,600

several wrists

2196

03:26:17,510 --> 03:26:09,680

and on my vrt reds i have

2197

03:26:22,150 --> 03:26:19,910

we copy the config

2198

03:26:24,950 --> 03:26:22,160

then as you're translating to columbus

2199

03:26:26,870 --> 03:26:24,960

avoid contact with the lab ewc antennas

2200

03:26:31,250 --> 03:26:26,880

the node 2 fluid tray hard lines and the

2201

03:26:31,260 --> 03:26:37,429

[Music]

2202

03:26:40,070 --> 03:26:39,030

so we'll meet you next at the papa's

2203

03:26:42,469 --> 03:26:40,080

website

2204

03:26:52,710 --> 03:26:42,479

and roger for you have the account

2205

03:27:00,070 --> 03:26:53,990

let me know if you guys are ready for

2206

03:27:03,429 --> 03:27:01,590

as we're starting motion on the first

2207

03:27:11,190 --> 03:27:03,439

showcase for about two minutes we'll

2208

03:27:14,950 --> 03:27:12,710

with us we're doing some geocaches and

2209

03:27:17,190 --> 03:27:14,960

stuff so

2210

03:27:19,910 --> 03:27:17,200

all right i will be moving very slowly

2211

03:27:25,110 --> 03:27:19,920

out to columbus

2212

03:27:28,630 --> 03:27:26,790

if you're just joining us for about two

2213

03:27:31,110 --> 03:27:28,640

and a half hours into our spacewalk

2214

03:27:33,429 --> 03:27:31,120

today with nasa astronaut raj atari and

2215

03:27:34,389 --> 03:27:33,439

european space agency astronaut matthias

2216

03:27:35,830 --> 03:27:34,399

mar

2217

03:27:37,750 --> 03:27:35,840

they began the first hour of their

2218

03:27:39,429 --> 03:27:37,760

spacewalk together at the airlock where

2219

03:27:41,349 --> 03:27:39,439

they were troubleshooting some issues

2220

03:27:43,110 --> 03:27:41,359

with matthias mars

2221

03:27:44,870 --> 03:27:43,120

helmet camera and the light that

2222

03:27:46,950 --> 03:27:44,880

attaches to his helmet

2223

03:27:48,469 --> 03:27:46,960

once they got figured out they split up

2224

03:27:49,990 --> 03:27:48,479

and they're now working at opposite ends

2225

03:27:52,630 --> 03:27:50,000

of the truss

2226

03:27:55,110 --> 03:27:52,640

raj atari has connected the

2227

03:27:57,590 --> 03:27:55,120

first side of the two hoses to the

2228

03:27:59,670 --> 03:27:57,600

radiator beam valve module and his move

2229

03:28:01,590 --> 03:27:59,680

is currently moving over to the radiator

2230

03:28:05,110 --> 03:28:01,600

side where he can connect the other two

2231

03:28:09,190 --> 03:28:07,190

meanwhile matiasmar

2232

03:28:11,269 --> 03:28:09,200

has gotten his supplies and attached

2233

03:28:12,630 --> 03:28:11,279

them to the destiny module and he's

2234

03:28:14,870 --> 03:28:12,640

going to make his way over to the

2235

03:28:17,269 --> 03:28:14,880

columbus module where he'll install a

2236

03:28:23,269 --> 03:28:17,279

jumper that supplies power and data from

2237

03:28:28,790 --> 03:28:24,710

and a platform

2238

03:28:32,550 --> 03:28:30,790

the bartola mayo science platform is a

2239

03:28:34,870 --> 03:28:32,560

spot on the space station where external

2240

03:28:36,950 --> 03:28:34,880

payloads can be installed to either face

2241

03:28:39,269 --> 03:28:36,960

the earth or out into space

2242

03:28:40,229 --> 03:28:39,279

this means that scientific experiments

2243

03:28:47,110 --> 03:28:40,239

on

2244

03:28:49,990 --> 03:28:47,120

walkers will be installing an electrical

2245

03:28:52,950 --> 03:28:50,000

jumper that supplies the power and data

2246

03:28:55,269 --> 03:28:52,960

and this sets the platform up for

2247

03:28:56,870 --> 03:28:55,279

success for the future installation of

2248

03:29:07,910 --> 03:28:56,880

additional science experiments by the

2249

03:29:12,150 --> 03:29:10,150

we're setting up for the next manual

2250

03:29:12,950 --> 03:29:12,160

maneuver we need your clearance between

2251

03:29:16,550 --> 03:29:12,960

the

2252

03:29:18,070 --> 03:29:16,560

cinch bolts about 30 centimeters

2253

03:29:27,750 --> 03:29:18,080

and so you'll be getting this clearance

2254

03:29:33,750 --> 03:29:29,910

i've got eyes on the fringe poles and as

2255

03:29:35,670 --> 03:29:33,760

well as the p-clamp standoff bracket

2256

03:29:38,469 --> 03:29:35,680

good and let's see if any other things

2257

03:29:49,510 --> 03:29:38,479

you say here no all right

2258

03:29:54,070 --> 03:29:51,910

riser work ready for your gta to publish

2259

03:29:59,910 --> 03:29:54,080

70 centimeters body in

2260

03:29:59,920 --> 03:30:08,550

starting gta starting motion

2261

03:30:18,309 --> 03:30:09,670

good motion

2262

03:30:18,319 --> 03:30:41,830

that's me here to go

2263

03:30:45,750 --> 03:30:44,070

i've got a momentary loss of signal this

2264

03:30:47,830 --> 03:30:45,760

means that the communication is handing

2265

03:30:49,510 --> 03:30:47,840

off from our tdrs or tracking and data

2266

03:30:51,990 --> 03:30:49,520

rely satellites

2267

03:30:53,990 --> 03:30:52,000

it's an array of satellites that provide

2268

03:30:56,389 --> 03:30:54,000

data and communication basically our

2269

03:30:57,429 --> 03:30:56,399

visual and our audio communication with

2270

03:30:59,030 --> 03:30:57,439

the crew

2271

03:31:12,229 --> 03:30:59,040

we'll be back momentarily with our live

2272

03:31:18,710 --> 03:31:13,910

roger we're at the published position

2273

03:31:22,550 --> 03:31:20,070

yeah i think i'm about to definitely go

2274

03:31:26,150 --> 03:31:22,560

body in some more i can't fit my hands

2275

03:31:29,510 --> 03:31:26,160

connectors here

2276

03:31:31,190 --> 03:31:29,520

you can clear the stitch bolts so

2277

03:31:32,469 --> 03:31:31,200

we're going to look like a conflict on

2278

03:31:33,590 --> 03:31:32,479

your side it's going to be really close

2279

03:31:36,630 --> 03:31:33,600

to my left

2280

03:31:38,070 --> 03:31:36,640

light as i come in

2281

03:31:39,830 --> 03:31:38,080

the roger will need you to clear your

2282

03:31:41,990 --> 03:31:39,840

right shoulder in the radiator panel and

2283

03:31:43,269 --> 03:31:42,000

we're standing by for how far by the end

2284

03:31:44,630 --> 03:31:43,279

you need to go

2285

03:31:45,990 --> 03:31:44,640

i haven't repositioned my crew lock back

2286

03:31:51,030 --> 03:31:46,000

here but once i get in on the defensive

2287

03:32:20,630 --> 03:31:52,550

let me sort this out here how we're

2288

03:32:20,640 --> 03:32:29,349

oh let's see

2289

03:32:32,790 --> 03:32:31,429

a little more helmet let's try what i

2290

03:32:35,269 --> 03:32:32,800

think is we'll go some body in and then

2291

03:32:37,750 --> 03:32:35,279

maybe do some body roll it could be away

2292

03:32:39,269 --> 03:32:37,760

from the pinch bolt but um let's just

2293

03:32:42,469 --> 03:32:39,279

try the straight body in for now and see

2294

03:32:44,070 --> 03:32:42,479

how that works out i should have

2295

03:32:45,190 --> 03:32:44,080

i've got a whole arm of the cinch mold

2296

03:32:46,630 --> 03:32:45,200

right now

2297

03:32:48,830 --> 03:32:46,640

uh but i'm going to leave some arms with

2298

03:32:50,150 --> 03:32:48,840

mics away from the caps

2299

03:32:52,229 --> 03:32:50,160

so go

2300

03:32:53,590 --> 03:32:52,239

right 30 centimeters body forward

2301
03:32:55,429 --> 03:32:53,600
but just give you a slow rate so i can

2302
03:32:57,670 --> 03:32:55,439
round it out if i need to

2303
03:33:29,750 --> 03:32:57,680
we got the 30 centimeters body in going

2304
03:33:29,760 --> 03:33:45,349
15 centimeters to go

2305
03:33:45,359 --> 03:33:51,990
radiator panels

2306
03:33:52,000 --> 03:34:11,830
ago cubby

2307
03:34:15,670 --> 03:34:13,349
okay i think i can work with this i may

2308
03:34:17,349 --> 03:34:15,680
have to do a gta when it comes time to

2309
03:34:19,269 --> 03:34:17,359
move the bales but i should be able to

2310
03:34:20,550 --> 03:34:19,279
make them from here let's try gca

2311
03:34:25,510 --> 03:34:20,560
complete

2312
03:34:28,790 --> 03:34:26,830
thanks for

2313
03:34:30,150 --> 03:34:28,800

watching right i think i'm getting the

2314

03:34:31,590 --> 03:34:30,160

cops first

2315

03:34:34,229 --> 03:34:31,600

circular

2316

03:34:36,389 --> 03:34:34,239

the firm roger cap keeper to the caps on

2317

03:34:42,630 --> 03:34:36,399

mic 3 and mike iv and you can demate the

2318

03:34:46,950 --> 03:34:44,950

i can't see the m3 and f4 labels from

2319

03:34:48,710 --> 03:34:46,960

this vantage point here but uh

2320

03:36:04,070 --> 03:34:48,720

they are the ones that

2321

03:36:04,080 --> 03:36:14,150

iii and that's off

2322

03:36:17,750 --> 03:36:16,070

and that's yes we see you have arrived

2323

03:36:18,950 --> 03:36:17,760

at the papa's work site and you're

2324

03:36:23,590 --> 03:36:18,960

working the

2325

03:36:23,600 --> 03:36:27,510

that's correct

2326

03:36:33,830 --> 03:36:31,830

click on that from working it slowly

2327

03:37:01,349 --> 03:36:33,840

copy that slow and steady rinse the

2328

03:37:01,359 --> 03:37:11,910

bands

2329

03:37:11,920 --> 03:37:19,910

copy mathias good inspection of p2

2330

03:37:19,920 --> 03:37:24,469

and for both sides so i'm going to make

2331

03:37:24,479 --> 03:37:40,469

we can curve mate p2 to j2 alpha

2332

03:37:43,429 --> 03:37:41,830

was definitely the hardest cap to get

2333

03:37:44,870 --> 03:37:43,439

off it felt like you had stick on

2334

03:37:46,150 --> 03:37:44,880

the first

2335

03:37:48,150 --> 03:37:46,160

uh like

2336

03:37:49,429 --> 03:37:48,160

the threads where's the

2337

03:37:51,349 --> 03:37:49,439

bits

2338

03:37:56,309 --> 03:37:51,359

okay the first one thread tried to get

2339

03:38:28,469 --> 03:37:59,910

and we copy and after the gopro survey

2340

03:38:31,429 --> 03:38:30,229

yeah power cycle but i don't see a green

2341

03:38:33,990 --> 03:38:31,439

light

2342

03:38:34,000 --> 03:38:43,189

checking

2343

03:38:47,110 --> 03:38:45,110

and roger one more push should do it not

2344

03:38:53,110 --> 03:38:47,120

a cycle but just uh now it'll be a power

2345

03:38:53,120 --> 03:38:58,309

okay see you agree night

2346

03:38:58,319 --> 03:39:01,990

copy green light

2347

03:39:04,790 --> 03:39:03,189

very good look

2348

03:39:21,030 --> 03:39:04,800

gotta get a little more go through the

2349

03:39:26,309 --> 03:39:22,710

i see a little bit of

2350

03:39:27,990 --> 03:39:26,319

the residue flake type stuff on f3

2351

03:39:31,030 --> 03:39:28,000

like the 11 o'clock position if you're

2352

03:39:35,189 --> 03:39:33,030

iss

2353

03:39:38,389 --> 03:39:35,199

being 12 o'clock

2354

03:39:43,349 --> 03:39:41,750

mix in that one and then on m4

2355

03:39:45,510 --> 03:39:43,359

little one at about nine o'clock you

2356

03:39:47,030 --> 03:39:45,520

know again about 12 o'clock at all very

2357

03:39:57,110 --> 03:39:47,040

small but nothing

2358

03:40:08,229 --> 03:40:03,670

and

2359

03:40:10,070 --> 03:40:08,239

thanks for the report

2360

03:40:11,990 --> 03:40:10,080

i'm one minute uh

2361

03:40:13,269 --> 03:40:12,000

20 seconds from a handover but i'll get

2362

03:40:15,590 --> 03:40:13,279

the caution in and then we'll pick up

2363

03:40:17,590 --> 03:40:15,600

the mate on the other side after opening

2364

03:40:25,590 --> 03:40:17,600

a valve limit torque to the qd interface

2365

03:40:29,830 --> 03:40:27,990

is connected

2366

03:40:32,469 --> 03:40:29,840

the challenges i was struggling with

2367

03:40:42,389 --> 03:40:32,479

that one

2368

03:40:45,349 --> 03:40:43,269

hey guys

2369

03:40:46,710 --> 03:40:45,359

stephanie and ready to

2370

03:40:49,030 --> 03:40:46,720

set up for

2371

03:40:51,750 --> 03:40:49,040

f128 the outboard

2372

03:40:54,710 --> 03:40:51,760

bonds m4

2373

03:40:59,670 --> 03:40:54,720

that's your firm you can freddy the qd

2374

03:41:05,189 --> 03:41:02,150

the bill for this one goes to 10 o'clock

2375

03:41:08,309 --> 03:41:05,199

and 20 seconds to a handover

2376

03:41:13,030 --> 03:41:10,550

so raj atari started his day at the

2377

03:41:14,790 --> 03:41:13,040

radiator beam valve module work site he

2378

03:41:16,710 --> 03:41:14,800

took off some caps since there weren't

2379

03:41:18,550 --> 03:41:16,720

hoses there previously there were caps

2380

03:41:20,550 --> 03:41:18,560

in their place so he took them off

2381

03:41:22,950 --> 03:41:20,560

connected two jumpers to the radiator

2382

03:41:24,950 --> 03:41:22,960

beam valve module side and we'll connect

2383

03:41:27,349 --> 03:41:24,960

the jumpers to the radiator side and

2384

03:41:28,389 --> 03:41:27,359

open the valve since he's already on

2385

03:41:29,590 --> 03:41:28,399

that side

2386

03:41:31,750 --> 03:41:29,600

then he's going to go back to the

2387

03:41:33,590 --> 03:41:31,760

radiator beam valve module side and open

2388

03:41:35,590 --> 03:41:33,600

the valve there

2389

03:41:37,429 --> 03:41:35,600

even though the valves on both sides of

2390

03:41:39,670 --> 03:41:37,439

the hoses are connected and the hoses

2391

03:41:41,750 --> 03:41:39,680

themselves are connected no liquid will

2392

03:41:43,269 --> 03:41:41,760

be flowing through even though both of

2393

03:41:45,030 --> 03:41:43,279

the valves are open

2394

03:41:53,990 --> 03:41:45,040

he'll also install two electrical

2395

03:41:59,030 --> 03:41:56,710

if anything else you need

2396

03:42:00,630 --> 03:41:59,040

these electrical connectors give mission

2397

03:42:02,070 --> 03:42:00,640

control the ability to control the

2398

03:42:03,990 --> 03:42:02,080

internal valves

2399

03:42:06,790 --> 03:42:04,000

in addition to heater power

2400

03:42:09,750 --> 03:42:06,800

these internal valves will be used by

2401
03:42:11,750 --> 03:42:09,760
mission control who can command the rbvm

2402
03:42:14,309 --> 03:42:11,760
to open its internal valves

2403
03:42:18,150 --> 03:42:14,319
and reactivate that part of the radiator

2404
03:42:18,160 --> 03:42:24,710
this would be a little more difficult

2405
03:42:29,269 --> 03:42:26,870
uh back with you and just uh we may have

2406
03:42:31,750 --> 03:42:29,279
missed uh matthias's uh report sounds

2407
03:42:35,670 --> 03:42:31,760
like he's working on the mating of p2

2408
03:42:37,670 --> 03:42:36,950
i just

2409
03:42:43,750 --> 03:42:37,680
and

2410
03:42:43,760 --> 03:42:48,950
copy that that's a good plan

2411
03:42:48,960 --> 03:42:57,670
copy you have a go to mate

2412
03:43:03,110 --> 03:42:59,830
yeah that's it all synced up just like

2413
03:43:05,670 --> 03:43:03,120

that for matthias at the papa's worksite

2414

03:43:07,990 --> 03:43:05,680

and raja i'm ready for the to start the

2415

03:43:12,150 --> 03:43:08,000

blocks with you for mate and opening of

2416

03:43:12,160 --> 03:43:18,550

inspect the qd for debris or damage

2417

03:43:23,349 --> 03:43:20,950

verify qd is ready to mate by checking

2418

03:43:25,510 --> 03:43:23,359

detent button up locking collar in the

2419

03:43:30,150 --> 03:43:25,520

lock position and forward white band not

2420

03:43:34,070 --> 03:43:31,269

press button

2421

03:43:36,469 --> 03:43:34,080

up in the locked position and therefore

2422

03:43:38,469 --> 03:43:36,479

right handed schedule

2423

03:43:51,030 --> 03:43:38,479

counteract side loads prior to mate and

2424

03:43:55,269 --> 03:43:53,189

mars on the columbus module now working

2425

03:43:58,150 --> 03:43:55,279

to mate some cables that will go from

2426
03:44:00,150 --> 03:43:58,160
the columbus module onto the bartolomeo

2427
03:44:02,630 --> 03:44:00,160
platform mara will move on to the

2428
03:44:04,870 --> 03:44:02,640
platform it's hit the platform itself to

2429
03:44:07,349 --> 03:44:04,880
close some cable plants on the zenith or

2430
03:44:09,189 --> 03:44:07,359
space facing side this task allows for

2431
03:44:18,389 --> 03:44:09,199
future installation of payloads by the

2432
03:44:22,229 --> 03:44:20,070
even though mar is on the columbus

2433
03:44:24,790 --> 03:44:22,239
module now he does have a bag stowed

2434
03:44:26,389 --> 03:44:24,800
onto the us destiny module and so when

2435
03:44:27,830 --> 03:44:26,399
he's done with this task he'll return to

2436
03:45:16,950 --> 03:44:27,840
his tool bag and move on to some other

2437
03:47:02,550 --> 03:45:52,229
uh

2438
03:47:06,550 --> 03:47:05,110

would help or

2439

03:47:08,070 --> 03:47:06,560

i don't think it's side loaded i can

2440

03:47:09,590 --> 03:47:08,080

tell

2441

03:47:10,469 --> 03:47:09,600

and sorry

2442

03:47:12,870 --> 03:47:10,479

i'm

2443

03:47:15,670 --> 03:47:12,880

concerned type of second connector is

2444

03:47:20,840 --> 03:47:15,680

connected successfully native leave over

2445

03:47:24,389 --> 03:47:22,710

[Music]

2446

03:47:25,990 --> 03:47:24,399

nicely done

2447

03:47:28,309 --> 03:47:26,000

yes

2448

03:47:29,590 --> 03:47:28,319

thank you that concludes the pastor's

2449

03:47:34,950 --> 03:47:29,600

worksite

2450

03:47:39,510 --> 03:47:36,229

we concur

2451

03:47:42,710 --> 03:47:39,520

i have two cautions to read uh to you

2452

03:47:44,389 --> 03:47:42,720

but first uh raja we copy we're

2453

03:47:45,910 --> 03:47:44,399

discussing if

2454

03:47:57,990 --> 03:47:45,920

there's any additional words we can

2455

03:48:01,590 --> 03:48:00,630

and for matthias as you uh translate to

2456

03:48:03,910 --> 03:48:01,600

bart

2457

03:48:07,189 --> 03:48:03,920

there's two cautions

2458

03:48:08,469 --> 03:48:07,199

yay nicely done raja let me give mathias

2459

03:48:11,269 --> 03:48:08,479

these cautions and then i'll be back

2460

03:48:13,429 --> 03:48:11,279

with you in the rest of the mate blocks

2461

03:48:15,590 --> 03:48:13,439

for matias do not touch the connector

2462

03:48:17,429 --> 03:48:15,600

doors on the gold2 interfaces and avoid

2463

03:48:23,269 --> 03:48:17,439

contact with deployed

2464

03:48:26,150 --> 03:48:25,189

we'll meet you later at the bart work

2465

03:48:28,950 --> 03:48:26,160

site

2466

03:48:37,429 --> 03:48:28,960

nicely done raja check that the forward

2467

03:48:42,469 --> 03:48:40,389

step back with your forward button

2468

03:48:45,110 --> 03:48:42,479

copy perform pull test and visual gap

2469

03:48:45,120 --> 03:48:59,429

good pull test

2470

03:49:04,150 --> 03:49:01,590

the ground crew here just confirmed with

2471

03:49:06,469 --> 03:49:04,160

isa astronaut matthias maher that he has

2472

03:49:08,790 --> 03:49:06,479

successfully done his job on the

2473

03:49:10,790 --> 03:49:08,800

columbus module and he's now making his

2474

03:49:12,870 --> 03:49:10,800

way just a short distance over to the

2475

03:49:15,510 --> 03:49:12,880

bartolomeo science platform

2476

03:49:18,150 --> 03:49:15,520

visual gas test

2477

03:49:20,309 --> 03:49:18,160

next we'll open the valve

2478

03:49:22,630 --> 03:49:20,319

prior enduring bail movement assess and

2479

03:49:30,229 --> 03:49:22,640

counteract side loads and rotate the

2480

03:49:40,070 --> 03:49:32,150

depress the detent button and move the

2481

03:49:45,110 --> 03:49:42,150

definitely i just realized i forgot to

2482

03:49:47,670 --> 03:49:45,120

drop the green hook on flat i have the

2483

03:49:51,990 --> 03:49:47,680

screen reel with me here but i have put

2484

03:49:56,070 --> 03:49:52,000

down the fair language on knight c3s

2485

03:49:59,990 --> 03:49:58,469

that's okay

2486

03:50:02,309 --> 03:50:00,000

and we copy that understand you've

2487

03:50:04,389 --> 03:50:02,319

picked up your fair lead and uh

2488

03:50:05,269 --> 03:50:04,399

that is okay

2489

03:50:10,870 --> 03:50:05,279

okay

2490

03:50:18,630 --> 03:50:13,030

copy we're ready for you to retrieve the

2491

03:50:32,950 --> 03:50:20,870

at least the failure

2492

03:50:35,990 --> 03:50:34,229

you don't have that green hook you may

2493

03:50:37,670 --> 03:50:36,000

need to immediately pick up the fairies

2494

03:50:39,750 --> 03:50:37,680

we don't touch those

2495

03:50:43,510 --> 03:50:39,760

though copy that and uh we concur leave

2496

03:50:47,750 --> 03:50:45,510

yeah and i need to

2497

03:50:50,309 --> 03:50:47,760

drop the green hook here otherwise i

2498

03:50:51,910 --> 03:50:50,319

have not enough slack to go to that

2499

03:50:56,550 --> 03:50:51,920

but the green hook is now where the

2500

03:50:56,560 --> 03:51:01,349

matias week happy all and that's a good

2501
03:51:04,389 --> 03:51:02,950
yo config you

2502
03:51:05,349 --> 03:51:04,399
okay but yes it's from my essay so

2503
03:51:07,510 --> 03:51:05,359
you're going from the outside of

2504
03:51:09,110 --> 03:51:07,520
congress to the forward side all right

2505
03:51:10,520 --> 03:51:09,120
yes and now at the source side of

2506
03:51:12,790 --> 03:51:10,530
columbus

2507
03:51:15,349 --> 03:51:12,800
[Music]

2508
03:51:20,389 --> 03:51:15,359
and then killer i've got the uh sail

2509
03:51:20,399 --> 03:51:25,269
copy is the detent button up

2510
03:51:41,750 --> 03:51:26,790
great question trying to figure that out

2511
03:51:46,309 --> 03:51:44,150
matthias mar retracing his steps just

2512
03:51:48,469 --> 03:51:46,319
slightly as he's getting his cook his

2513
03:51:50,309 --> 03:51:48,479

hooks configured as he moves his body

2514

03:51:52,550 --> 03:51:50,319

from the columbus module and onto the

2515

03:51:54,710 --> 03:51:52,560

bartelo mayo science platform

2516

03:51:56,469 --> 03:51:54,720

configuring these hooks make sure that

2517

03:51:58,630 --> 03:51:56,479

he's safely attached to the station and

2518

03:52:00,070 --> 03:51:58,640

has enough room to move around

2519

03:52:01,750 --> 03:52:00,080

the last step

2520

03:52:07,750 --> 03:52:01,760

rotate the locking collar to the lock

2521

03:52:11,590 --> 03:52:10,150

all right nice done nice work mating and

2522

03:52:15,189 --> 03:52:11,600

opening the valve you can install the

2523

03:52:18,229 --> 03:52:16,870

i'm debating whether we should install

2524

03:52:20,070 --> 03:52:18,239

the other one first

2525

03:52:21,429 --> 03:52:20,080

or i do the sli

2526

03:52:23,110 --> 03:52:21,439

if it's uh

2527

03:52:24,550 --> 03:52:23,120

as hard as it was to get to this access

2528

03:52:26,469 --> 03:52:24,560

i'm a little worried about the mri on

2529

03:52:27,990 --> 03:52:26,479

now it's going to block my access to the

2530

03:52:29,349 --> 03:52:28,000

import

2531

03:52:30,950 --> 03:52:29,359

if i can put it on and then take it off

2532

03:52:32,550 --> 03:52:30,960

if it becomes a problem i'll go and put

2533

03:52:34,469 --> 03:52:32,560

it on just

2534

03:52:36,389 --> 03:52:34,479

give it a try

2535

03:52:38,229 --> 03:52:36,399

and that's uh that's up to you if you

2536

03:52:45,189 --> 03:52:38,239

think the mli will be in your way we're

2537

03:52:45,199 --> 03:52:54,229

i'll just take it off

2538

03:52:54,239 --> 03:52:59,030

the mli is installed

2539

03:53:04,469 --> 03:53:01,110

hopefully you can prepare the one inch

2540

03:53:20,630 --> 03:53:04,479

qd f129 while mate up to m3 on the

2541

03:53:20,640 --> 03:53:30,070

if you're ready

2542

03:53:34,630 --> 03:53:31,910

all right stephanie ready for the tv

2543

03:53:46,550 --> 03:53:34,640

blocks for the inboard

2544

03:53:52,550 --> 03:53:47,750

the bail

2545

03:53:57,429 --> 03:53:54,950

you can verify the qd ready to mate by

2546

03:53:59,349 --> 03:53:57,439

checking detent button up locking collar

2547

03:54:03,189 --> 03:53:59,359

in the locked position and forward white

2548

03:54:06,870 --> 03:54:04,550

calories visible

2549

03:54:09,510 --> 03:54:06,880

sorry keep the buttons up the locking

2550

03:54:11,670 --> 03:54:09,520

collar is locked and no forward failure

2551

03:54:13,670 --> 03:54:11,680

happy two fashionable

2552

03:54:21,269 --> 03:54:13,680

assessing counteract side loads prior to

2553

03:54:25,670 --> 03:54:23,510

these qd's that the ground is talking

2554

03:54:28,229 --> 03:54:25,680

about with astronaut raj atari are the

2555

03:54:30,309 --> 03:54:28,239

quick disconnect fluid quick disconnect

2556

03:54:31,670 --> 03:54:30,319

really they're part of the connectors

2557

03:54:33,830 --> 03:54:31,680

and they're a little finicky and can be

2558

03:54:35,830 --> 03:54:33,840

a little difficult to work with at times

2559

03:54:37,990 --> 03:54:35,840

but raj atari has practice with these

2560

03:54:40,070 --> 03:54:38,000

mechanisms both in the space station on

2561

03:54:49,110 --> 03:54:40,080

the ground and in the pool of the

2562

03:54:52,870 --> 03:54:49,990

okay

2563

03:54:54,790 --> 03:54:52,880

it is mated forward white band is

2564

03:54:56,630 --> 03:54:54,800

visible

2565

03:55:19,110 --> 03:54:56,640

excellent perform snap back test

2566

03:55:22,630 --> 03:55:20,389

this snapback test with the forward

2567

03:55:27,990 --> 03:55:22,640

white band still visible

2568

03:55:28,000 --> 03:55:48,870

full test

2569

03:55:48,880 --> 03:55:58,070

happy good gab test

2570

03:55:58,080 --> 03:56:06,710

ready to open

2571

03:56:10,870 --> 03:56:08,950

roger for opening the valve

2572

03:56:12,710 --> 03:56:10,880

prior enduring bail movement assassin

2573

03:56:14,150 --> 03:56:12,720

counteract side loads

2574

03:56:20,229 --> 03:56:14,160

rotate the locking collar to the

2575

03:56:24,309 --> 03:56:22,229

our ground iv is now walking astronaut

2576

03:56:26,950 --> 03:56:24,319

raj atari through the valve opening

2577

03:56:29,429 --> 03:56:26,960

process he's got both ends of the both

2578

03:56:31,429 --> 03:56:29,439

hoses connected and so now he's working

2579

03:56:33,349 --> 03:56:31,439

to open up the valves even though the

2580

03:56:35,429 --> 03:56:33,359

valves will be open

2581

03:56:37,750 --> 03:56:35,439

no ammonia will be throwing flowing

2582

03:57:14,309 --> 03:56:37,760

through until mission control sends the

2583

03:57:19,349 --> 03:57:17,189

you can retrieve the uh one-inch speed

2584

03:57:27,670 --> 03:57:19,359

from the bag and

2585

03:57:32,389 --> 03:57:29,030

you can talk uh

2586

03:57:39,110 --> 03:57:32,399

did you need this one for this topic

2587

03:57:44,309 --> 03:57:40,389

number two

2588

03:57:44,319 --> 03:57:53,189

my dad was the gopro by the way

2589

03:57:58,229 --> 03:57:55,590

we're now three hours into today's space

2590

03:58:00,550 --> 03:57:58,239

walk with european space agency

2591

03:58:03,110 --> 03:58:00,560

astronaut matthias mar on the bottom of

2592

03:58:05,189 --> 03:58:03,120

it bartolomeo platform he is loosening

2593

03:58:07,349 --> 03:58:05,199

some clamps to make it easier for future

2594

03:58:09,110 --> 03:58:07,359

installation of scientific payloads onto

2595

03:58:10,790 --> 03:58:09,120

the bartolomeo platform using the

2596

03:58:12,710 --> 03:58:10,800

robotic arm

2597

03:58:14,630 --> 03:58:12,720

he's on the second clamp now

2598

03:58:17,750 --> 03:58:14,640

working his way down a series of clamps

2599

03:58:20,790 --> 03:58:17,760

on his task list but he's going to do as

2600

03:58:41,910 --> 03:58:20,800

many as he has time for

2601
03:58:45,990 --> 03:58:43,990
put the cap keeper back the bag too just

2602
03:58:54,150 --> 03:58:46,000
so i can get some more room just leave

2603
03:59:01,990 --> 03:58:55,510
you know i did that for the mtg house

2604
03:59:17,990 --> 03:59:04,070
you can put the cap keeper in the crew

2605
03:59:32,469 --> 03:59:20,630
with a green light

2606
03:59:37,269 --> 03:59:35,189
you're hearing the voice of matthias mar

2607
03:59:39,910 --> 03:59:37,279
as he's calling out what he sees on his

2608
03:59:42,309 --> 03:59:39,920
pgt or pistol grip tool that's the tool

2609
03:59:44,150 --> 03:59:42,319
that he's using to clamp the bolts that

2610
03:59:46,950 --> 03:59:44,160
he's working on he's got a series on his

2611
03:59:46,960 --> 03:59:51,349
let's see

2612
03:59:51,359 --> 04:00:05,750
he's the hero of all of us

2613
04:00:05,760 --> 04:00:09,110

else

2614

04:00:09,120 --> 04:00:42,150

copy

2615

04:00:46,469 --> 04:00:44,550

you're looking at the pgt in motion or

2616

04:00:48,710 --> 04:00:46,479

the pistol grip tool

2617

04:00:50,710 --> 04:00:48,720

it's basically a cordless drill and the

2618

04:00:53,750 --> 04:00:50,720

drill has a small screen that displays

2619

04:00:55,830 --> 04:00:53,760

the pgt's speed and torque settings this

2620

04:01:15,990 --> 04:00:55,840

comes in handy as the number of turns

2621

04:01:19,750 --> 04:01:17,670

okay we are complete with the mate and

2622

04:01:22,950 --> 04:01:19,760

open valve steps for

2623

04:01:34,309 --> 04:01:22,960

f-129 to m3 you can install

2624

04:01:34,319 --> 04:01:58,950

that's a firm

2625

04:02:03,269 --> 04:02:00,630

the booty is back on

2626
04:02:05,590 --> 04:02:03,279
pitchfold i've pushed body left expected

2627
04:02:06,710 --> 04:02:05,600
it's 5 degrees off

2628
04:02:08,870 --> 04:02:06,720
and

2629
04:02:10,950 --> 04:02:08,880
with that i believe i am

2630
04:02:11,990 --> 04:02:10,960
ready to go to the rb vm back off

2631
04:02:13,670 --> 04:02:12,000
position

2632
04:02:15,510 --> 04:02:13,680
if it requires

2633
04:02:16,790 --> 04:02:15,520
and that's also i think the point where

2634
04:02:17,670 --> 04:02:16,800
you guys want to talk with the kids

2635
04:02:18,870 --> 04:02:17,680
about

2636
04:02:22,070 --> 04:02:18,880
whether it's time to go to the gym or

2637
04:02:26,229 --> 04:02:23,670
okay

2638
04:02:27,590 --> 04:02:26,239

you guys want me to break out

2639

04:02:30,229 --> 04:02:27,600

i have

2640

04:02:32,309 --> 04:02:30,239

in addition to close uh

2641

04:02:47,750 --> 04:02:32,319

bracket number one and track at number

2642

04:02:47,760 --> 04:02:52,150

go ahead matias

2643

04:02:57,110 --> 04:02:54,830

about the breakout point for me to go to

2644

04:02:59,110 --> 04:02:57,120

gym and think that so

2645

04:03:01,030 --> 04:02:59,120

yeah i would like to get you go i

2646

04:03:02,950 --> 04:03:01,040

confirmed that i have closed four

2647

04:03:06,229 --> 04:03:02,960

brackets all the between strokes

2648

04:03:07,110 --> 04:03:06,239

outlines the results this frag is eight

2649

04:03:26,950 --> 04:03:07,120

and

2650

04:03:33,880 --> 04:03:29,269

uh we also wanted to check with you uh

2651
04:03:46,469 --> 04:03:35,910

[Music]

2652
04:03:49,590 --> 04:03:47,670
you're good to go to gem we're

2653
04:03:54,229 --> 04:03:49,600
discussing if uh additional work here at

2654
04:03:57,670 --> 04:03:56,150
roger we're about to start in motion

2655
04:03:58,790 --> 04:03:57,680
because of lighting conditions we're

2656
04:04:01,750 --> 04:03:58,800
going to ask you

2657
04:04:02,790 --> 04:04:01,760
make this to make this a gc8 published

2658
04:04:04,309 --> 04:04:02,800
and

2659
04:04:05,750 --> 04:04:04,319
clear your right side of your body right

2660
04:04:07,670 --> 04:04:05,760
side of your boot plate with the

2661
04:04:09,830 --> 04:04:07,680
radiator okay i could do that what

2662
04:04:12,070 --> 04:04:09,840
direction are we going to body out stay

2663
04:04:15,030 --> 04:04:12,080

out 70 centimeters i've got the cord for

2664

04:04:15,040 --> 04:04:35,670

starting motion one meter

2665

04:04:39,110 --> 04:04:37,110

just confirmed with the grounds that he

2666

04:04:41,670 --> 04:04:39,120

has completed work on the first four

2667

04:04:43,429 --> 04:04:41,680

clamps in his series of tasks

2668

04:04:45,429 --> 04:04:43,439

he has quite a few on his list but the

2669

04:04:47,349 --> 04:04:45,439

first four were priority order the rest

2670

04:04:48,950 --> 04:04:47,359

was only if time were to allow he's

2671

04:04:51,349 --> 04:04:48,960

going to work on a couple of more before

2672

04:04:53,269 --> 04:04:51,359

moving over to the gym this is the

2673

04:04:55,349 --> 04:04:53,279

japanese module

2674

04:04:57,990 --> 04:04:55,359

there's some multi-layer insulation that

2675

04:04:59,670 --> 04:04:58,000

has popped open so maru will work to

2676

04:05:02,469 --> 04:04:59,680

close the flap and secure it to some

2677

04:05:03,990 --> 04:05:02,479

nearby handrails with a wire tie reeling

2678

04:05:05,830 --> 04:05:04,000

reinstalling the thermal blanket will

2679

04:05:13,349 --> 04:05:05,840

help protect some cabling on the nader

2680

04:05:16,550 --> 04:05:15,269

i think we can end gta now if you agree

2681

04:05:17,590 --> 04:05:16,560

okay if you're good with this yeah

2682

04:05:20,469 --> 04:05:17,600

complete

2683

04:05:22,710 --> 04:05:20,479

set up for the next showcase

2684

04:05:24,229 --> 04:05:22,720

matias for you we'd like you to continue

2685

04:05:26,790 --> 04:05:24,239

to clamp four

2686

04:05:30,469 --> 04:05:26,800

once clamp four is complete we'll have

2687

04:05:36,150 --> 04:05:31,830

uh

2688

04:05:38,950 --> 04:05:36,160

papa's oru bag and head to the gem mli

2689

04:05:45,189 --> 04:05:41,590

okay so i closed class number two but

2690

04:05:47,990 --> 04:05:45,199

glance number two never like bottoms out

2691

04:05:49,830 --> 04:05:48,000

i gave it i would say even 20 turns

2692

04:05:56,710 --> 04:05:49,840

it's fully closed but

2693

04:05:56,720 --> 04:06:01,030

i can put on it it doesn't open

2694

04:06:05,189 --> 04:06:03,830

copy thank you for the report uh we can

2695

04:06:07,349 --> 04:06:05,199

we

2696

04:06:22,790 --> 04:06:07,359

consider clamp 2 complete please

2697

04:06:27,670 --> 04:06:25,510

mars got his tasks laid out for him he's

2698

04:06:29,750 --> 04:06:27,680

going to continue work on just a couple

2699

04:06:31,670 --> 04:06:29,760

more bolts and then he's going to

2700

04:06:34,070 --> 04:06:31,680

retrieve his bag that he's had parked on

2701
04:06:37,189 --> 04:06:34,080
the destiny module and move over to the

2702
04:06:42,880 --> 04:06:37,199
japanese module meanwhile raj achari is

2703
04:06:42,890 --> 04:07:43,110
[Applause]

2704
04:07:46,229 --> 04:07:44,389
get the cap keeper back out of the

2705
04:07:47,670 --> 04:07:46,239
acrylic bag

2706
04:07:48,790 --> 04:07:47,680
and i'm also gonna get the spit out

2707
04:07:55,269 --> 04:07:48,800
while i'm moving here and have that

2708
04:07:55,279 --> 04:08:13,189
copyright

2709
04:08:16,630 --> 04:08:15,110
you can see the number 16 in the corner

2710
04:08:17,990 --> 04:08:16,640
of your screen there that means that

2711
04:08:20,630 --> 04:08:18,000
you're seeing things from the point of

2712
04:08:21,990 --> 04:08:20,640
view of astronaut raj atari

2713
04:08:22,950 --> 04:08:22,000

we're looking through his helmet camera

2714

04:08:25,670 --> 04:08:22,960

right now

2715

04:08:28,469 --> 04:08:25,680

to recap some of his tasks he first

2716

04:08:30,149 --> 04:08:28,479

installed the hoses to the radiator beam

2717

04:08:32,070 --> 04:08:30,159

valve module side

2718

04:08:33,510 --> 04:08:32,080

then moved over to the radiator side to

2719

04:08:36,149 --> 04:08:33,520

connect the other end of those hoses

2720

04:08:38,550 --> 04:08:36,159

into the radiator he opened up the valve

2721

04:08:40,389 --> 04:08:38,560

on the radiator side and has just moved

2722

04:08:42,070 --> 04:08:40,399

over to the radiator beam valve module

2723

04:08:43,590 --> 04:08:42,080

side right where he

2724

04:08:54,070 --> 04:08:43,600

started his task

2725

04:08:58,389 --> 04:08:56,870

roger the next is a gc8 of published

2726
04:09:00,950 --> 04:08:58,399
can you clear the front of your body and

2727
04:09:02,710 --> 04:09:00,960
your boot plate it'll be 65 centimeters

2728
04:09:03,910 --> 04:09:02,720
body in

2729
04:09:25,510 --> 04:09:03,920
the welding in a second we'll take it

2730
04:09:30,149 --> 04:09:27,990
the valves that chari is working to open

2731
04:09:32,790 --> 04:09:30,159
will allow the capability for mission

2732
04:09:35,030 --> 04:09:32,800
control here on the ground to run

2733
04:09:36,309 --> 04:09:35,040
ammonia through these hoses that he just

2734
04:09:38,229 --> 04:09:36,319
hooked up

2735
04:09:40,149 --> 04:09:38,239
no hoses no ammonia is going to flow

2736
04:09:41,990 --> 04:09:40,159
through now but they're going to test it

2737
04:09:43,349 --> 04:09:42,000
out at the end of the sometime after the

2738
04:09:45,269 --> 04:09:43,359

eva

2739

04:09:47,910 --> 04:09:45,279

when the ammonia flows to the radiator

2740

04:09:50,790 --> 04:09:47,920

the radiator will be back online

2741

04:09:52,149 --> 04:09:50,800

able to provide cooling for the

2742

04:09:55,110 --> 04:09:52,159

international space station and its

2743

04:09:56,710 --> 04:09:55,120

onboard systems fortunately the space

2744

04:09:59,349 --> 04:09:56,720

station is functioning just fine with

2745

04:10:00,550 --> 04:09:59,359

its other five radiators working at full

2746

04:10:02,229 --> 04:10:00,560

capacity

2747

04:10:03,910 --> 04:10:02,239

and then the

2748

04:10:05,590 --> 04:10:03,920

radiators allowing us to have the

2749

04:10:08,550 --> 04:10:05,600

ability just for some improved

2750

04:10:10,469 --> 04:10:08,560

performance on the radiator

2751
04:10:11,750 --> 04:10:10,479
this also gives us some flexibility in

2752
04:10:13,830 --> 04:10:11,760
case another

2753
04:10:15,990 --> 04:10:13,840
radiator beam valve module goes down

2754
04:10:27,170 --> 04:10:16,000
then we'll know that with some certainty

2755
04:10:27,180 --> 04:10:33,750
[Music]

2756
04:10:33,760 --> 04:10:51,110
65 centimeters back to the work site

2757
04:10:56,229 --> 04:10:53,590
not coming our way shortly and tom i'm

2758
04:11:00,790 --> 04:10:56,239
ready to start gca

2759
04:11:23,429 --> 04:11:03,110
roger you're checking the body front in

2760
04:11:23,439 --> 04:11:27,990
continue

2761
04:12:05,110 --> 04:11:30,469
replace clear

2762
04:12:08,149 --> 04:12:06,550
that is the

2763
04:12:18,710 --> 04:12:08,159

published position anything else you

2764

04:12:18,720 --> 04:12:24,740

um

2765

04:12:24,750 --> 04:12:32,149

[Music]

2766

04:12:38,630 --> 04:12:35,429

another 10 centimeters claudia

2767

04:12:42,630 --> 04:12:40,309

you got the clearance for the front of

2768

04:12:55,750 --> 04:12:42,640

your body and the booth plate to get the

2769

04:12:58,870 --> 04:12:56,870

you're getting a live look at the

2770

04:13:01,830 --> 04:12:58,880

bartolomeo science platform on the

2771

04:13:04,229 --> 04:13:01,840

european columbus module where matthias

2772

04:13:11,990 --> 04:13:04,239

maurer is working on some

2773

04:13:15,189 --> 04:13:14,149

that's your extra tin

2774

04:13:16,469 --> 04:13:15,199

okay

2775

04:13:18,710 --> 04:13:16,479

i think this is going to work just fine

2776

04:13:26,790 --> 04:13:18,720

let's call gta complete okay complete

2777

04:13:31,510 --> 04:13:28,710

all right i believe we're starting uh

2778

04:13:35,110 --> 04:13:31,520

with 141 on this live stream which is

2779

04:13:36,790 --> 04:13:35,120

the inboard one thank you

2780

04:13:38,950 --> 04:13:36,800

that's the firm we'd start on the one

2781

04:13:42,790 --> 04:13:38,960

inch on the inboard side i

2782

04:13:43,510 --> 04:13:42,800

need to give matthias a couple words

2783

04:13:46,710 --> 04:13:43,520

the

2784

04:13:54,690 --> 04:13:46,720

ta clamp matias that's in your view

2785

04:13:54,700 --> 04:13:59,670

[Applause]

2786

04:14:03,750 --> 04:14:01,990

we're switching back and forth on our

2787

04:14:06,149 --> 04:14:03,760

views here of our two space walkers

2788

04:14:07,830 --> 04:14:06,159

working at opposite ends of the truss

2789

04:14:09,670 --> 04:14:07,840

this is matthias maurer finishing his

2790

04:14:11,830 --> 04:14:09,680

work on some clamps on the bartolomeo

2791

04:14:13,189 --> 04:14:11,840

science platform that will allow for the

2792

04:14:14,550 --> 04:14:13,199

installation of future science

2793

04:14:15,590 --> 04:14:14,560

experiments to be attached to the

2794

04:14:19,110 --> 04:14:15,600

platform

2795

04:14:21,510 --> 04:14:19,120

meanwhile raj atari is working on

2796

04:14:24,870 --> 04:14:21,520

the robotic arm he's working on his

2797

04:14:27,110 --> 04:14:24,880

final steps to install the radiator beam

2798

04:14:29,990 --> 04:14:27,120

valve module jumper

2799

04:14:32,630 --> 04:14:30,000

right now he's working on the first hose

2800

04:14:35,349 --> 04:14:32,640

to open up one of the valves on the

2801
04:14:38,070 --> 04:14:35,359
radiator beam valve module side

2802
04:14:40,309 --> 04:14:38,080
hook pick both of them up

2803
04:14:41,910 --> 04:14:40,319
translate to the papa's oru bag drop

2804
04:14:45,269 --> 04:14:41,920
your green hook there

2805
04:15:02,950 --> 04:14:45,279
stow the caps and the gopro in the bag

2806
04:15:06,389 --> 04:15:04,630
a small visual gap

2807
04:15:08,950 --> 04:15:06,399
remaining so

2808
04:15:15,670 --> 04:15:08,960
that's a clamp that didn't close as

2809
04:15:20,550 --> 04:15:17,510
and we copy thanks for the report we're

2810
04:15:20,560 --> 04:15:25,750
thank you you're happy i'm double happy

2811
04:15:29,429 --> 04:15:27,349
excellent

2812
04:15:31,349 --> 04:15:29,439
all right roger ready to work on the one

2813
04:15:35,269 --> 04:15:31,359

inch qd on the inboard side to open the

2814

04:15:38,710 --> 04:15:36,870

prior enduring bell move in assess and

2815

04:15:46,229 --> 04:15:38,720

counteract side loads and rotate the

2816

04:15:49,830 --> 04:15:48,389

depress detent button and move bail to

2817

04:15:56,630 --> 04:15:49,840

the forward position

2818

04:16:04,630 --> 04:15:58,229

band is visible

2819

04:16:09,269 --> 04:16:07,110

copy that you can retrieve the

2820

04:16:16,950 --> 04:16:09,279

speed from the crew lock bag and install

2821

04:16:21,429 --> 04:16:19,830

chary on your screen now working to open

2822

04:16:23,590 --> 04:16:21,439

up the valves on the radiator beam valve

2823

04:16:24,710 --> 04:16:23,600

module side so he installed one side of

2824

04:16:27,269 --> 04:16:24,720

the hoses

2825

04:16:29,429 --> 04:16:27,279

moved on to the other to install

2826

04:16:31,429 --> 04:16:29,439

the other side of the hoses and open up

2827

04:16:33,670 --> 04:16:31,439

the valves while he was there now he's

2828

04:16:36,389 --> 04:16:33,680

moved over to his original work site to

2829

04:16:37,030 --> 04:16:36,399

work on opening the valves there he's on

2830

04:16:52,229 --> 04:16:37,040

the

2831

04:16:56,550 --> 04:16:54,469

meanwhile mar is on his way he's in

2832

04:16:57,349 --> 04:16:56,560

motion to the destiny module where he's

2833

04:16:59,670 --> 04:16:57,359

kept

2834

04:17:01,750 --> 04:16:59,680

one of his tool bags and then he'll be

2835

04:17:03,750 --> 04:17:01,760

heading over to fix some multi-layer

2836

04:17:05,269 --> 04:17:03,760

insulation or a thermal blanket that's

2837

04:17:37,349 --> 04:17:05,279

popped open and he's going to secure it

2838

04:17:40,469 --> 04:17:38,790

the engage i'm

2839

04:17:42,550 --> 04:17:40,479

working on trying to get a visual of the

2840

04:17:45,670 --> 04:17:42,560

second one i exited based on its

2841

04:17:56,229 --> 04:17:45,680

position but i can't deny that

2842

04:17:59,110 --> 04:17:57,990

and actually correct me overall but i

2843

04:18:01,269 --> 04:17:59,120

think there's a

2844

04:18:03,590 --> 04:18:01,279

on the interior side of the spin there's

2845

04:18:05,510 --> 04:18:03,600

a white line and that white line

2846

04:18:09,349 --> 04:18:05,520

is flush with the top of space i think

2847

04:18:19,000 --> 04:18:12,229

i can't see the pegs

2848

04:18:19,010 --> 04:18:45,429

[Applause]

2849

04:18:48,950 --> 04:18:47,429

while mara is headed to his work site i

2850

04:18:51,110 --> 04:18:48,960

wanted to remind everyone that we will

2851
04:18:52,630 --> 04:18:51,120
be taking your ask nasa questions so if

2852
04:18:54,149 --> 04:18:52,640
you have a question about our spacewalk

2853
04:18:55,269 --> 04:18:54,159
today head over to twitter and submit

2854
04:18:58,790 --> 04:18:55,279
yours using

2855
04:19:00,790 --> 04:18:58,800
ask nasa i've got one from vagabondo

2856
04:19:03,590 --> 04:19:00,800
right now who asks who's the capcom for

2857
04:19:06,389 --> 04:19:03,600
today's spacewalk well our capcom is

2858
04:19:08,469 --> 04:19:06,399
alex conoley ghost but he's actually not

2859
04:19:11,030 --> 04:19:08,479
working this operation right now the

2860
04:19:13,269 --> 04:19:11,040
capcom is communicating with the crew

2861
04:19:15,269 --> 04:19:13,279
inside of the space station while nasa

2862
04:19:16,710 --> 04:19:15,279
astronaut stephanie wilson who you see

2863
04:19:18,950 --> 04:19:16,720

on your screen now

2864

04:19:20,790 --> 04:19:18,960

is communicating to our spacewalkers

2865

04:19:22,149 --> 04:19:20,800

instead of capcom we call her the ground

2866

04:19:24,469 --> 04:19:22,159

iv

2867

04:19:26,870 --> 04:19:24,479

on the interior of that i can see the

2868

04:19:29,110 --> 04:19:26,880

white line is flush

2869

04:19:33,910 --> 04:19:29,120

with the top of the spid which matches

2870

04:19:38,309 --> 04:19:36,070

i specifically get my hand in between

2871

04:19:39,429 --> 04:19:38,319

the two tv to actually get a beer for

2872

04:19:40,870 --> 04:19:39,439

sure

2873

04:19:42,950 --> 04:19:40,880

i'll keep working on it

2874

04:19:49,110 --> 04:19:42,960

well we copy and

2875

04:19:49,120 --> 04:19:53,910

okay good pull test doesn't move

2876

04:19:58,389 --> 04:19:56,229

if it passes the pull test we're happy

2877

04:20:01,910 --> 04:19:58,399

install the qd over and

2878

04:20:14,710 --> 04:20:02,950

yes

2879

04:20:18,950 --> 04:20:16,630

and with a successful valve opening raj

2880

04:20:20,950 --> 04:20:18,960

atari just got the ok from the ground to

2881

04:20:22,469 --> 04:20:20,960

install covering over the quick

2882

04:20:31,189 --> 04:20:22,479

disconnect connectors that he's been

2883

04:20:35,830 --> 04:20:33,670

as mars on his way to the japanese

2884

04:20:37,590 --> 04:20:35,840

module to fix some thermal blanket we

2885

04:20:39,030 --> 04:20:37,600

hope to get our live views back as soon

2886

04:20:40,469 --> 04:20:39,040

as he gets there

2887

04:20:42,070 --> 04:20:40,479

should just be a short distance away

2888

04:20:44,309 --> 04:20:42,080

from where he is on his tour of the

2889

04:20:45,750 --> 04:20:44,319

space station today and we expect to get

2890

04:21:16,630 --> 04:20:45,760

our live views and communication with

2891

04:21:16,640 --> 04:21:21,269

mri's installed on fox 141

2892

04:21:25,189 --> 04:21:23,269

happy watching nice work next is the

2893

04:21:45,990 --> 04:21:25,199

three-quarter qd

2894

04:21:50,229 --> 04:21:48,070

you may have heard astronaut raj atari

2895

04:21:53,349 --> 04:21:50,239

call out the mli or multi-layer

2896

04:21:55,830 --> 04:21:53,359

insulation not to be confused with where

2897

04:21:57,189 --> 04:21:55,840

matthias mara is headed he's not yet at

2898

04:21:59,189 --> 04:21:57,199

the japanese module while he'll be

2899

04:22:00,710 --> 04:21:59,199

installing that installation and rajatar

2900

04:22:10,630 --> 04:22:00,720

is just talking about some at his own

2901
04:22:14,790 --> 04:22:12,790
roger to open the valve prior and during

2902
04:22:16,710 --> 04:22:14,800
bail movement assassin counteract side

2903
04:22:24,790 --> 04:22:16,720
loads and rotate the locking collar to

2904
04:22:35,910 --> 04:22:26,870
depress detent button and move bale to

2905
04:22:40,149 --> 04:22:37,990
it's forward still explored act like

2906
04:22:43,670 --> 04:22:40,159
they have a visible copy check detent

2907
04:22:47,269 --> 04:22:45,189
buttons up should be depressed and

2908
04:22:49,110 --> 04:22:47,279
raises back up

2909
04:22:58,630 --> 04:22:49,120
excellent rotate the locking collar to

2910
04:23:02,870 --> 04:23:00,550
copy that you can remove

2911
04:23:25,990 --> 04:23:02,880
any rats and install the booty over

2912
04:23:29,670 --> 04:23:27,910
you just heard the call out put the

2913
04:23:31,750 --> 04:23:29,680

booty over the cutie

2914

04:23:33,590 --> 04:23:31,760

in spacewalking terms this means raj

2915

04:23:35,189 --> 04:23:33,600

atari is going to be putting a

2916

04:23:37,590 --> 04:23:35,199

protective cover over the quick

2917

04:23:39,510 --> 04:23:37,600

disconnect that he's been working with

2918

04:23:59,670 --> 04:23:39,520

throughout his task working on the

2919

04:24:03,510 --> 04:24:01,510

you're getting a split screen look now

2920

04:24:05,590 --> 04:24:03,520

at our two spacewalking astronauts on

2921

04:24:07,830 --> 04:24:05,600

opposite sides of the truss after they

2922

04:24:09,590 --> 04:24:07,840

complete their respective tasks

2923

04:24:11,030 --> 04:24:09,600

that they're working on now they're

2924

04:24:12,950 --> 04:24:11,040

actually going to meet up for the first

2925

04:24:15,110 --> 04:24:12,960

time from the beginning of the spacewalk

2926
04:24:17,110 --> 04:24:15,120
to work on installing a camera together

2927
04:24:47,830 --> 04:24:17,120
before matthias mara goes off to work on

2928
04:24:52,550 --> 04:24:50,630
and stephanie's modest i will keep

2929
04:24:56,630 --> 04:24:52,560
the gopro with me

2930
04:24:56,640 --> 04:25:01,110
and matias we like your plan

2931
04:25:05,030 --> 04:25:03,189
all right mri's installed bail covers

2932
04:25:07,189 --> 04:25:05,040
the sales are covered

2933
04:25:11,910 --> 04:25:07,199
and with that i believe we're ready for

2934
04:25:16,229 --> 04:25:13,830
character early copy we're going to take

2935
04:25:18,710 --> 04:25:16,239
your body out 10 centimeters and then

2936
04:25:22,309 --> 04:25:18,720
body down 25 centimeters

2937
04:25:24,550 --> 04:25:22,319
and ready for motion on your gta hey um

2938
04:25:28,630 --> 04:25:24,560

no i'm good i have it all

2939

04:25:28,640 --> 04:25:36,950

starting gca starting motion

2940

04:25:44,790 --> 04:25:38,790

all right if you get motion away

2941

04:25:48,790 --> 04:25:47,269

is your body out 25 centimeters now body

2942

04:25:53,990 --> 04:25:48,800

down

2943

04:25:56,550 --> 04:25:54,000

the fdgl panel international flight

2944

04:25:57,750 --> 04:25:56,560

deploy this clear radiator square helmet

2945

04:26:04,790 --> 04:25:57,760

here

2946

04:26:08,149 --> 04:26:06,149

which is completely smoke you need

2947

04:26:11,110 --> 04:26:08,159

additional gta

2948

04:26:19,349 --> 04:26:11,120

i am going to be more

2949

04:26:28,389 --> 04:26:21,910

i'm probably going to need body down 15

2950

04:26:34,790 --> 04:26:30,149

okay we'll start with body down 15

2951
04:26:38,469 --> 04:26:36,309
we're nearly three and a half hours in

2952
04:26:41,189 --> 04:26:38,479
today into today's spacewalk and

2953
04:26:43,349 --> 04:26:41,199
astronaut raja chari is working on the

2954
04:26:45,990 --> 04:26:43,359
last task of his radiator beam valve

2955
04:26:47,590 --> 04:26:46,000
module jumper installation his last task

2956
04:26:49,349 --> 04:26:47,600
here that he's moving onto on the

2957
04:26:51,429 --> 04:26:49,359
robotic arm

2958
04:26:55,790 --> 04:26:51,439
is to mate two electrical connectors

2959
04:26:59,990 --> 04:26:58,469
power to my helmet

2960
04:27:01,590 --> 04:27:00,000
not only does it provide heater power

2961
04:27:03,510 --> 04:27:01,600
but it also gives mission control the

2962
04:27:04,710 --> 04:27:03,520
ability to control the valves and the

2963
04:27:37,269 --> 04:27:04,720

ammonia that

2964

04:27:37,279 --> 04:27:44,630

to begin with

2965

04:28:00,790 --> 04:27:46,870

correct roger attach the cap keeper to

2966

04:28:05,030 --> 04:28:02,550

as you're working to demate those caps

2967

04:28:07,349 --> 04:28:05,040

there's one warning demate demated

2968

04:28:24,149 --> 04:28:07,359

nzgl's could be hot after one hour

2969

04:28:24,159 --> 04:28:28,389

okay 73 is out

2970

04:28:28,399 --> 04:28:36,790

copy

2971

04:28:40,229 --> 04:28:38,550

our spacewalkers have completed a number

2972

04:28:42,070 --> 04:28:40,239

of tasks so far

2973

04:28:44,149 --> 04:28:42,080

matthias mars started out the day

2974

04:28:46,389 --> 04:28:44,159

routing an ethernet cable

2975

04:28:50,309 --> 04:28:46,399

that'll be used um pretty soon when the

2976
04:28:53,510 --> 04:28:50,319
spacewalkers move on to install a camera

2977
04:28:56,389 --> 04:28:53,520
matthias mar also installed a jumper

2978
04:28:58,469 --> 04:28:56,399
onto the columbus module and released

2979
04:29:00,710 --> 04:28:58,479
some cable clamps onto the bartolomeo

2980
04:29:13,429 --> 04:29:00,720
platform to allow for future payloads to

2981
04:29:13,439 --> 04:29:23,670
782

2982
04:29:27,830 --> 04:29:25,910
meanwhile nasa astronaut raj achary will

2983
04:29:28,950 --> 04:29:27,840
complete his first task when he mates

2984
04:29:31,269 --> 04:29:28,960
the

2985
04:29:32,950 --> 04:29:31,279
heater cables which he's about to do now

2986
04:29:57,189 --> 04:29:32,960
that will complete the installation of

2987
04:29:57,199 --> 04:30:32,550
matias

2988
04:30:32,560 --> 04:30:52,790

copy

2989

04:30:52,800 --> 04:31:03,990

51 76

2990

04:31:08,070 --> 04:31:05,670

you can see on your screen the caps that

2991

04:31:10,550 --> 04:31:08,080

raj atari was just working to remove now

2992

04:31:31,030 --> 04:31:10,560

that they're removed he is free to

2993

04:31:34,710 --> 04:31:32,229

how you doing

2994

04:31:36,070 --> 04:31:34,720

good on the gym making it slowly but

2995

04:31:37,429 --> 04:31:36,080

steady

2996

04:31:39,429 --> 04:31:37,439

trying now

2997

04:31:41,510 --> 04:31:39,439

for my wiretap

2998

04:31:59,429 --> 04:31:41,520

take a bit so don't worry if i'm not

2999

04:32:02,389 --> 04:32:00,309

okay

3000

04:32:04,469 --> 04:32:02,399

uh crew out bag is set up and i'm ready

3001
04:32:07,590 --> 04:32:04,479
to mate mvgl

3002
04:32:11,110 --> 04:32:07,600
and i believe i'm going uh 782 to 782

3003
04:32:17,910 --> 04:32:12,630
that's the firm and we'll take uh

3004
04:32:22,630 --> 04:32:18,830
so

3005
04:32:24,469 --> 04:32:22,640
782 one they do good

3006
04:32:30,080 --> 04:32:24,479
fog

3007
04:32:30,090 --> 04:33:13,750
[Music]

3008
04:33:18,551 --> 04:33:15,830
our space walk began just about three

3009
04:33:20,789 --> 04:33:18,561
and a half hours ago with raj atari

3010
04:33:22,949 --> 04:33:20,799
first out the gate of the quest airlock

3011
04:33:24,150 --> 04:33:22,959
followed by his counterpart matthias

3012
04:33:27,510 --> 04:33:24,160
maurer

3013
04:33:30,470 --> 04:33:27,520

they spent about an hour at the airlock

3014

04:33:34,070 --> 04:33:30,480

working a problem with the camera

3015

04:33:36,230 --> 04:33:34,080

and onboard light that was attached to

3016

04:33:38,390 --> 04:33:36,240

matthias mars spacesuit had a little

3017

04:33:39,830 --> 04:33:38,400

trouble staying on but rajachary was

3018

04:33:41,510 --> 04:33:39,840

able to troubleshoot with the ground and

3019

04:33:43,830 --> 04:33:41,520

get that secure and then they were on

3020

04:33:46,150 --> 04:33:43,840

their way for their other tasks while

3021

04:33:48,390 --> 04:33:46,160

rajatari was setting up the robotic arm

3022

04:33:50,230 --> 04:33:48,400

that he's on now and will be spending

3023

04:33:51,830 --> 04:33:50,240

through the rest of the spacewalk

3024

04:33:53,029 --> 04:33:51,840

matthias maura got started on other

3025

04:33:55,990 --> 04:33:53,039

tasks

3026
04:33:57,750 --> 04:33:56,000
he routed an ethernet cable and attached

3027
04:33:59,510 --> 04:33:57,760
them to some hand rails this is going to

3028
04:34:02,150 --> 04:33:59,520
be used later on a camera that they'll

3029
04:34:04,869 --> 04:34:02,160
be working on in just a few minutes

3030
04:34:07,510 --> 04:34:04,879
he also installed a jumper onto the

3031
04:34:08,629 --> 04:34:07,520
columbus module and then moved over into

3032
04:34:11,429 --> 04:34:08,639
and released some clamps on the

3033
04:34:13,670 --> 04:34:11,439
bartolomeo science platform allowing for

3034
04:34:16,629 --> 04:34:13,680
the future installation by our robotic

3035
04:34:19,590 --> 04:34:16,639
arm after the eva

3036
04:34:21,510 --> 04:34:19,600
right now raj atari is working

3037
04:34:23,670 --> 04:34:21,520
on concluding his first task of the day

3038
04:34:26,709 --> 04:34:23,680

and the priority for the spacewalk the

3039

04:34:29,269 --> 04:34:26,719

rbvm jumper installation he got the

3040

04:34:31,029 --> 04:34:29,279

hoses installed and the valves open and

3041

04:34:33,830 --> 04:34:31,039

now he's just working to install some

3042

04:34:38,551 --> 04:34:36,390

matias mar is at the japanese module

3043

04:34:40,869 --> 04:34:38,561

installing some loose installation some

3044

04:34:43,029 --> 04:34:40,879

loose insulation just

3045

04:34:45,429 --> 04:34:43,039

using velcro and a wire tie to secure it

3046

04:34:50,949 --> 04:34:45,439

back into place to so to support the

3047

04:34:55,109 --> 04:34:53,109

as soon as that's over our space walkers

3048

04:34:56,629 --> 04:34:55,119

today are going to join together for the

3049

04:34:59,910 --> 04:34:56,639

first time since the beginning of their

3050

04:35:02,310 --> 04:34:59,920

eva to work on a camera replacement and

3051

04:35:04,629 --> 04:35:02,320

installation this is an hd camera that

3052

04:35:07,109 --> 04:35:04,639

sits on the outside of the international

3053

04:35:08,949 --> 04:35:07,119

space station it is has a wireless

3054

04:35:11,750 --> 04:35:08,959

access point that they'll be working

3055

04:35:13,590 --> 04:35:11,760

around and working to install

3056

04:35:15,670 --> 04:35:13,600

this is a series of cameras that is

3057

04:35:17,910 --> 04:35:15,680

being installed the last two being

3058

04:35:19,670 --> 04:35:17,920

installed january of 2021 by

3059

04:36:03,429 --> 04:35:19,680

spacewalkers mike hopkins and victor

3060

04:36:08,310 --> 04:36:05,830

and roger for 782 does it appear that

3061

04:36:10,629 --> 04:36:08,320

the cable is too tight would releasing

3062

04:36:15,269 --> 04:36:10,639

it from the ta clamp give you some

3063

04:36:19,590 --> 04:36:18,150

i think so it right actually seems like

3064

04:36:21,990 --> 04:36:19,600

i'm sure it's something i'm doing wrong

3065

04:36:23,990 --> 04:36:22,000

but like the tolerance

3066

04:36:25,189 --> 04:36:24,000

of looking at the connector the one on

3067

04:36:26,470 --> 04:36:25,199

this side

3068

04:36:28,551 --> 04:36:26,480

is touching

3069

04:36:30,830 --> 04:36:28,561

it's flush with the uh

3070

04:36:32,789 --> 04:36:30,840

the other side this one won't get

3071

04:36:36,310 --> 04:36:32,799

flushed like it's pretty sure i can see

3072

04:36:39,109 --> 04:36:36,320

those locking valves the king going in

3073

04:36:41,189 --> 04:36:39,119

off a little bit so it's just not

3074

04:36:45,510 --> 04:36:41,199

lining on the as i'm looking at this

3075

04:36:47,590 --> 04:36:46,310

oh

3076

04:36:49,750 --> 04:36:47,600

maybe i could try to see a cloud for a

3077

04:36:54,230 --> 04:36:49,760

second but i don't think it's causing

3078

04:36:54,240 --> 04:37:12,230

and we copy we're discussing

3079

04:37:18,150 --> 04:37:14,310

roger can you verify that the lever is

3080

04:37:18,160 --> 04:37:21,910

yep it is fully up

3081

04:37:21,920 --> 04:37:26,390

okay thank you yeah over center

3082

04:37:29,750 --> 04:37:27,510

yeah you can see like i don't know if

3083

04:37:32,629 --> 04:37:29,760

you can see my camera view but on this

3084

04:37:35,750 --> 04:37:32,639

side which is the aft side

3085

04:37:50,789 --> 04:37:38,150

forward side touching

3086

04:37:59,910 --> 04:37:53,349

i don't see any

3087

04:38:05,429 --> 04:38:02,709

roger we do see it in your helmet camera

3088

04:38:35,910 --> 04:38:05,439

unfortunately 783 is

3089

04:38:39,990 --> 04:38:37,590

right now you're getting a live view of

3090

04:38:42,470 --> 04:38:40,000

matthias mar as he works to secure that

3091

04:38:44,310 --> 04:38:42,480

insulation with wire ties basically this

3092

04:38:46,551 --> 04:38:44,320

is just a thermal blanket that works to

3093

04:38:48,789 --> 04:38:46,561

protect the onboard electronics and

3094

04:38:51,349 --> 04:38:48,799

wires that may be exposed to the vacuum

3095

04:38:53,189 --> 04:38:51,359

of space and doing so just puts it back

3096

04:38:55,910 --> 04:38:53,199

into place it had previously become

3097

04:39:04,789 --> 04:38:59,670

full forward over center

3098

04:39:08,709 --> 04:39:06,310

i had to guess i'd say maybe there's

3099

04:39:10,230 --> 04:39:08,719

like it's a tiny bit of offset in the

3100

04:39:13,109 --> 04:39:10,240

keying and it was you just had to get

3101

04:39:15,029 --> 04:39:13,119

kind of stretched in on this side first

3102

04:39:17,189 --> 04:39:15,039

couldn't go from the other side first

3103

04:39:24,730 --> 04:39:17,199

okay i'm working on hiding this under

3104

04:39:24,740 --> 04:39:28,949

[Music]

3105

04:39:35,189 --> 04:39:31,670

is fine it goes under the corner of mli

3106

04:39:36,789 --> 04:39:35,199

but the 783 routing uh the only way to

3107

04:39:38,230 --> 04:39:36,799

cover that with mli would be to pick up

3108

04:39:40,230 --> 04:39:38,240

that flap

3109

04:39:42,868 --> 04:39:40,240

which i think it said not to pick up

3110

04:39:44,230 --> 04:39:42,878

in the breathing package so i can leave

3111

04:39:45,350 --> 04:39:44,240

it like that if you're happy with this

3112

04:39:46,708 --> 04:39:45,360

or i can

3113

04:39:53,430 --> 04:39:46,718

take that flap off and throw it over the

3114

04:39:57,590 --> 04:39:55,830

is working with multi-layer insulation

3115

04:39:59,990 --> 04:39:57,600

or a thermal blanket on the japanese

3116

04:40:02,230 --> 04:40:00,000

module astronaut raj atari is working

3117

04:40:04,948 --> 04:40:02,240

with his own multi-layer insulation

3118

04:40:06,628 --> 04:40:04,958

covering up his work as he works to make

3119

04:40:08,550 --> 04:40:06,638

two electrical connectors that provide

3120

04:40:10,070 --> 04:40:08,560

heater power he just wants to make sure

3121

04:40:15,170 --> 04:40:10,080

that they are protected with a thermal

3122

04:40:19,350 --> 04:40:17,510

[Music]

3123

04:40:20,310 --> 04:40:19,360

yeah i believe or ago

3124

04:40:21,670 --> 04:40:20,320

all right

3125

04:40:23,110 --> 04:40:21,680

so tommy campbell

3126

04:40:25,350 --> 04:40:23,120

when you're ready uh you are going to

3127

04:40:27,910 --> 04:40:25,360

take me to the mvgl back office

3128

04:40:29,430 --> 04:40:27,920

happy we're starting motion body out 75

3129

04:40:30,628 --> 04:40:29,440

centimeters a little bit of body up and

3130

04:40:36,230 --> 04:40:30,638

then we'll set up for the joecast

3131

04:40:41,750 --> 04:40:38,470

with those two electrical connectors

3132

04:40:43,990 --> 04:40:41,760

fully installed it's nice work done by

3133

04:40:45,910 --> 04:40:44,000

nasa astronaut raj atari he's on in

3134

04:40:47,910 --> 04:40:45,920

motion once again soon at the direction

3135

04:41:24,788 --> 04:40:47,920

of astronauts tom marshburn and kayla

3136

04:41:27,430 --> 04:41:26,150

while i'm moving stephanie i believe i

3137

04:41:30,550 --> 04:41:27,440

want to get the round scoop and camera

3138

04:41:35,030 --> 04:41:30,560

cover out and wrench my mws chris

3139

04:41:35,040 --> 04:41:47,990

that's your firm

3140

04:41:52,948 --> 04:41:50,230

i'm on my way back i didn't want to step

3141

04:41:55,030 --> 04:41:52,958

into your gca but the first wiretap i

3142

04:41:57,830 --> 04:41:55,040

deployed no issues with doors and yeah

3143

04:42:00,550 --> 04:41:57,840

rolling back to the left hiking up the

3144

04:42:02,310 --> 04:42:00,560

back and going into the air looks like

3145

04:42:04,070 --> 04:42:02,320

it's not talking we're not doing gta

3146

04:42:18,948 --> 04:42:04,080

right now we're just moving

3147

04:42:21,910 --> 04:42:20,070

roger we're about to start a two and a

3148

04:42:23,990 --> 04:42:21,920

half minute joe cast seven meters port

3149

04:42:30,868 --> 04:42:24,000

you'll be turned head down and facing

3150

04:42:35,590 --> 04:42:33,190

with mars insulation

3151
04:42:37,110 --> 04:42:35,600
installation complete he is moving back

3152
04:42:40,070 --> 04:42:37,120
to the destiny module where he had

3153
04:42:42,310 --> 04:42:40,080
temporarily stowed some storage bags um

3154
04:42:44,868 --> 04:42:42,320
he'll grab his stuff and then move back

3155
04:42:47,270 --> 04:42:44,878
to the airlock with he'll swap out bags

3156
04:42:49,430 --> 04:42:47,280
and then go to meet raj atari at the

3157
04:42:52,310 --> 04:42:49,440
work site for the camera installation

3158
04:42:59,430 --> 04:42:52,320
hold while the ground performs

3159
04:42:59,440 --> 04:43:02,708
stop motion mode

3160
04:43:07,190 --> 04:43:04,868
pausing

3161
04:43:09,030 --> 04:43:07,200
meanwhile raj atari installed two

3162
04:43:11,190 --> 04:43:09,040
electrical connectors and the ground

3163
04:43:20,708 --> 04:43:11,200

here is going to just verify

3164

04:43:23,510 --> 04:43:22,150

that's my bad sorry about that time i

3165

04:43:26,150 --> 04:43:23,520

forgot they want to do that before the

3166

04:43:26,160 --> 04:43:42,868

no that's all that's greater

3167

04:43:55,590 --> 04:43:44,708

i've got the

3168

04:43:55,600 --> 04:44:27,510

for this

3169

04:44:32,230 --> 04:44:29,830

matias we see you in route

3170

04:44:34,230 --> 04:44:32,240

translating to your green hook

3171

04:44:37,830 --> 04:44:34,240

uh when convenient i'll take a glove and

3172

04:44:37,840 --> 04:44:49,910

let me drop the locals

3173

04:44:54,628 --> 04:44:51,830

i would say no

3174

04:44:57,750 --> 04:44:54,638

no changes to the initial state

3175

04:44:57,760 --> 04:45:04,470

copy good gloves dry house

3176

04:45:09,190 --> 04:45:06,550

and stephanie i would be picking up the

3177

04:45:10,470 --> 04:45:09,200

purpose bag and you guys can think if

3178

04:45:11,910 --> 04:45:10,480

you want

3179

04:45:13,910 --> 04:45:11,920

to pause during the increase in the

3180

04:45:15,990 --> 04:45:13,920

airlock because i still have this gopro

3181

04:45:17,670 --> 04:45:16,000

on my chest and i could knock off this

3182

04:45:20,070 --> 04:45:17,680

task if you guys are thinking of

3183

04:45:21,990 --> 04:45:20,080

knocking it off

3184

04:45:23,430 --> 04:45:22,000

and we copy we'll discuss it and that's

3185

04:45:57,430 --> 04:45:23,440

a good plan you'll pick up the papa's

3186

04:46:01,030 --> 04:45:59,110

discussing that probably all that moving

3187

04:46:02,390 --> 04:46:01,040

around by the tv's i think i'm the

3188

04:46:04,550 --> 04:46:02,400

safety feather attached to the arm may

3189

04:46:05,350 --> 04:46:04,560

have wrapped up underneath my finger

3190

04:46:08,070 --> 04:46:05,360

so

3191

04:46:09,190 --> 04:46:08,080

that in the uml but when i get out of

3192

04:46:10,070 --> 04:46:09,200

the arm i'll probably need a little bit

3193

04:46:11,750 --> 04:46:10,080

of help

3194

04:46:12,868 --> 04:46:11,760

so which way to turn to get back out of

3195

04:46:17,350 --> 04:46:12,878

it

3196

04:46:21,590 --> 04:46:19,350

roger cale and tom good news there's a

3197

04:46:24,628 --> 04:46:21,600

good check out of the heaters from the

3198

04:46:26,708 --> 04:46:24,638

ground if we go to continue our maps and

3199

04:46:33,030 --> 04:46:26,718

uh my fault also for not uh catching

3200

04:46:36,070 --> 04:46:34,788

great news on the heater checkout and

3201
04:46:37,270 --> 04:46:36,080
ready to continue emotionally you are

3202
04:46:39,830 --> 04:46:37,280
talking

3203
04:46:46,868 --> 04:46:39,840
thanks for watching over us stephanie we

3204
04:46:51,430 --> 04:46:49,190
raj atari previously completed completed

3205
04:46:53,430 --> 04:46:51,440
his last task on the radiator beam valve

3206
04:46:54,868 --> 04:46:53,440
module installation by mating two

3207
04:46:56,150 --> 04:46:54,878
electrical connectors that will provide

3208
04:46:57,990 --> 04:46:56,160
heater powder

3209
04:47:03,590 --> 04:46:58,000
and the ground just at a checkout of the

3210
04:47:07,990 --> 04:47:05,430
raj achari is now on the move to his

3211
04:47:21,030 --> 04:47:08,000
next web to his next work site at the

3212
04:47:24,708 --> 04:47:22,230
you're looking at a live view of

3213
04:47:26,868 --> 04:47:24,718

matthias mar as he's on the destiny

3214

04:47:28,628 --> 04:47:26,878

module collecting his items that he

3215

04:47:30,550 --> 04:47:28,638

brought out there with him he's going to

3216

04:47:32,948 --> 04:47:30,560

bring all of those items to the airlock

3217

04:47:33,990 --> 04:47:32,958

and replace them for the camera bag

3218

04:47:36,230 --> 04:47:34,000

he'll be

3219

04:47:38,708 --> 04:47:36,240

meeting up with raja charlie chary after

3220

04:47:40,070 --> 04:47:38,718

he's got his bag from the airlock and

3221

04:47:43,110 --> 04:47:40,080

the two will meet up for the first time

3222

04:47:48,708 --> 04:47:45,830

confirm eva that ptu lock lever that you

3223

04:47:50,470 --> 04:47:48,718

want me to look for it is uh oriented

3224

04:47:52,868 --> 04:47:50,480

vader's meter so it runs along this

3225

04:48:47,670 --> 04:47:54,150

that's good news and that's a good

3226
04:48:47,680 --> 04:49:31,620
checking

3227
04:49:31,630 --> 04:49:35,110
[Music]

3228
04:49:41,270 --> 04:49:37,270
swap joe cass we can set that up now or

3229
04:49:44,948 --> 04:49:43,030
i will be running late for that i need

3230
04:49:50,390 --> 04:49:44,958
to clear the surface like

3231
04:49:50,400 --> 04:49:53,910
still discussing standby

3232
04:49:53,920 --> 04:50:00,708
no problem

3233
04:50:03,270 --> 04:50:02,628
yes i've got uh other phones i got the

3234
04:50:05,910 --> 04:50:03,280
the

3235
04:50:07,590 --> 04:50:05,920
like this i can get big steps

3236
04:50:10,150 --> 04:50:07,600
how do you

3237
04:51:26,390 --> 04:50:10,160
i get the snack

3238
04:51:26,400 --> 04:51:49,750

huh

3239

04:52:02,390 --> 04:51:58,868

matias

3240

04:52:20,070 --> 04:52:02,400

patience we're still discussing be back

3241

04:52:20,080 --> 04:52:29,750

okay

3242

04:52:36,150 --> 04:52:31,350

i need to go back and pick up my

3243

04:53:31,510 --> 04:52:37,350

copy you're on your way back to get the

3244

04:53:31,520 --> 04:54:01,030

oh

3245

04:54:09,590 --> 04:54:02,948

matias we see you at your green hook

3246

04:54:13,270 --> 04:54:11,830

we're now approaching the almost at the

3247

04:54:15,830 --> 04:54:13,280

four hour mark

3248

04:54:17,510 --> 04:54:15,840

of our space walk today uh ground

3249

04:54:19,750 --> 04:54:17,520

controllers here in mission control are

3250

04:54:22,310 --> 04:54:19,760

looking at the time

3251

04:54:24,310 --> 04:54:22,320

and what tasks we maybe we may be able

3252

04:54:26,628 --> 04:54:24,320

to accomplish in the rest of the eva

3253

04:54:31,110 --> 04:54:26,638

time you may already we believe your

3254

04:54:31,120 --> 04:54:55,990

one of your legs your left leg

3255

04:55:00,470 --> 04:54:58,310

matthias mauro is at the airlock now i

3256

04:55:02,948 --> 04:55:00,480

think if you align your feet uh pointed

3257

04:55:04,550 --> 04:55:02,958

towards the airlock to actually

3258

04:55:18,560 --> 04:55:04,560

turn back in the direction from whence

3259

04:55:18,570 --> 04:55:22,230

[Music]

3260

04:55:22,240 --> 04:55:27,190

healthy

3261

04:55:32,948 --> 04:55:29,910

and the t has come back uh about 90

3262

04:55:43,830 --> 04:55:32,958

degrees with your legs in line with the

3263

04:55:43,840 --> 04:55:46,948

the other way

3264

04:55:46,958 --> 04:56:07,110

turn towards your left side

3265

04:56:10,948 --> 04:56:08,948

maurer now at the airlock working with

3266

04:56:13,830 --> 04:56:10,958

the ground crew here in mission control

3267

04:56:15,270 --> 04:56:13,840

houston to get his tethers configured in

3268

04:56:27,830 --> 04:56:15,280

a point that he won't be tangled and

3269

04:56:27,840 --> 04:56:32,788

feather is under your left leg

3270

04:56:55,350 --> 04:56:34,708

and then running over your

3271

04:56:59,030 --> 04:56:57,110

and but yes now it looks as though it's

3272

04:57:05,750 --> 04:56:59,040

clear from your leg and it's only over

3273

04:57:09,270 --> 04:57:06,948

as mar

3274

04:57:11,590 --> 04:57:09,280

maneuvers his body to free himself of

3275

04:57:13,910 --> 04:57:11,600

his tether you periodically get some

3276
04:57:15,510 --> 04:57:13,920
views of earth poking through the space

3277
04:57:20,708 --> 04:57:15,520
station is currently flying over the

3278
04:57:20,718 --> 04:57:24,948
and you can release the green hook

3279
04:57:24,958 --> 04:57:35,670
okay let's go

3280
04:57:39,510 --> 04:57:37,590
yes now you see it

3281
04:57:41,670 --> 04:57:39,520
and it uh although it's not around your

3282
04:57:47,350 --> 04:57:41,680
leg it is still around your back so it's

3283
04:57:54,788 --> 04:57:48,868
and so we need you to rotate the we

3284
04:58:09,030 --> 04:57:58,070
rotate towards your left clockwise

3285
04:58:09,040 --> 04:58:18,708
good motion continued

3286
04:58:53,590 --> 04:58:40,868
good motion continue

3287
04:59:11,190 --> 04:58:56,150
now the tether is on your right side and

3288
04:59:16,948 --> 04:59:13,190

now it's clear from your shoulders and

3289

04:59:21,030 --> 04:59:16,958

helmet it might just be tucked along uh

3290

04:59:28,788 --> 04:59:24,628

okay but if i keep on turning this way

3291

04:59:35,270 --> 04:59:30,310

now it's over your right arm now you've

3292

04:59:35,280 --> 04:59:40,628

wow thank you stephanie

3293

04:59:44,150 --> 04:59:42,550

nice work

3294

04:59:47,430 --> 04:59:44,160

you may have seen the tether floating

3295

04:59:49,270 --> 04:59:47,440

between matthias's legs and across his

3296

04:59:51,670 --> 04:59:49,280

behind his right knee that was the

3297

04:59:53,510 --> 04:59:51,680

tether giving him some problems but he

3298

04:59:56,470 --> 04:59:53,520

just freed himself of his tether and now

3299

04:59:58,070 --> 04:59:56,480

is free to go on to his next task

3300

04:59:59,830 --> 04:59:58,080

very good i'll fix the green hook as

3301
05:00:01,350 --> 04:59:59,840
soon as i

3302
05:00:54,470 --> 05:00:01,360
get closer

3303
05:00:54,480 --> 05:01:05,670
copy

3304
05:01:05,680 --> 05:01:34,470
spirit

3305
05:01:38,550 --> 05:01:36,628
and roger while we continue to discuss

3306
05:01:54,550 --> 05:01:38,560
i'll can take a glove and have check

3307
05:01:58,788 --> 05:01:56,868
my hat is dry i've got

3308
05:02:00,470 --> 05:01:58,798
like maybe a smudge on the tip of my

3309
05:02:04,390 --> 05:02:00,480
right ring finger

3310
05:02:09,830 --> 05:02:04,400
and a new smudge on my left um kind of a

3311
05:02:18,150 --> 05:02:13,510
happy dry hat and uh

3312
05:02:18,160 --> 05:02:22,708
right index finger

3313
05:02:22,718 --> 05:02:26,948

right the right ring finger of

3314

05:02:26,958 --> 05:02:39,990

left thumb and right right ring finger

3315

05:02:45,270 --> 05:02:43,110

i see that my green wheel

3316

05:02:47,750 --> 05:02:45,280

didn't fall in at all so there's one

3317

05:02:49,910 --> 05:02:47,760

liter flag i believe that was probably

3318

05:02:50,868 --> 05:02:49,920

due to the speed that i came back it was

3319

05:02:53,590 --> 05:02:50,878

probably

3320

05:02:55,670 --> 05:02:53,600

an issue that right here the other day

3321

05:02:58,788 --> 05:02:55,680

i hope it will clear

3322

05:03:28,550 --> 05:03:01,510

when we copy there's about a meter slack

3323

05:03:32,390 --> 05:03:29,910

you're getting a live view now of

3324

05:03:34,948 --> 05:03:32,400

mission control houston flight director

3325

05:03:37,910 --> 05:03:34,958

paul kanye in the suit pacing on your

3326

05:03:41,190 --> 05:03:37,920

screen there behind him eva officer

3327

05:03:43,190 --> 05:03:41,200

sandy fletcher they're discussing

3328

05:03:44,948 --> 05:03:43,200

the spacewalk seeing how much time they

3329

05:03:58,788 --> 05:03:44,958

have left and what tasks they want to

3330

05:04:05,590 --> 05:04:00,150

caught you in a handover i believe you

3331

05:04:05,600 --> 05:04:09,590

yes

3332

05:04:12,868 --> 05:04:11,510

opening the summer cover

3333

05:04:27,110 --> 05:04:12,878

cap each

3334

05:04:29,830 --> 05:04:28,868

and roger matthias we appreciate your

3335

05:04:32,550 --> 05:04:29,840

patience

3336

05:04:34,628 --> 05:04:32,560

just uh just very vague words while we

3337

05:04:36,708 --> 05:04:34,638

continue to sharpen our pencils we're

3338

05:04:39,510 --> 05:04:36,718

just looking at the time remaining and

3339

05:04:41,350 --> 05:04:39,520

what tasks fit back fit best in that

3340

05:04:42,788 --> 05:04:41,360

time we're not tracking any issues but

3341

05:05:00,070 --> 05:04:42,798

we're just getting the forward plan

3342

05:05:04,550 --> 05:05:02,470

all right from the airlock i take off

3343

05:05:06,628 --> 05:05:04,560

the gopro i switch it off

3344

05:05:08,230 --> 05:05:06,638

i put it back in the back

3345

05:05:11,030 --> 05:05:08,240

or do you want to have the inspection

3346

05:05:14,230 --> 05:05:11,040

done which i think you don't want to

3347

05:05:15,670 --> 05:05:14,240

waiting on

3348

05:05:17,830 --> 05:05:15,680

you're now looking through the eyes of

3349

05:05:20,470 --> 05:05:17,840

european space agency astronaut matthias

3350

05:05:22,390 --> 05:05:20,480

maurer in the quest airlock looking at

3351
05:05:23,830 --> 05:05:22,400
his supplies and seeing what equipment

3352
05:05:26,230 --> 05:05:23,840
that he can bring out

3353
05:07:29,910 --> 05:05:26,240
with him as rajatari is connected to the

3354
05:07:29,920 --> 05:07:46,868
hmm

3355
05:07:51,670 --> 05:07:49,910
roger matthias kayla and tom

3356
05:07:54,628 --> 05:07:51,680
we have sharpened our pencils it is

3357
05:07:57,590 --> 05:07:54,638
currently four hours 10 minutes p-e-t

3358
05:08:01,750 --> 05:07:57,600
living consumable is four as six hours

3359
05:08:03,830 --> 05:08:01,760
44 minutes on ev-2 medox

3360
05:08:06,788 --> 05:08:03,840
with that information we would like to

3361
05:08:08,788 --> 05:08:06,798
continue the eba with the cp8 focus

3362
05:08:10,470 --> 05:08:08,798
we would head both raja and mathias to

3363
05:08:13,830 --> 05:08:10,480

the cp-8 worksite

3364

05:08:17,590 --> 05:08:13,840

matthias would hang there while raja

3365

05:08:20,470 --> 05:08:17,600

does some of the initial work for raja

3366

05:08:22,708 --> 05:08:20,480

and for matthias only the cpa activities

3367

05:08:34,948 --> 05:08:22,718

would remain for the eva and then we

3368

05:08:40,230 --> 05:08:37,190

and robotics is ready to support

3369

05:09:01,510 --> 05:08:40,240

continuing with the bag swap joe cass on

3370

05:09:06,470 --> 05:09:03,590

after a momentary pause so the ground

3371

05:09:08,788 --> 05:09:06,480

crew can evaluate the remaining tasks of

3372

05:09:11,270 --> 05:09:08,798

the day they decided that the crew is

3373

05:09:13,670 --> 05:09:11,280

going to continue on to the camera port

3374

05:09:15,510 --> 05:09:13,680

8 worksite you may be here referred to

3375

05:09:18,470 --> 05:09:15,520

as cp8

3376

05:09:20,868 --> 05:09:18,480

they're going to perform a bag swap so

3377

05:09:23,990 --> 05:09:20,878

matthias mar is in the airlock now to

3378

05:09:26,788 --> 05:09:24,000

grab the bag and bring it to rajachary

3379

05:09:27,830 --> 05:09:26,798

the bag contains the camera a camera is

3380

05:09:30,310 --> 05:09:27,840

already

3381

05:09:32,788 --> 05:09:30,320

at the camera port 8 worksite and raj

3382

05:09:38,530 --> 05:09:32,798

atari will work to remove it and swap it

3383

05:09:38,540 --> 05:09:42,150

[Applause]

3384

05:09:53,990 --> 05:09:44,390

and stephanie if you agree we'll start

3385

05:09:58,948 --> 05:09:56,470

and tom kayla

3386

05:10:01,270 --> 05:09:58,958

we do concur i'm getting additional

3387

05:10:03,190 --> 05:10:01,280

words uh you you we would like you to

3388

05:10:05,510 --> 05:10:03,200

proceed to the backstop position you're

3389

05:10:07,750 --> 05:10:05,520

going to end up flying those through

3390

05:10:13,990 --> 05:10:07,760

that position to another position and

3391

05:10:17,190 --> 05:10:15,910

okay we copy that we'll start moving

3392

05:10:18,550 --> 05:10:17,200

towards the back swap position

3393

05:10:19,750 --> 05:10:18,560

understanding that we'll fly through

3394

05:10:26,628 --> 05:10:19,760

that

3395

05:10:29,430 --> 05:10:28,310

roger we're starting motion your head is

3396

05:10:30,708 --> 05:10:29,440

going to be moving to the truss and

3397

05:11:08,708 --> 05:10:30,718

it'll end up about a half meter from

3398

05:11:14,948 --> 05:11:11,670

you choose outside of the hatch

3399

05:11:18,470 --> 05:11:14,958

the camera bag is attached to the vip

3400

05:11:19,990 --> 05:11:18,480

this port over the upsc event and i'm

3401

05:11:22,550 --> 05:11:20,000

proceeding with closing the thermal

3402

05:11:27,190 --> 05:11:24,708

matthias mar has just ingressed from the

3403

05:11:29,910 --> 05:11:27,200

quest airlock for the second time today

3404

05:11:33,030 --> 05:11:29,920

first time beginning his spacewalk the

3405

05:11:34,948 --> 05:11:33,040

second time to stow a bag that he was

3406

05:11:37,350 --> 05:11:34,958

using previously on the columbus and

3407

05:11:40,150 --> 05:11:37,360

bartolomeo platform

3408

05:11:42,470 --> 05:11:40,160

now retrieving a camera an hd camera

3409

05:11:49,430 --> 05:11:42,480

that he'll be bringing now to nasa

3410

05:12:07,430 --> 05:11:51,910

he's working right now to close the

3411

05:12:07,440 --> 05:12:20,708

handles down

3412

05:12:25,910 --> 05:12:22,310

want an inventory of the crew lock bag

3413

05:12:59,810 --> 05:12:26,830

what's

3414

05:12:59,820 --> 05:13:06,628

[Applause]

3415

05:13:10,070 --> 05:13:08,310

raj atari's next tasks include

3416

05:13:12,550 --> 05:13:10,080

disconnecting an old camera and

3417

05:13:14,390 --> 05:13:12,560

temporarily stowing it away

3418

05:13:17,030 --> 05:13:14,400

and then he'll be replacing the old

3419

05:13:18,868 --> 05:13:17,040

external high definition camera with one

3420

05:13:21,670 --> 05:13:18,878

with a wireless access port that can

3421

05:13:23,910 --> 05:13:21,680

provide improved two-way high data rate

3422

05:13:43,590 --> 05:13:23,920

communication between external payloads

3423

05:13:47,270 --> 05:13:45,590

don't forget my single like the other

3424

05:13:51,030 --> 05:13:47,280

things that are still out there

3425

05:13:54,150 --> 05:13:52,788

but when you come back it's it's

3426

05:13:56,788 --> 05:13:54,160

definitely

3427

05:13:58,708 --> 05:13:56,798

partially uh very close so always be

3428

05:14:00,310 --> 05:13:58,718

mindful when you come back okay

3429

05:14:02,150 --> 05:14:00,320

the white bag that you see floating on

3430

05:14:04,230 --> 05:14:02,160

the top of the screen next to our space

3431

05:14:05,830 --> 05:14:04,240

walker is what is the bag that's

3432

05:14:08,868 --> 05:14:05,840

containing the high definition camera

3433

05:14:11,830 --> 05:14:08,878

that mower is working to deliver

3434

05:14:12,868 --> 05:14:11,840

we'd like your clearance to the uh cpa

3435

05:14:14,868 --> 05:14:12,878

camera

3436

05:14:17,030 --> 05:14:14,878

body in one meter

3437

05:14:18,708 --> 05:14:17,040

i've got the clearance to the camera

3438

05:14:27,670 --> 05:14:18,718

gca

3439

05:14:47,350 --> 05:14:29,190

towards the camera

3440

05:14:51,510 --> 05:14:50,070

i won't get a whole half meter

3441

05:14:52,948 --> 05:14:51,520

above the horse fishing gets pretty

3442

05:14:57,110 --> 05:14:52,958

close here

3443

05:15:13,670 --> 05:14:58,470

we need to go

3444

05:15:27,430 --> 05:15:14,830

there you

3445

05:15:30,470 --> 05:15:29,350

wrapping out motion stop word published

3446

05:15:33,430 --> 05:15:30,480

okay

3447

05:15:35,990 --> 05:15:33,440

and just so i understand what uh

3448

05:15:39,350 --> 05:15:36,000

is there another position

3449

05:15:41,830 --> 05:15:39,360

that would give me for the nvgs

3450

05:15:43,110 --> 05:15:41,840

for excited

3451

05:15:44,708 --> 05:15:43,120

i wouldn't be able to reach it for here

3452

05:15:46,550 --> 05:15:44,718

i can get the scoop on from here and i

3453

05:15:47,750 --> 05:15:46,560

could get a locking clamp but i don't

3454

05:15:53,350 --> 05:15:47,760

think i can get the end details for

3455

05:15:59,190 --> 05:15:55,510

roger that's later in our procedure as

3456

05:16:01,110 --> 05:15:59,200

standing by houston has any words

3457

05:16:03,350 --> 05:16:01,120

and tom those are good words we confer

3458

05:16:10,070 --> 05:16:03,360

that there is a later position for the

3459

05:16:15,350 --> 05:16:11,910

so big picture them guys are looking to

3460

05:16:16,628 --> 05:16:15,360

see if you need any more gta yeah

3461

05:16:17,750 --> 05:16:16,638

if you understand the plan i've been

3462

05:16:20,150 --> 05:16:17,760

here i guess what i'm going to try what

3463

05:16:22,230 --> 05:16:20,160

am i wrong with you at this position

3464

05:16:31,110 --> 05:16:22,240

copy we're about a minute to hand over

3465

05:16:35,430 --> 05:16:32,628

for this position this is where you

3466

05:16:37,270 --> 05:16:35,440

install the window cover and the uh

3467

05:16:39,190 --> 05:16:37,280

install the window cover but i'll have

3468

05:16:41,350 --> 05:16:39,200

some words for you prior to that the big

3469

05:16:43,670 --> 05:16:41,360

picture uh you guys will keep your

3470

05:16:45,110 --> 05:16:43,680

respective bags so we bypass the bag

3471

05:16:48,150 --> 05:16:45,120

swap rnr

3472

05:16:50,550 --> 05:16:48,160

we'll work on the uh camera rnr

3473

05:16:52,788 --> 05:16:50,560

we would like uh once matthias gets into

3474

05:17:00,470 --> 05:16:52,798

position to cp8 we'd like him to hold

3475

05:17:05,750 --> 05:17:02,868

immediately

3476

05:17:06,948 --> 05:17:05,760

he said what you get what's happening

3477

05:17:08,150 --> 05:17:06,958

okay

3478

05:17:09,590 --> 05:17:08,160

if i'm just doing the scoop with window

3479

05:17:12,230 --> 05:17:09,600

cover from here i can do that in this

3480

05:17:14,310 --> 05:17:12,240

position so we can call dca complete for

3481

05:17:16,708 --> 05:17:14,320

that task

3482

05:17:18,150 --> 05:17:16,718

okay we copy we think you're saying ngca

3483

05:17:28,550 --> 05:17:18,160

yeah thank you here

3484

05:17:32,708 --> 05:17:30,948

after one morning on the hd camera do

3485

05:17:34,868 --> 05:17:32,718

not touch the vent ports that are near

3486

05:17:38,150 --> 05:17:34,878

j2 and that's a firm window cover and

3487

05:17:42,708 --> 05:17:40,470

in anticipation of this planned handover

3488

05:17:44,868 --> 05:17:42,718

our ground iv stephanie wilson just gave

3489

05:17:47,990 --> 05:17:44,878

the next steps to our astronauts

3490

05:17:50,708 --> 05:17:48,000

rajatari and mathias mar

3491

05:17:53,030 --> 05:17:50,718

chari just arrived at the work site and

3492

05:17:55,670 --> 05:17:53,040

his next tasks are to install a window

3493

05:17:58,550 --> 05:17:55,680

cover on the hd camera and then he'll go

3494

05:18:00,470 --> 05:17:58,560

on to release some cables again demating

3495

05:18:03,430 --> 05:18:00,480

the old camera so that there's room on

3496

05:18:06,150 --> 05:18:03,440

the stanchion for the new cameras

3497

05:18:09,030 --> 05:18:06,160

matthias maurer will swap bags with him

3498

05:18:11,110 --> 05:18:09,040

giving rajachary the new camera while

3499

05:18:13,030 --> 05:18:11,120

chary hands mower

3500

05:18:14,948 --> 05:18:13,040

a bag that contained tools for the

3501
05:18:16,708 --> 05:18:14,958
radiator beam valve module which is a

3502
05:18:19,510 --> 05:18:16,718
task that he just completed earlier in

3503
05:18:22,230 --> 05:18:19,520
the space walk originally matthias mauro

3504
05:18:24,708 --> 05:18:22,240
was planned to take chari's bag back to

3505
05:18:26,230 --> 05:18:24,718
the airlock and just to deliver the

3506
05:18:28,550 --> 05:18:26,240
tools that he doesn't need anymore

3507
05:18:30,628 --> 05:18:28,560
however the revised plan is for mar to

3508
05:19:48,628 --> 05:18:30,638
stay put where he is and assist tori

3509
05:20:08,628 --> 05:19:50,628
the vs drop green look at

3510
05:20:11,510 --> 05:20:10,470
the window cover and scoop are attached

3511
05:20:17,270 --> 05:20:11,520
on the

3512
05:20:27,190 --> 05:20:19,750
copy open the hd camera ta clamp and

3513
05:20:39,750 --> 05:20:29,350

the aircraft's open and the cables are

3514

05:20:43,670 --> 05:20:41,430

you just heard our ground iv stephanie

3515

05:20:45,510 --> 05:20:43,680

wilson give the go for rajatari to

3516

05:20:47,510 --> 05:20:45,520

release some of the cables of the hd

3517

05:20:50,230 --> 05:20:47,520

camera that will not mean that the

3518

05:20:52,470 --> 05:20:50,240

current camera is free flying he still

3519

05:20:54,868 --> 05:20:52,480

needs to work to demate a jumper cable

3520

05:20:57,190 --> 05:20:54,878

from the old hd camera before he can

3521

05:21:16,230 --> 05:20:57,200

temporarily stow it out of the way to

3522

05:21:16,240 --> 05:21:35,590

behind you

3523

05:21:39,510 --> 05:21:37,910

you see matthias mower on screen now

3524

05:21:42,470 --> 05:21:39,520

inching his way using the space

3525

05:21:45,110 --> 05:21:42,480

station's exterior handrails he's almost

3526

05:21:53,110 --> 05:21:45,120

meeting up with astronaut raj achary

3527

05:21:53,120 --> 05:22:02,390

copy discussing

3528

05:22:17,830 --> 05:22:04,230

all right all right here how's it going

3529

05:22:23,830 --> 05:22:19,750

roger matthias from this position are

3530

05:22:23,840 --> 05:22:28,470

i would say so uh we should be okay

3531

05:22:34,070 --> 05:22:29,990

then we'd like you to execute the bag

3532

05:22:56,310 --> 05:22:35,750

am i able to get some reps set up to do

3533

05:22:56,320 --> 05:23:25,110

bye

3534

05:23:28,948 --> 05:23:27,350

okay okay i'm gonna put your dive driver

3535

05:23:31,830 --> 05:23:28,958

right from any workstation

3536

05:23:34,708 --> 05:23:31,840

with a medium camera bag

3537

05:23:37,270 --> 05:23:34,718

putting your brt rest

3538

05:23:40,628 --> 05:23:38,548

rbdm bag

3539

05:23:42,788 --> 05:23:40,638

my brt right off of it

3540

05:23:43,670 --> 05:23:42,798

my jaws are open that's coming back to

3541

05:23:45,350 --> 05:23:43,680

you

3542

05:23:57,590 --> 05:23:45,360

let me know where i have it i'll just

3543

05:24:01,990 --> 05:24:00,230

matthias mauro successfully made his way

3544

05:24:04,310 --> 05:24:02,000

to the camera port eight work site where

3545

05:24:05,110 --> 05:24:04,320

raj atari is connected to the robotic

3546

05:24:08,230 --> 05:24:05,120

arm

3547

05:24:10,788 --> 05:24:08,240

matthias mar handed him the bag

3548

05:24:13,150 --> 05:24:10,798

containing the new hd camera while raj

3549

05:24:15,030 --> 05:24:13,160

achari got rid of his

3550

05:24:17,510 --> 05:24:15,040

rbvm

3551
05:24:18,788 --> 05:24:17,520
bag that he gave to matthias mar

3552
05:24:20,948 --> 05:24:18,798
so now that they've successfully

3553
05:24:23,030 --> 05:24:20,958
completed the bag swap raj atari is

3554
05:24:25,110 --> 05:24:23,040
working to attach his body restraint

3555
05:24:31,430 --> 05:24:25,120
tether to the new camera so he's got it

3556
05:24:37,750 --> 05:24:33,510
i've got the medium ru bag with the new

3557
05:24:37,760 --> 05:24:42,628
copy camera bags on eb one's brt

3558
05:24:42,638 --> 05:24:49,910
yes the other one is only

3559
05:24:49,920 --> 05:25:19,510
copy eb2

3560
05:25:22,548 --> 05:25:21,350
yeah i think the next thing is

3561
05:25:26,470 --> 05:25:22,558
i'm not just

3562
05:25:26,480 --> 05:25:37,830
i think that as well but i'm checking

3563
05:25:41,830 --> 05:25:39,590

kayla raja and

3564

05:25:46,470 --> 05:25:41,840

tom we are ready for the maneuver to the

3565

05:25:50,788 --> 05:25:48,868

you copy your ground is good with the

3566

05:25:51,830 --> 05:25:50,798

maneuvers of the ngl

3567

05:25:55,270 --> 05:25:51,840

position

3568

05:25:57,270 --> 05:25:55,280

roger we are ready for your gca

3569

05:25:59,030 --> 05:25:57,280

we understand body down we ask for

3570

05:26:00,390 --> 05:25:59,040

either protective clearance for your

3571

05:26:02,230 --> 05:26:00,400

body and the camera

3572

05:26:04,788 --> 05:26:02,240

and we just need a distance

3573

05:26:06,788 --> 05:26:04,798

okay cubby uh i've got the clearance to

3574

05:26:07,990 --> 05:26:06,798

the camera i can't see below my b-plate

3575

05:26:10,390 --> 05:26:08,000

but i think that's out in the different

3576

05:26:12,390 --> 05:26:10,400

space anyways

3577

05:26:15,350 --> 05:26:12,400

and

3578

05:26:17,590 --> 05:26:15,360

let's try

3579

05:26:29,410 --> 05:26:17,600

these centimeters body down

3580

05:26:29,420 --> 05:26:40,070

[Music]

3581

05:26:40,080 --> 05:26:48,708

here you go

3582

05:26:52,470 --> 05:26:50,628

snapping out motion

3583

05:27:09,030 --> 05:26:52,480

let's go to 10 centimeters

3584

05:27:13,990 --> 05:27:11,110

okay let's call gca completes be

3585

05:27:19,590 --> 05:27:15,430

the microbreaks

3586

05:27:23,590 --> 05:27:21,670

roger d made the light jumper cable from

3587

05:27:25,110 --> 05:27:23,600

the hd camera that's the taller

3588

05:27:29,590 --> 05:27:25,120

connector

3589

05:27:29,600 --> 05:27:51,030

we're doing the light jumper

3590

05:27:56,628 --> 05:27:52,470

to pop up here because the name of that

3591

05:28:00,628 --> 05:27:56,638

one is debated uh the light jumper is

3592

05:28:04,310 --> 05:28:03,270

the other one

3593

05:28:09,910 --> 05:28:04,320

sockets

3594

05:28:15,110 --> 05:28:11,750

copy

3595

05:28:21,990 --> 05:28:15,120

and did i hear uh the pgu cable is also

3596

05:28:26,628 --> 05:28:24,070

okay and the checks for that are also

3597

05:28:26,638 --> 05:28:32,708

that was the second one

3598

05:28:37,590 --> 05:28:35,510

copy now you can lift the cam lever 90

3599

05:28:42,470 --> 05:28:37,600

degrees and remove the hd camera by

3600

05:28:45,990 --> 05:28:43,990

the old camera is now completely

3601
05:29:10,590 --> 05:28:46,000
disconnected from the space station and

3602
05:29:10,600 --> 05:29:15,350
[Music]

3603
05:29:18,948 --> 05:29:17,110
and retrieve the

3604
05:29:21,030 --> 05:29:18,958
hd camera

3605
05:29:23,750 --> 05:29:21,040
from the bag to install onto the sd

3606
05:29:27,750 --> 05:29:25,990
and there it is the old camera facing

3607
05:29:29,350 --> 05:29:27,760
the earth from the international space

3608
05:29:31,270 --> 05:29:29,360
station

3609
05:29:34,548 --> 05:29:31,280
now disconnected and in the arms of

3610
05:29:36,788 --> 05:29:34,558
astronaut raj atari as he places it back

3611
05:29:38,470 --> 05:29:36,798
into a bag to temporarily stow it out of

3612
05:30:03,670 --> 05:29:38,480
the way so that he can focus on

3613
05:30:03,680 --> 05:30:10,310

[Music]

3614

05:30:10,320 --> 05:31:55,830

bag

3615

05:32:00,708 --> 05:31:57,750

you see the brown window cover coming

3616

05:32:03,430 --> 05:32:00,718

into view on the camera raj achari just

3617

05:32:05,750 --> 05:32:03,440

installed that prior to

3618

05:32:07,430 --> 05:32:05,760

unhooking all of the cables that

3619

05:32:09,510 --> 05:32:07,440

connected the camera to the space

3620

05:32:31,030 --> 05:32:09,520

station and he's now working to put it

3621

05:32:35,430 --> 05:32:33,110

he'll be working in reverse when

3622

05:32:38,310 --> 05:32:35,440

installing the new camera first removing

3623

05:32:40,548 --> 05:32:38,320

the window cover and then mating the

3624

05:32:46,150 --> 05:32:40,558

wireless access port

3625

05:32:51,270 --> 05:32:48,230

you're trying to find a lot of rc cam

3626

05:32:54,628 --> 05:32:51,280

lever is in the locked position

3627

05:32:56,230 --> 05:32:54,638

that kind of bounces around at 0g

3628

05:32:58,470 --> 05:32:56,240

but i don't think it's actually all the

3629

05:33:05,590 --> 05:32:58,480

way on

3630

05:33:09,990 --> 05:33:07,670

copy the cam lever is locked and did you

3631

05:33:14,390 --> 05:33:10,000

happen to see it pop out and then pop

3632

05:33:16,150 --> 05:33:14,400

back in as you were sliding it on

3633

05:33:17,750 --> 05:33:16,160

it's not on all the way i can tell i can

3634

05:33:19,830 --> 05:33:17,760

keep the alignment mark now

3635

05:33:22,230 --> 05:33:19,840

happy

3636

05:33:50,390 --> 05:33:22,240

well there's still got a ways to go

3637

05:33:50,400 --> 05:34:10,868

from the top

3638

05:34:10,878 --> 05:34:18,150

back it down a little bit see if i can

3639

05:34:21,910 --> 05:34:20,548

think on my side base of the mli on the

3640

05:34:24,548 --> 05:34:21,920

box that you slide it over there's a

3641

05:34:30,788 --> 05:34:24,558

small forward that keeps

3642

05:34:34,788 --> 05:34:32,628

this camera installation is the second

3643

05:34:37,110 --> 05:34:34,798

major task of the space walk today for

3644

05:34:39,670 --> 05:34:37,120

nasa astronaut raj atari and european

3645

05:34:41,510 --> 05:34:39,680

space agency astronaut matthias mar

3646

05:34:44,470 --> 05:34:41,520

the first major task of the day and the

3647

05:34:47,430 --> 05:34:44,480

priority of today's eva was to install

3648

05:34:49,350 --> 05:34:47,440

hoses to the radiator beam valve module

3649

05:34:52,868 --> 05:34:49,360

to one of the radiators on the space

3650

05:34:56,070 --> 05:34:52,878

station raj atari aboard the robotic arm

3651
05:34:57,910 --> 05:34:56,080
was able to mate both sides of the hoses

3652
05:35:00,628 --> 05:34:57,920
between the radiator beam valve module

3653
05:35:02,708 --> 05:35:00,638
and the radiator itself open some valves

3654
05:35:05,030 --> 05:35:02,718
so that ammonia can flow through at the

3655
05:35:07,430 --> 05:35:05,040
command of the mission control here in

3656
05:35:09,910 --> 05:35:07,440
the ground at a later date

3657
05:35:11,510 --> 05:35:09,920
and he also installed heater cables

3658
05:35:13,750 --> 05:35:11,520
that the ground verified were installed

3659
05:35:16,310 --> 05:35:13,760
correctly and were working properly

3660
05:35:17,750 --> 05:35:16,320
now they're moving on to the camera

3661
05:35:19,190 --> 05:35:17,760
installation

3662
05:35:21,430 --> 05:35:19,200
the old camera

3663
05:35:23,190 --> 05:35:21,440

worked fine but this new one provides

3664

05:35:25,110 --> 05:35:23,200

improved two-way high data rate

3665

05:35:27,510 --> 05:35:25,120

communication between external payloads

3666

05:35:28,948 --> 05:35:27,520

and our earth

3667

05:35:30,948 --> 05:35:28,958

for me it just feels like it's not going

3668

05:35:31,750 --> 05:35:30,958

to move i don't think it's on my face

3669

05:35:42,780 --> 05:35:31,760

that

3670

05:35:42,790 --> 05:35:47,350

[Applause]

3671

05:35:52,070 --> 05:35:50,230

good felt like it moved

3672

05:35:53,670 --> 05:35:52,080

like there's so much fiction stuff that

3673

05:36:03,110 --> 05:35:53,680

i can't tell if that cam

3674

05:36:09,590 --> 05:36:05,350

i'm roger we copy we're looking at the

3675

05:36:15,670 --> 05:36:11,510

i understand you

3676

05:36:17,910 --> 05:36:15,680

the alignment mark is hard to gauge

3677

05:36:26,788 --> 05:36:17,920

and difficult to align are you able to

3678

05:36:34,330 --> 05:36:28,310

it is in the lock position but it's

3679

05:36:34,340 --> 05:36:42,948

[Music]

3680

05:36:46,788 --> 05:36:44,948

like proceeding on top of the other

3681

05:36:48,548 --> 05:36:46,798

books so i would say like kind of three

3682

05:36:51,190 --> 05:36:48,558

four centimeters

3683

05:36:52,310 --> 05:36:51,200

you have to be expected

3684

05:36:54,070 --> 05:36:52,320

i'm

3685

05:36:59,110 --> 05:36:54,080

trying to convince myself as a landmark

3686

05:37:03,190 --> 05:37:01,590

make sure i get it in my mirror

3687

05:37:04,708 --> 05:37:03,200

but definitely move from where it was at

3688

05:37:06,548 --> 05:37:04,718

before but

3689

05:37:08,070 --> 05:37:06,558

based on how much force i was having to

3690

05:37:10,150 --> 05:37:08,080

use very metal

3691

05:37:13,830 --> 05:37:10,160

i definitely couldn't

3692

05:37:15,910 --> 05:37:13,840

observe the camera pop up and down

3693

05:37:17,350 --> 05:37:15,920

cubby and matthias are you saying are

3694

05:37:21,830 --> 05:37:17,360

you saying that the camera is not

3695

05:37:28,628 --> 05:37:25,190

but my view is can i now install the end

3696

05:37:30,150 --> 05:37:28,638

of it so the most

3697

05:37:32,788 --> 05:37:30,160

speeded voice part

3698

05:37:34,548 --> 05:37:32,798

is not flash with the box but

3699

05:37:37,430 --> 05:37:34,558

that is insulting

3700

05:37:40,390 --> 05:37:37,440

there's still three centimeters of uh

3701

05:37:41,430 --> 05:37:40,400

of the height difference right so yeah

3702

05:37:42,868 --> 05:37:41,440

they shouldn't be absolutely loud

3703

05:37:45,110 --> 05:37:42,878

there's a black and white mark on my

3704

05:37:50,628 --> 05:37:45,120

side

3705

05:37:56,868 --> 05:37:54,868

one idea as i could gta

3706

05:37:58,150 --> 05:37:56,878

the other side for the pa clap side and

3707

05:38:00,230 --> 05:37:58,160

i think you'll definitely see those

3708

05:38:03,590 --> 05:38:00,240

alignment marks straight on

3709

05:38:09,110 --> 05:38:05,270

you know pull back here too i mean it's

3710

05:38:10,868 --> 05:38:09,120

not it's not moving either direction

3711

05:38:12,708 --> 05:38:10,878

just trying to fall down on it and we

3712

05:38:14,868 --> 05:38:12,718

understand

3713

05:38:17,190 --> 05:38:14,878

roger move the cam lever to the unlocked

3714

05:38:19,670 --> 05:38:17,200

position and try to partially remove the

3715

05:38:21,190 --> 05:38:19,680

camera approximately a quarter inch

3716

05:38:23,750 --> 05:38:21,200

push the cam lever into the lock

3717

05:38:28,628 --> 05:38:23,760

position and then attempt to

3718

05:38:32,470 --> 05:38:30,628

so unlock move it a quarter inch on the

3719

05:38:33,350 --> 05:38:32,480

back down

3720

05:38:34,948 --> 05:38:33,360

right

3721

05:38:39,110 --> 05:38:34,958

correct

3722

05:38:39,120 --> 05:38:46,948

okay i think i just yep it just pops

3723

05:38:46,958 --> 05:38:59,430

that should be installed let's check

3724

05:39:02,628 --> 05:39:01,350

i'm looking through a mirror obviously

3725

05:39:08,390 --> 05:39:02,638

you can't see this

3726

05:39:14,390 --> 05:39:10,788

the

3727

05:39:16,230 --> 05:39:14,400

new camera

3728

05:39:19,190 --> 05:39:16,240

and the

3729

05:39:21,830 --> 05:39:19,200

so the black alignment mark lines up

3730

05:39:23,590 --> 05:39:21,840

with that that's the second screw

3731

05:39:27,430 --> 05:39:23,600

on the bottom and that second screw is

3732

05:39:30,390 --> 05:39:27,440

aligned with the sd camera so i'm pretty

3733

05:39:32,708 --> 05:39:30,400

confident that those are lined but if on

3734

05:39:34,230 --> 05:39:32,718

the ground if that uh black line the

3735

05:39:35,670 --> 05:39:34,240

lobby mark on the hd camera and that

3736

05:39:37,030 --> 05:39:35,680

second screw aren't

3737

05:39:39,430 --> 05:39:37,040

actually parallel to each other they

3738

05:39:41,350 --> 05:39:39,440

look in the mirror but maybe i'm not but

3739

05:39:43,750 --> 05:39:41,360

uh first i can tell

3740

05:39:45,350 --> 05:39:43,760

in the mirror they are aligned

3741

05:39:49,830 --> 05:39:45,360

and i didn't see the camera pop that

3742

05:39:53,670 --> 05:39:51,990

down on it's not moving

3743

05:39:55,430 --> 05:39:53,680

we're discussing

3744

05:39:57,990 --> 05:39:55,440

what i had the cam lever but i had the

3745

05:40:02,868 --> 05:39:58,000

camera unlocked open i was able to slide

3746

05:40:02,878 --> 05:40:17,590

two confirming things that it is in

3747

05:40:21,430 --> 05:40:19,190

roger thanks for the words in the

3748

05:40:23,910 --> 05:40:21,440

description uh can you confirm that that

3749

05:40:28,548 --> 05:40:23,920

cam lever receded back to the lock

3750

05:40:31,990 --> 05:40:30,070

okay thanks for the troubleshooting

3751

05:40:38,628 --> 05:40:32,000

we're calling this a good install

3752

05:40:42,310 --> 05:40:40,310

and i think we're taking

3753

05:40:43,830 --> 05:40:42,320

this part

3754

05:40:46,310 --> 05:40:43,840

yes next is remove the scoop in the

3755

05:40:48,390 --> 05:40:46,320

window cover sew it in the oru bag can

3756

05:41:00,150 --> 05:40:48,400

also sew the old camera in the oru bag

3757

05:41:04,628 --> 05:41:01,910

and our ground team here just confirmed

3758

05:41:06,390 --> 05:41:04,638

with nasa astronaut raja charley chary

3759

05:41:29,990 --> 05:41:06,400

that he had a good installation of the

3760

05:42:26,948 --> 05:41:31,430

let's keep the window cover off going

3761

05:42:32,708 --> 05:42:28,628

you're getting a view now of both

3762

05:42:35,830 --> 05:42:34,150

and since we've been in darkness for a

3763

05:42:39,430 --> 05:42:35,840

bit can you let us know how your hands

3764

05:42:39,440 --> 05:42:41,830

good

3765

05:42:46,788 --> 05:42:44,390

if that was the question

3766

05:42:49,030 --> 05:42:46,798

yes yes that was a question

3767

05:42:51,750 --> 05:42:49,040

thank you that's nice to hear and we're

3768

05:42:51,760 --> 05:43:31,030

we're about three minutes to a day pass

3769

05:43:34,310 --> 05:43:32,390

charlie's now putting the old

3770

05:43:35,590 --> 05:43:34,320

disconnected camera back into the bag

3771

05:43:41,270 --> 05:43:35,600

this is going to go back into the

3772

05:43:45,510 --> 05:43:42,830

the reps are

3773

05:43:47,190 --> 05:43:45,520

readjusted with the old window cover

3774

05:43:50,070 --> 05:43:47,200

let's see when the cover in the bag and

3775

05:44:35,430 --> 05:43:50,080

the old one's going into the bag now

3776

05:44:39,990 --> 05:44:38,070

okay one's in the bag it's

3777

05:44:41,030 --> 05:44:40,000

zipped up

3778

05:44:43,430 --> 05:44:41,040

and

3779

05:44:45,190 --> 05:44:43,440

i think we're ready to do ngos on the

3780

05:44:47,670 --> 05:44:45,200

new one

3781

05:44:51,110 --> 05:44:47,680

that's a firm mate ptu cable to the web

3782

05:45:31,190 --> 05:44:52,548

ptu first

3783

05:45:39,910 --> 05:45:33,910

we'll take good inspections and

3784

05:45:45,190 --> 05:45:43,350

the ptu cable is

3785

05:45:46,868 --> 05:45:45,200

j1 then the light number the taller

3786

05:45:54,708 --> 05:45:46,878

going to j2

3787

05:45:58,708 --> 05:45:56,548

so after chary successfully clicked the

3788

05:46:01,990 --> 05:45:58,718

new camera into place now he's going to

3789

05:46:04,070 --> 05:46:02,000

be working on bringing it online his

3790

05:46:07,030 --> 05:46:04,080

tasks for right now are routing the

3791

05:46:08,788 --> 05:46:07,040

wireless access port cable and then once

3792

05:46:10,310 --> 05:46:08,798

all of the cables are attached he's

3793

05:46:12,310 --> 05:46:10,320

going to be working to make sure that

3794

05:46:14,628 --> 05:46:12,320

those cables are nice and tucked out of

3795

05:46:17,350 --> 05:46:14,638

the way so that the camera has room to

3796

05:46:20,390 --> 05:46:17,360

pitch and yaw and look at whatever we're

3797

05:46:22,788 --> 05:46:20,400

asking it to without being caught up by

3798

05:46:29,270 --> 05:46:22,798

some wires short wire tie and the weft

3799

05:46:29,280 --> 05:46:35,910

putting those ga clamps first and then

3800

05:46:40,788 --> 05:46:38,390

here it has the wire tie and then the

3801
05:46:44,310 --> 05:46:40,798
routing to the ta clamp but whatever uh

3802
05:46:45,670 --> 05:46:44,320
works whatever you think will work best

3803
05:46:47,590 --> 05:46:45,680
i think let's trying to we're trying to

3804
05:46:49,030 --> 05:46:47,600
get a video conference with less stuff

3805
05:47:00,390 --> 05:46:49,040
around you

3806
05:47:00,400 --> 05:47:39,750
huh

3807
05:47:42,548 --> 05:47:41,110
for some background on what you're

3808
05:47:44,788 --> 05:47:42,558
seeing here

3809
05:47:47,590 --> 05:47:44,798
spacewalkers have installed multiple

3810
05:47:49,990 --> 05:47:47,600
wireless access port capable hd cameras

3811
05:47:52,230 --> 05:47:50,000
in various locations around the outside

3812
05:47:53,670 --> 05:47:52,240
of the international space station the

3813
05:47:58,230 --> 05:47:53,680

last two

3814

05:48:00,070 --> 05:47:58,240
occur being installed in early 2001

3815

05:48:02,788 --> 05:48:00,080
but this is going to be the first time

3816

05:48:05,110 --> 05:48:02,798
that a camera has been completely

3817

05:48:08,470 --> 05:48:05,120
taken off and replaced with a new unit

3818

05:48:11,190 --> 05:48:08,480
rather than just installing the new unit

3819

05:48:24,150 --> 05:48:11,200
at an area where they're able to connect

3820

05:48:28,788 --> 05:48:26,470
wired to the ptu and light jumper cable

3821

05:48:32,708 --> 05:48:28,798
the ptu and light jumper cable are

3822

05:48:35,190 --> 05:48:33,630
copy

3823

05:48:36,548 --> 05:48:35,200
[Music]

3824

05:48:38,390 --> 05:48:36,558
cable

3825

05:48:40,948 --> 05:48:38,400
that's correct you can work with kayla

3826

05:48:45,590 --> 05:48:42,868

okay and that is they go i think we go

3827

05:48:47,670 --> 05:48:45,600

to correct model gca

3828

05:48:58,390 --> 05:48:47,680

out of where i'm at

3829

05:49:02,230 --> 05:48:59,990

we're going to start motion the body out

3830

05:49:06,150 --> 05:49:02,240

one meter and we'll incorporate body up

3831

05:49:06,160 --> 05:49:20,708

starting merchandise

3832

05:49:25,990 --> 05:49:23,190

camera installation can be a tricky job

3833

05:49:27,750 --> 05:49:26,000

for the space walkers due to just the

3834

05:49:29,990 --> 05:49:27,760

nature of the stanchions that they're

3835

05:49:33,510 --> 05:49:30,000

mounted to with the addition of the

3836

05:49:36,070 --> 05:49:33,520

wireless access port capability

3837

05:49:38,868 --> 05:49:36,080

the crew also has to keep in mind the

3838

05:49:40,948 --> 05:49:38,878

intricate installation of clamps and

3839

05:49:42,548 --> 05:49:40,958

straps to make sure that the hard line

3840

05:49:44,548 --> 05:49:42,558

ethernet connection to the back of the

3841

05:49:47,110 --> 05:49:44,558

camera doesn't get tangled when the

3842

05:49:48,548 --> 05:49:47,120

camera pans or tilts

3843

05:50:31,750 --> 05:49:48,558

for whatever operation it may be

3844

05:50:31,760 --> 05:51:04,788

motion setting up for the joke house

3845

05:51:08,470 --> 05:51:06,628

i'm turning over to twitter now to take

3846

05:51:10,948 --> 05:51:08,480

one of the ask nasa questions that we've

3847

05:51:17,270 --> 05:51:10,958

received from elaine who's asking when

3848

05:51:20,708 --> 05:51:18,948

to answer her question the new camera

3849

05:51:22,548 --> 05:51:20,718

will be operational as soon as we route

3850

05:51:24,548 --> 05:51:22,558

the ethernet cable on the back end of

3851
05:51:27,110 --> 05:51:24,558
the hd camera and made it to the

3852
05:51:28,868 --> 05:51:27,120
ethernet cable that matthias maurer had

3853
05:51:31,270 --> 05:51:28,878
routed as his first task of the

3854
05:51:32,708 --> 05:51:31,280
spacewalk

3855
05:51:38,070 --> 05:51:32,718
roger we're starting a one minute joe

3856
05:51:38,080 --> 05:51:45,670
starting motion

3857
05:51:45,680 --> 05:53:02,150
hey good marshall

3858
05:53:05,430 --> 05:53:03,670
the second of the two joe passes will be

3859
05:53:07,830 --> 05:53:05,440
two minutes again to your right and

3860
05:53:09,110 --> 05:53:07,840
you'll be facing the camera good

3861
05:53:25,990 --> 05:53:09,120
fortunate

3862
05:53:26,000 --> 05:55:09,030
motion

3863
05:55:11,510 --> 05:55:10,230

stephanie anything before we set up the

3864

05:55:12,230 --> 05:55:11,520

gta

3865

05:55:13,990 --> 05:55:12,240

no

3866

05:55:15,030 --> 05:55:14,000

they're saying rightful words when you

3867

05:55:17,430 --> 05:55:15,040

need help

3868

05:55:18,788 --> 05:55:17,440

can i be all right question okay but

3869

05:55:20,390 --> 05:55:18,798

from your

3870

05:55:21,990 --> 05:55:20,400

anytime i'm ready for the gta to the

3871

05:55:23,190 --> 05:55:22,000

published cable restraint access

3872

05:55:27,190 --> 05:55:23,200

position

3873

05:55:27,200 --> 05:55:37,670

and roger we copy

3874

05:55:41,110 --> 05:55:39,350

as standby as the sun's out of my eyes

3875

05:55:42,390 --> 05:55:41,120

here uh houston i feel like to tell you

3876

05:55:44,788 --> 05:55:42,400

definitively about that alignment

3877

05:55:55,750 --> 05:55:44,798

because i'm looking right at it

3878

05:56:01,430 --> 05:55:58,628

you can probably see it actually in the

3879

05:56:06,548 --> 05:56:04,070

it is the top of the black line is most

3880

05:56:08,390 --> 05:56:06,558

definitely flush with the

3881

05:56:12,390 --> 05:56:08,400

bottom of the

3882

05:56:18,150 --> 05:56:13,910

roger we're ready for your gca to

3883

05:56:20,948 --> 05:56:18,160

publish half a meter admit

3884

05:56:24,150 --> 05:56:20,958

[Music]

3885

05:56:29,190 --> 05:56:26,070

djca starting motion i've got the

3886

05:56:31,830 --> 05:56:29,200

clearance what's good about helmet um

3887

05:56:33,750 --> 05:56:31,840

raj acharya now doing a quick evaluation

3888

05:56:36,150 --> 05:56:33,760

of the cables that he's been plugging in

3889

05:56:37,910 --> 05:56:36,160

to get this camera online confirming

3890

05:56:39,830 --> 05:56:37,920

with the ground that he installed it

3891

05:56:42,628 --> 05:56:39,840

properly and they confirmed to all looks

3892

05:56:42,638 --> 05:56:54,628

40 centimeters to go

3893

05:56:54,638 --> 05:57:11,110

20 to go

3894

05:57:14,150 --> 05:57:12,868

let us know if you need additional gta i

3895

05:57:17,030 --> 05:57:14,160

think this is going to work just right

3896

05:57:19,510 --> 05:57:17,040

let's call gta complete hey gta complete

3897

05:57:21,750 --> 05:57:19,520

or go to work

3898

05:57:38,868 --> 05:57:21,760

roger wrote the web cable through the

3899

05:57:43,510 --> 05:57:40,628

raja chary now working to route the

3900

05:57:45,590 --> 05:57:43,520

wireless access port cable basically

3901
05:57:47,910 --> 05:57:45,600
doing some cable management here so that

3902
05:58:47,030 --> 05:57:47,920
the wires are nice and tucked out of the

3903
05:58:47,040 --> 05:59:00,628
cable restraint

3904
05:59:06,070 --> 05:59:02,708
we've now reached the five hour mark of

3905
05:59:08,070 --> 05:59:06,080
our space walk with astronaut raj achari

3906
05:59:10,548 --> 05:59:08,080
on screen now you're looking from his

3907
05:59:12,230 --> 05:59:10,558
point of view as he works to install a

3908
05:59:13,750 --> 05:59:12,240
new high definition camera to the

3909
05:59:14,868 --> 05:59:13,760
outside of the international space

3910
05:59:16,628 --> 05:59:14,878
station

3911
05:59:17,750 --> 05:59:16,638
between the units

3912
05:59:26,390 --> 05:59:17,760
copy

3913
05:59:29,590 --> 05:59:27,910

you were just looking at the camera from

3914

05:59:31,350 --> 05:59:29,600

his point of view now we're getting a

3915

05:59:33,590 --> 05:59:31,360

wider view of

3916

05:59:36,070 --> 05:59:33,600

raj atari with the red stripes on his

3917

05:59:38,310 --> 05:59:36,080

spacesuit at the end of the robotic arm

3918

05:59:40,548 --> 05:59:38,320

doing some work matthias maurer is in

3919

05:59:44,390 --> 05:59:40,558

the space suit without any marks on it

3920

05:59:48,070 --> 05:59:45,750

does it matter

3921

05:59:50,708 --> 05:59:48,080

you see my heck of you does the flat

3922

05:59:56,390 --> 05:59:50,718

cable does it matter if it goes

3923

05:59:56,400 --> 06:00:09,110

checking

3924

06:00:17,350 --> 06:00:11,510

i don't think it would make a difference

3925

06:00:22,090 --> 06:00:18,868

in the is i'll have you grab on to this

3926

06:00:59,190 --> 06:00:22,100

end if you can do it

3927

06:01:02,470 --> 06:01:00,788

pretty sure it's fine the way it is

3928

06:01:05,670 --> 06:01:02,480

it's the fact that it's wire ties the

3929

06:01:07,510 --> 06:01:05,680

outside of that ca club probably

3930

06:01:12,948 --> 06:01:07,520

that would be like that but

3931

06:01:17,750 --> 06:01:14,948

and roger we copy we were

3932

06:01:20,868 --> 06:01:17,760

looking at the imagery and the loop

3933

06:01:24,310 --> 06:01:20,878

it should be more aligned with the light

3934

06:01:26,548 --> 06:01:24,320

cable and so you can open the

3935

06:01:29,590 --> 06:01:26,558

lock lever on the restraint and in a

3936

06:01:31,830 --> 06:01:29,600

sense uh flip the cable over so that the

3937

06:01:34,070 --> 06:01:31,840

the marshmallows reverse but and then

3938

06:01:35,910 --> 06:01:34,080

reinstall it into the clamp and then the

3939

06:01:45,430 --> 06:01:35,920

loop will be from you in your view at

3940

06:01:48,390 --> 06:01:47,110

working at the ground now the exact

3941

06:01:52,868 --> 06:01:48,400

route that he should be taking the

3942

06:01:56,310 --> 06:01:54,628

there's very specific instructions from

3943

06:01:58,948 --> 06:01:56,320

the ground on exactly how they want this

3944

06:02:00,628 --> 06:01:58,958

fire to be placed to be out of the way

3945

06:02:27,350 --> 06:02:00,638

so that the camera has the ability to

3946

06:03:04,470 --> 06:02:30,708

yeah yeah don't take it yet okay okay

3947

06:03:08,150 --> 06:03:06,070

with both cables in there it's hard to

3948

06:03:09,830 --> 06:03:08,160

get that

3949

06:03:11,910 --> 06:03:09,840

clamp depressed enough to pull the

3950

06:03:12,550 --> 06:03:11,920

locking number out to try to find a

3951
06:03:17,270 --> 06:03:12,560
position

3952
06:03:22,310 --> 06:03:19,590
and we copy we we see that as well right

3953
06:03:23,990 --> 06:03:22,320
the cables are filling up the

3954
06:03:26,470 --> 06:03:24,000
putting some price some back pressure on

3955
06:03:28,070 --> 06:03:26,480
that lever um

3956
06:03:30,470 --> 06:03:28,080
our only words are to continue doing

3957
06:03:32,548 --> 06:03:30,480
what you're doing

3958
06:03:46,628 --> 06:03:32,558
push in and rotate the lock lever

3959
06:03:46,638 --> 06:04:21,910
there we go

3960
06:04:25,350 --> 06:04:23,430
you're getting a live look at mission

3961
06:04:27,110 --> 06:04:25,360
control in houston now the international

3962
06:04:29,590 --> 06:04:27,120
space station's flight control room

3963
06:04:31,750 --> 06:04:29,600

during a brief handover period to recap

3964

06:04:33,910 --> 06:04:31,760

what raj atari has done

3965

06:04:36,628 --> 06:04:33,920

on the second task that he's working on

3966

06:04:37,990 --> 06:04:36,638

he's replacing an hd camera on the

3967

06:04:40,868 --> 06:04:38,000

outside of the international space

3968

06:04:42,948 --> 06:04:40,878

station he was able to unhook

3969

06:04:45,830 --> 06:04:42,958

the old camera and remove it from its

3970

06:04:48,150 --> 06:04:45,840

stanchion without any problems

3971

06:04:49,430 --> 06:04:48,160

the old camera is now stowed on his

3972

06:04:52,070 --> 06:04:49,440

person

3973

06:04:54,230 --> 06:04:52,080

he has successfully put the new camera

3974

06:04:56,230 --> 06:04:54,240

on to the stanchion and is working to

3975

06:04:59,110 --> 06:04:56,240

get it routed properly with the right

3976

06:05:04,230 --> 06:04:59,120

cables and in the right positions

3977

06:05:09,270 --> 06:05:06,628

copyright we're going to be moving your

3978

06:05:15,750 --> 06:05:09,280

body out 55 centimeters standby

3979

06:05:17,910 --> 06:05:16,548

uh

3980

06:05:19,190 --> 06:05:17,920

i just want to get your confirmation

3981

06:05:20,310 --> 06:05:19,200

that this looks like a good install for

3982

06:05:23,750 --> 06:05:20,320

this camera since i'm not going to see

3983

06:05:27,910 --> 06:05:26,150

houston once we come back the ground

3984

06:05:29,750 --> 06:05:27,920

crew is going to take a look at raj

3985

06:05:31,270 --> 06:05:29,760

achari's work make sure that all the

3986

06:05:33,750 --> 06:05:31,280

cables are exactly where they would like

3987

06:05:38,230 --> 06:05:36,150

and we've confirmed good installation

3988

06:05:40,548 --> 06:05:38,240

his next task is going to be looking for

3989

06:05:43,030 --> 06:05:40,558

the ethernet cable that matthias mower

3990

06:05:45,510 --> 06:05:43,040

had routed as one of his first tasks of

3991

06:05:47,430 --> 06:05:45,520

the spacewalk

3992

06:05:50,390 --> 06:05:47,440

like i said the very top part of the

3993

06:05:52,548 --> 06:05:50,400

black spine is touching the back

3994

06:05:54,788 --> 06:05:52,558

yeah sb camera live

3995

06:05:56,230 --> 06:05:54,798

for that

3996

06:05:57,350 --> 06:05:56,240

yeah register if it's just extended on

3997

06:05:58,310 --> 06:05:57,360

the black but it's tough touching

3998

06:05:59,910 --> 06:05:58,320

glasses

3999

06:06:01,510 --> 06:05:59,920

completely to the bottom of the black if

4000

06:06:03,270 --> 06:06:01,520

that makes sense

4001
06:06:10,548 --> 06:06:03,280
and we understand with all the checks

4002
06:06:10,558 --> 06:06:21,510
as we're setting up for one of three joe

4003
06:06:24,628 --> 06:06:23,030
thanks casas for catching me putting

4004
06:06:28,310 --> 06:06:24,638
that cable uh running the opposite

4005
06:06:33,350 --> 06:06:30,788
yep your intuition was correct it didn't

4006
06:06:42,230 --> 06:06:33,360
uh quite match um what we had seen

4007
06:06:45,830 --> 06:06:43,830
stephanie is there anything that i could

4008
06:06:46,708 --> 06:06:45,840
do on my empty over the cable the cable

4009
06:06:50,868 --> 06:06:46,718
cab

4010
06:06:56,868 --> 06:06:50,878
what but you want me to stand by until

4011
06:06:56,878 --> 06:07:38,070
checking mathias

4012
06:07:42,070 --> 06:07:40,470
motion body left and you'll be turning

4013
06:07:43,350 --> 06:07:42,080

to base port

4014

06:07:50,070 --> 06:07:43,360

good

4015

06:07:54,868 --> 06:07:52,788

and rajatari is about to be in motion on

4016

06:07:56,708 --> 06:07:54,878

the robotic arm slightly moving to a

4017

06:10:09,110 --> 06:07:56,718

different position so that he can work

4018

06:10:14,230 --> 06:10:11,270

raj atari now approaching the back of

4019

06:10:17,030 --> 06:10:14,240

the camera on the end of the robotic arm

4020

06:10:19,270 --> 06:10:17,040

this task will bring the camera online

4021

06:10:21,750 --> 06:10:19,280

the new camera is operational as soon as

4022

06:10:24,070 --> 06:10:21,760

the ethernet cable on the back

4023

06:10:25,830 --> 06:10:24,080

is mated with

4024

06:10:28,070 --> 06:10:25,840

that of the ethernet cable that matthias

4025

06:10:29,910 --> 06:10:28,080

mower had routed earlier

4026
06:10:32,788 --> 06:10:29,920
we're starting motion for the second of

4027
06:10:34,230 --> 06:10:32,798
three zero passes one and a half minutes

4028
06:10:36,548 --> 06:10:34,240
station forward and you'll be facing the

4029
06:10:38,390 --> 06:10:36,558
camera

4030
06:10:40,868 --> 06:10:38,400
chari's been largely responsible for the

4031
06:10:42,868 --> 06:10:40,878
installation of this camera mathias mara

4032
06:10:45,670 --> 06:10:42,878
having gone into the airlock to get the

4033
06:10:48,070 --> 06:10:45,680
new camera for chary

4034
06:10:50,390 --> 06:10:48,080
this is at this step we should expect to

4035
06:10:52,150 --> 06:10:50,400
see matthias mar help out once again

4036
06:10:53,270 --> 06:10:52,160
connecting the ethernet cable that he

4037
06:10:55,830 --> 06:10:53,280
had routed

4038
06:10:57,830 --> 06:10:55,840

and right on cue you see matthias mower

4039

06:11:06,390 --> 06:10:57,840

at the top of your screen ready in

4040

06:11:10,788 --> 06:11:08,628

matthias thanks for offering up to work

4041

06:11:13,430 --> 06:11:10,798

with the ethernet cable if you feel you

4042

06:11:15,270 --> 06:11:13,440

can do that and

4043

06:11:17,830 --> 06:11:15,280

keep it

4044

06:11:19,830 --> 06:11:17,840

smooth and not twisted

4045

06:11:23,750 --> 06:11:19,840

we're ready for you to mate

4046

06:11:28,470 --> 06:11:23,760

the uh wap cable j1 to the uh ethernet

4047

06:12:46,470 --> 06:11:30,150

will work with this one let's receive

4048

06:12:51,590 --> 06:12:48,948

roger we're about to start the

4049

06:12:53,510 --> 06:12:51,600

two and a half minutes geocache

4050

06:12:54,868 --> 06:12:53,520

body into the camera you'll be about 75

4051
06:13:03,270 --> 06:12:54,878
centimeters away from the camera at the

4052
06:13:03,280 --> 06:13:07,110
no with your eye band

4053
06:13:14,390 --> 06:13:09,190
copy

4054
06:13:14,400 --> 06:13:31,750
okay

4055
06:13:35,190 --> 06:13:33,270
you're getting a view now as our

4056
06:13:37,350 --> 06:13:35,200
spacewalking astronauts install the

4057
06:13:39,990 --> 06:13:37,360
wireless access port cable

4058
06:13:45,910 --> 06:13:40,000
hardware to the ethernet cable that

4059
06:14:00,070 --> 06:13:47,110
if you can stay there for now so you can

4060
06:14:04,708 --> 06:14:02,548
and my face each other is right one and

4061
06:14:07,270 --> 06:14:04,718
a half meters above your head

4062
06:14:09,270 --> 06:14:07,280
just above my head

4063
06:14:43,910 --> 06:14:09,280

it's below your head but it's going up

4064

06:14:47,910 --> 06:14:45,350

through the helmet camera we're able to

4065

06:14:50,310 --> 06:14:47,920

get brief glimpses of our earth as the

4066

06:14:56,548 --> 06:14:50,320

space station crosses over the country

4067

06:15:01,350 --> 06:14:59,110

you will be opposite me

4068

06:15:03,350 --> 06:15:01,360

if you can still have time because i

4069

06:15:04,628 --> 06:15:03,360

gotta put the clamp in and then wrap the

4070

06:15:34,948 --> 06:15:04,638

last strategy

4071

06:15:42,470 --> 06:15:36,948

matias when convenient we'd like a glove

4072

06:15:46,230 --> 06:15:44,150

i have to dry

4073

06:15:48,070 --> 06:15:46,240

the glass

4074

06:15:51,750 --> 06:15:48,080

in a very good shape i have

4075

06:15:52,470 --> 06:15:51,760

location with more smudges but

4076

06:15:57,670 --> 06:15:52,480

it

4077

06:15:57,680 --> 06:16:02,948

copy all for half and gloves for ev2

4078

06:16:06,070 --> 06:16:04,548

roger we're ready for your gca to

4079

06:16:07,510 --> 06:16:06,080

publish we'll be buying in 75

4080

06:16:11,590 --> 06:16:07,520

centimeters we'll be looking for your

4081

06:16:13,110 --> 06:16:11,600

body clearance to the camera and uh

4082

06:16:17,590 --> 06:16:13,120

if anything you talk about are you ready

4083

06:16:21,110 --> 06:16:19,670

you're here you cannot be cool okay all

4084

06:16:22,868 --> 06:16:21,120

right i've got the bodyguards the

4085

06:16:27,830 --> 06:16:22,878

cameras let's start gta

4086

06:16:32,150 --> 06:16:30,150

rajachary on the move once again aboard

4087

06:16:34,070 --> 06:16:32,160

the station's robotic arm this time

4088

06:16:51,270 --> 06:16:34,080

getting in position to install a cable

4089

06:17:07,430 --> 06:16:52,390

continue

4090

06:17:07,440 --> 06:17:23,990

37 years ago copy looking clear

4091

06:17:24,000 --> 06:17:52,150

there you go

4092

06:17:56,150 --> 06:17:54,390

remind me of the cable clamp i know the

4093

06:17:57,350 --> 06:17:56,160

dog leg is going towards the ts which it

4094

06:17:59,750 --> 06:17:57,360

is

4095

06:18:01,350 --> 06:17:59,760

i don't see obviously here maybe about

4096

06:18:02,390 --> 06:18:01,360

the position

4097

06:18:04,390 --> 06:18:02,400

the uh

4098

06:18:06,390 --> 06:18:04,400

that flat part all right i've seen in

4099

06:18:08,788 --> 06:18:06,400

the video

4100

06:18:10,628 --> 06:18:08,798

is that the uh

4101
06:18:13,030 --> 06:18:10,638
which goes on the side closest to the

4102
06:18:25,750 --> 06:18:13,040
teeth turns it up down or the side close

4103
06:18:25,760 --> 06:18:40,150
uh checking

4104
06:18:45,750 --> 06:18:42,070
motion is now complete of the robotic

4105
06:18:48,390 --> 06:18:45,760
arm as raj atari is in place for cable

4106
06:18:50,948 --> 06:18:48,400
clamp installation uh just a minute ago

4107
06:18:53,110 --> 06:18:50,958
he gave a visual look around of the

4108
06:18:56,150 --> 06:18:53,120
camera to give the crew on the ground a

4109
06:19:31,910 --> 06:18:56,160
good visual of what he's working with

4110
06:19:36,468 --> 06:19:34,468
you're now watching nasa astronaut raj

4111
06:19:38,390 --> 06:19:36,478
atari there in the space suit with the

4112
06:19:40,468 --> 06:19:38,400
red stripe on it

4113
06:19:44,150 --> 06:19:40,478

upside down in our view we're looking

4114

06:19:45,830 --> 06:19:44,160

from the point of view of matthias mar

4115

06:19:48,390 --> 06:19:45,840

bar is coming in with the assist and is

4116

06:19:50,788 --> 06:19:48,400

ready to help out raj achari any time he

4117

06:19:51,750 --> 06:19:50,798

needs it

4118

06:19:52,788 --> 06:19:51,760

okay

4119

06:19:54,868 --> 06:19:52,798

i got it

4120

06:19:56,468 --> 06:19:54,878

okay i found that the sun was

4121

06:19:57,670 --> 06:19:56,478

shading it looked flush but it's

4122

06:20:01,990 --> 06:19:57,680

actually that's the notch let's just

4123

06:20:06,468 --> 06:20:04,230

i'm pretty sure i found at least okay

4124

06:20:08,468 --> 06:20:06,478

and locking that is in let me give you a

4125

06:20:09,590 --> 06:20:08,478

quick view of it make sure

4126
06:20:10,310 --> 06:20:09,600
you agree that's the right spot but

4127
06:20:19,510 --> 06:20:10,320
that's

4128
06:20:22,150 --> 06:20:19,520
spot um

4129
06:20:24,390 --> 06:20:22,160
i believe you said the locking tab is in

4130
06:20:26,548 --> 06:20:24,400
and can you verify the alignment guide

4131
06:20:29,590 --> 06:20:26,558
is flush with the ptu and give it a pull

4132
06:20:33,670 --> 06:20:31,750
brush

4133
06:20:35,270 --> 06:20:33,680
good pull then

4134
06:20:37,270 --> 06:20:35,280
copy you can retrieve the adjustable

4135
06:20:57,510 --> 06:20:37,280
from the clamp and stow that on the bag

4136
06:21:02,070 --> 06:20:59,110
adjustables off the clip

4137
06:21:04,548 --> 06:21:02,080
verify no twists or loops in the web

4138
06:21:09,030 --> 06:21:04,558

cable and then you'll work with kayla

4139

06:21:12,708 --> 06:21:10,948

it looks like a straight running along

4140

06:21:16,830 --> 06:21:12,718

the dog leg as i see it right off of the

4141

06:21:20,390 --> 06:21:18,708

and

4142

06:21:23,190 --> 06:21:20,400

do you say anything you need to info on

4143

06:21:26,150 --> 06:21:23,200

before i take my calm again no i'm good

4144

06:21:30,310 --> 06:21:28,150

all right uh tom i'm ready to get the gc

4145

06:21:32,310 --> 06:21:30,320

to publish trap in the fall position

4146

06:21:33,750 --> 06:21:32,320

hey copy that uh we'll be asking you to

4147

06:21:36,070 --> 06:21:33,760

especially look at your body and your

4148

06:21:38,628 --> 06:21:36,080

head will be end up half a meter from

4149

06:21:41,030 --> 06:21:38,638

the truss okay going to body up 40

4150

06:21:58,868 --> 06:21:41,040

centimeters

4151
06:21:58,878 --> 06:22:04,468
ready to go

4152
06:22:14,150 --> 06:22:06,548
let's rip it out here

4153
06:22:14,160 --> 06:22:17,350
just evaluating here

4154
06:22:20,788 --> 06:22:19,190
but

4155
06:22:22,310 --> 06:22:20,798
yeah i think this is going to work

4156
06:22:24,788 --> 06:22:22,320
actually where we're at without going

4157
06:22:29,030 --> 06:22:24,798
without getting the rest of it

4158
06:22:31,270 --> 06:22:29,040
uh check 70 or am i way off

4159
06:22:32,868 --> 06:22:31,280
all right let's lift it up what was what

4160
06:22:33,910 --> 06:22:32,878
was last just more body up or was there

4161
06:22:35,110 --> 06:22:33,920
any other

4162
06:22:37,110 --> 06:22:35,120
versions there

4163
06:22:39,430 --> 06:22:37,120

centimeters body up still left okay

4164

06:22:49,990 --> 06:22:39,440

let's just uh mgca here

4165

06:22:54,230 --> 06:22:51,990

roger if you feel you can

4166

06:22:55,830 --> 06:22:54,240

access the tether point on the front to

4167

06:22:57,350 --> 06:22:55,840

install the

4168

06:22:59,110 --> 06:22:57,360

front part of the wax strap with the

4169

06:23:02,390 --> 06:22:59,120

cord with the quarter turn fastener then

4170

06:23:05,110 --> 06:23:03,430

yeah that's what i was looking at i

4171

06:23:07,910 --> 06:23:05,120

think if i feel that would have gone too

4172

06:23:11,830 --> 06:23:09,910

so place the quarter turn fastener side

4173

06:23:32,788 --> 06:23:11,840

on the electronics box tether point with

4174

06:23:32,798 --> 06:23:40,070

mating velcro should be facing outward

4175

06:23:43,590 --> 06:23:41,510

and the quarter turn faster i should be

4176
06:23:47,190 --> 06:23:43,600
facing me or closer to me or away from

4177
06:23:47,200 --> 06:24:04,830
away from you

4178
06:24:18,548 --> 06:24:08,548
first take over just for a second

4179
06:24:24,948 --> 06:24:22,868
and roger one change before you continue

4180
06:24:26,070 --> 06:24:24,958
the uh

4181
06:24:30,868 --> 06:24:26,080
velcro

4182
06:24:35,590 --> 06:24:33,270
trying now working with the ground on

4183
06:24:38,390 --> 06:24:35,600
how to manage the cables between the

4184
06:24:40,548 --> 06:24:38,400
camera the stanchion and a strap that

4185
06:24:43,190 --> 06:24:40,558
he's installing with wire ties and

4186
06:24:44,628 --> 06:24:43,200
velcro basically keeping the cables out

4187
06:24:46,548 --> 06:24:44,638
of the way

4188
06:24:53,430 --> 06:24:46,558

so that the camera has free range of

4189

06:24:53,440 --> 06:25:09,670

twisted

4190

06:25:14,310 --> 06:25:12,070

so roger the cable

4191

06:25:16,468 --> 06:25:14,320

needs to route around the other side of

4192

06:25:18,310 --> 06:25:16,478

the camera that makes sense so it should

4193

06:25:20,948 --> 06:25:18,320

come from to towards your left hand and

4194

06:25:25,190 --> 06:25:20,958

then feed around so that's the confusion

4195

06:25:30,788 --> 06:25:28,230

mathias maurer now assisting rajatari as

4196

06:25:32,868 --> 06:25:30,798

he brings the wire around to the other

4197

06:25:34,230 --> 06:25:32,878

side of the camera and handing it back

4198

06:25:36,868 --> 06:25:34,240

to chary

4199

06:25:39,110 --> 06:25:36,878

maurer is assisting in this operation as

4200

06:25:40,788 --> 06:25:39,120

chari gets his wires configured exactly

4201
06:25:42,788 --> 06:25:40,798
where they need to go there's a very

4202
06:25:45,750 --> 06:25:42,798
specific path that these wires need to

4203
06:25:50,150 --> 06:25:45,760
take to stay out of the way

4204
06:25:50,160 --> 06:25:52,948
and that's a firm

4205
06:25:57,110 --> 06:25:55,350
okay now this was mixed up okay

4206
06:26:08,310 --> 06:25:57,120
sorry about that i wasn't expecting it

4207
06:26:17,590 --> 06:26:10,070
i know there's no upside down in space

4208
06:26:21,670 --> 06:26:20,310
okay quarter trap towards me now makes a

4209
06:26:23,430 --> 06:26:21,680
lot more sense

4210
06:26:25,830 --> 06:26:23,440
velcro is

4211
06:26:27,830 --> 06:26:25,840
out in nature and then this end is going

4212
06:26:29,350 --> 06:26:27,840
around

4213
06:26:30,310 --> 06:26:29,360

just a long wire side of the casing let

4214

06:26:32,150 --> 06:26:30,320

me

4215

06:26:54,548 --> 06:26:32,160

untwist it here first before i hand it

4216

06:27:03,110 --> 06:26:56,310

you see if there's twisted on your side

4217

06:27:03,120 --> 06:27:14,390

give it some stuff okay now you can put

4218

06:27:20,708 --> 06:27:16,708

that thin rust color thing you see

4219

06:27:22,150 --> 06:27:20,718

flying into view is a wire tie wire ties

4220

06:27:23,990 --> 06:27:22,160

are one of the many tools in a space

4221

06:27:37,350 --> 06:27:24,000

walker's arsenal and they're used to

4222

06:27:40,868 --> 06:27:38,868

all right there's no shorts on my side i

4223

06:27:43,190 --> 06:27:40,878

see the alligator

4224

06:27:44,390 --> 06:27:43,200

clippers on the outside the straps the

4225

06:27:46,070 --> 06:27:44,400

black cable is outside of the trap so

4226
06:27:47,670 --> 06:27:46,080
that looks good

4227
06:28:03,590 --> 06:27:47,680
can hollywood come from there got it for

4228
06:28:08,150 --> 06:28:06,070
chary is working with a checklist now a

4229
06:28:09,750 --> 06:28:08,160
couple of ways to verify that what he's

4230
06:28:12,150 --> 06:28:09,760
doing is correct

4231
06:28:13,830 --> 06:28:12,160
he'll be placing a fastener and making

4232
06:28:16,390 --> 06:28:13,840
sure that the velcro is facing the

4233
06:28:18,070 --> 06:28:16,400
stanchion he'll be using his wire ties

4234
06:28:19,910 --> 06:28:18,080
to route the strap around the section

4235
06:28:21,430 --> 06:28:19,920
that he's working on and to pull it

4236
06:28:24,230 --> 06:28:21,440
tight

4237
06:28:26,230 --> 06:28:24,240
he'll verify that the strap is flat and

4238
06:28:38,310 --> 06:28:26,240

verify that there's no slack on the

4239

06:28:44,948 --> 06:28:41,430

we're now 5 hours and 30 minutes

4240

06:28:48,468 --> 06:28:46,948

tighten your side

4241

06:28:49,750 --> 06:28:48,478

it should go around the circle part of

4242

06:28:52,708 --> 06:28:49,760

the bottom and then the square of the

4243

06:28:53,830 --> 06:28:52,718

top which looks like it is

4244

06:28:55,510 --> 06:28:53,840

okay

4245

06:28:58,948 --> 06:28:55,520

good work we'll put the wire card

4246

06:29:02,070 --> 06:29:00,150

it sounds like you checked that the

4247

06:29:06,468 --> 06:29:02,080

strap is flat and i heard a call about

4248

06:29:10,628 --> 06:29:08,468

the trick is on the exterior and the bot

4249

06:29:11,510 --> 06:29:10,638

cable is outside

4250

06:29:13,110 --> 06:29:11,520

the

4251

06:29:38,468 --> 06:29:13,120

flat

4252

06:29:38,478 --> 06:29:43,030

um

4253

06:29:46,948 --> 06:29:44,390

the wire ties to the other point and

4254

06:29:48,868 --> 06:29:46,958

then just pushed up the profile against

4255

06:29:52,150 --> 06:29:48,878

the

4256

06:29:53,830 --> 06:29:52,160

get that excess

4257

06:29:55,270 --> 06:29:53,840

wire stephanie are you guys happy with

4258

06:30:01,430 --> 06:29:55,280

albright

4259

06:30:06,390 --> 06:30:03,910

and roger that said that's good

4260

06:30:09,110 --> 06:30:06,400

we like the config of the strap and the

4261

06:30:13,030 --> 06:30:10,868

ready all right so then for the rest of

4262

06:30:14,868 --> 06:30:13,040

this cable

4263

06:30:18,230 --> 06:30:14,878

you need to put those three day clamps

4264

06:30:32,070 --> 06:30:19,670

take the slack out that you want now let

4265

06:30:44,230 --> 06:30:34,390

is good because we need that for the pan

4266

06:30:47,270 --> 06:30:45,750

in the ground just confirmed with our

4267

06:30:49,670 --> 06:30:47,280

spacewalkers that that's a good

4268

06:30:52,070 --> 06:30:49,680

installation of the wireless access port

4269

06:30:54,708 --> 06:30:52,080

capable hd camera on the outside of the

4270

06:30:56,868 --> 06:30:54,718

international space station

4271

06:31:03,430 --> 06:30:56,878

and roger we need you to verify the sd

4272

06:31:08,948 --> 06:31:06,868

camera the camera lens hood is a square

4273

06:31:19,990 --> 06:31:08,958

to the camera so that's all in line and

4274

06:31:26,070 --> 06:31:22,070

and we we can see this in the video and

4275

06:31:29,750 --> 06:31:27,910

right there's one warning and then uh

4276
06:31:31,510 --> 06:31:29,760
i'll give some more towards the matthias

4277
06:31:33,110 --> 06:31:31,520
and then you can work with a calend tom

4278
06:31:36,070 --> 06:31:33,120
for the next position

4279
06:31:38,390 --> 06:31:36,080
when powered maintain four inches to

4280
06:31:39,590 --> 06:31:38,400
keep out zone from the hd camera quartz

4281
06:31:42,628 --> 06:31:39,600
apertures

4282
06:31:44,390 --> 06:31:42,638
and that will apply for your maneuver

4283
06:31:45,830 --> 06:31:44,400
that you'll work with them for the strap

4284
06:31:47,270 --> 06:31:45,840
back off position

4285
06:31:49,030 --> 06:31:47,280
for matthias

4286
06:31:51,030 --> 06:31:49,040
with the work at the camera complete

4287
06:31:56,708 --> 06:31:51,040
we'd like you to proceed via the nader

4288
06:32:00,948 --> 06:31:58,628

okay

4289

06:32:06,150 --> 06:32:03,110

i need to remove it because russia has

4290

06:32:11,110 --> 06:32:06,160

moved out so i can actually pass it off

4291

06:32:11,120 --> 06:32:16,468

and i'm sorry if i didn't reply

4292

06:32:21,430 --> 06:32:17,830

if you're ready we'll start your manual

4293

06:32:22,548 --> 06:32:21,440

maneuver 80 centimeters body out

4294

06:32:24,150 --> 06:32:22,558

all right

4295

06:32:27,750 --> 06:32:24,160

let's go ahead and keep the body up you

4296

06:32:31,110 --> 06:32:29,590

direction i want to have meters body out

4297

06:32:34,868 --> 06:32:31,120

okay

4298

06:32:34,878 --> 06:32:39,030

matias i did not copy your last

4299

06:32:43,750 --> 06:32:41,270

i said like i will wait before i move

4300

06:32:45,910 --> 06:32:43,760

out so roger's out of the way

4301
06:32:47,590 --> 06:32:45,920
until he rises out of the way otherwise

4302
06:32:49,190 --> 06:32:47,600
he has a small conflict in my

4303
06:32:51,190 --> 06:32:49,200
translation part

4304
06:32:53,270 --> 06:32:51,200
and rajachari is in motion on the

4305
06:32:55,670 --> 06:32:53,280
robotic arm once again having completed

4306
06:32:59,830 --> 06:32:55,680
the installation of the camera however

4307
06:33:02,468 --> 06:32:59,840
he's not quite done at that work site

4308
06:33:04,310 --> 06:33:02,478
what's left is to conduct a ping test on

4309
06:33:05,830 --> 06:33:04,320
the camera just making sure that we're

4310
06:33:10,868 --> 06:33:05,840
able to communicate with it and that the

4311
06:33:15,350 --> 06:33:13,030
meanwhile with raj achari on the move

4312
06:33:29,910 --> 06:33:15,360
mathias mara will make his way to his

4313
06:33:34,310 --> 06:33:31,750

matia says you're translating via the

4314

06:33:37,190 --> 06:33:34,320

nader route and route to a panel

4315

06:33:38,948 --> 06:33:37,200

alpha 316 there's one caution aboard

4316

06:33:41,910 --> 06:33:38,958

inadvertent contact with grapple fixture

4317

06:33:46,390 --> 06:33:41,920

shafts to prevent bending target and

4318

06:33:57,110 --> 06:33:48,230

i copy this

4319

06:34:20,230 --> 06:33:59,110

and for matthias friendly reminder slow

4320

06:34:20,240 --> 06:35:48,580

the ping test is now underway

4321

06:35:48,590 --> 06:35:55,910

[Applause]

4322

06:36:13,430 --> 06:35:57,430

you're getting a view now of mithias

4323

06:36:13,440 --> 06:36:30,548

ugh

4324

06:36:38,468 --> 06:36:32,788

once mar reaches his destination he'll

4325

06:36:44,390 --> 06:36:41,110

what this does is set us up to

4326

06:36:46,390 --> 06:36:44,400

replace a mini pump module

4327

06:36:47,990 --> 06:36:46,400

next to the existing pump module in the

4328

06:36:52,548 --> 06:36:48,000

unlikely event of failure of our

4329

06:36:56,788 --> 06:36:54,390

for my tsn raja we're about eight

4330

06:36:58,868 --> 06:36:56,798

minutes to a night pass and also

4331

06:37:10,468 --> 06:36:58,878

matthias we're a couple minutes from

4332

06:37:10,478 --> 06:37:33,750

it should still be day

4333

06:37:37,990 --> 06:37:35,270

and we just got confirmation that the

4334

06:37:39,990 --> 06:37:38,000

ping test is good that was a successful

4335

06:37:49,190 --> 06:37:40,000

installation of the new camera and

4336

06:37:52,788 --> 06:37:51,350

this ping test verifies that mission

4337

06:37:54,708 --> 06:37:52,798

control here on the ground can

4338

06:37:57,110 --> 06:37:54,718

communicate with the camera and it has

4339

06:38:10,210 --> 06:37:57,120

the ability to send it commands to move

4340

06:38:10,220 --> 06:38:16,310

[Music]

4341

06:38:16,320 --> 06:38:26,860

again

4342

06:38:26,870 --> 06:38:33,190

[Music]

4343

06:38:37,990 --> 06:38:35,830

oh yeah okay let's see later you see yes

4344

06:38:40,788 --> 06:38:38,000

then uh

4345

06:38:42,868 --> 06:38:40,798

you've gone nader um

4346

06:38:46,548 --> 06:38:42,878

using an outboard ata handrails and then

4347

06:38:54,948 --> 06:38:46,558

when you see a starboard tool stanchion

4348

06:38:58,390 --> 06:38:56,230

and now that we've verified good

4349

06:38:59,990 --> 06:38:58,400

communications with the new camera

4350

06:39:02,708 --> 06:39:00,000

installed thanks to the teamwork of

4351

06:39:06,868 --> 06:39:02,718

rajachary and mathias mar

4352

06:39:09,830 --> 06:39:06,878

our ev1 rajatari is good to egress the

4353

06:39:12,310 --> 06:39:09,840

ssrms our robotic arm and start cleaning

4354

06:39:13,990 --> 06:39:12,320

up this involves taking off the portable

4355

06:39:16,150 --> 06:39:14,000

foot restraint and putting it back on

4356

06:39:17,270 --> 06:39:16,160

the seat of cart and doing some cleanup

4357

06:39:19,510 --> 06:39:17,280

tasks

4358

06:39:21,670 --> 06:39:19,520

while matthias mar reconfigures those

4359

06:39:23,190 --> 06:39:21,680

panels

4360

06:39:25,110 --> 06:39:23,200

to have you

4361

06:39:26,708 --> 06:39:25,120

move towards srrms cleanup but there

4362

06:39:31,750 --> 06:39:26,718

will be several armed motions to get you

4363

06:39:43,190 --> 06:39:33,590

so you bobby to go ahead and move to the

4364

06:39:47,030 --> 06:39:44,548

and roger we're going to back you off

4365

06:39:51,190 --> 06:39:47,040

and then do two joe cases

4366

06:39:53,990 --> 06:39:51,910

okay

4367

06:39:55,350 --> 06:39:54,000

well uh you are go to the 4k handles

4368

06:39:56,948 --> 06:39:55,360

back off position and copy your

4369

06:39:59,110 --> 06:39:56,958

successful big test

4370

06:40:01,670 --> 06:39:59,120

uh caleb specifically request one thing

4371

06:40:05,270 --> 06:40:01,680

only so that works out

4372

06:40:07,830 --> 06:40:05,280

we copy stand by four motions

4373

06:40:08,830 --> 06:40:07,840

and step anyone

4374

06:40:11,670 --> 06:40:08,840

looking at

4375

06:40:14,070 --> 06:40:11,680

j919 that i will connect

4376
06:40:15,990 --> 06:40:14,080
that can be it's attached to a third

4377
06:40:18,230 --> 06:40:16,000
space and i will just

4378
06:40:20,310 --> 06:40:18,240
relocate it to the location next to it

4379
06:40:22,390 --> 06:40:20,320
that's correct

4380
06:40:24,468 --> 06:40:22,400
at the starting nursery it'll be a 1.5

4381
06:40:26,948 --> 06:40:24,478
minute showcase two meters forward

4382
06:40:28,708 --> 06:40:26,958
starter

4383
06:40:57,830 --> 06:40:28,718
that's a firm and 20 seconds to a

4384
06:41:02,230 --> 06:40:59,990
and with a momentary loss of signal to

4385
06:41:04,948 --> 06:41:02,240
the crew we'll use this opportunity

4386
06:41:07,110 --> 06:41:04,958
approaching the 5 hour and nearly 45

4387
06:41:08,948 --> 06:41:07,120
minute mark of the spacewalk as our

4388
06:41:11,750 --> 06:41:08,958

spacewalkers are wrapping up their final

4389

06:41:13,830 --> 06:41:11,760

tasks and heading for a cleanup

4390

06:41:16,070 --> 06:41:13,840

the primary task for the spacewalk was

4391

06:41:18,830 --> 06:41:16,080

to replace two hoses on one of the space

4392

06:41:20,468 --> 06:41:18,840

station's radiator beam valve modules or

4393

06:41:23,350 --> 06:41:20,478

rvbms

4394

06:41:25,270 --> 06:41:23,360

an rvbm has two hoses or fluid jumpers

4395

06:41:27,590 --> 06:41:25,280

that run out to one of the station's six

4396

06:41:29,990 --> 06:41:27,600

radiators which is part of the cooling

4397

06:41:32,070 --> 06:41:30,000

system of the space station

4398

06:41:34,150 --> 06:41:32,080

more specifically and more technically

4399

06:41:36,070 --> 06:41:34,160

this component controls ammonia flow to

4400

06:41:38,468 --> 06:41:36,080

the station's external thermal control

4401
06:41:39,910 --> 06:41:38,478
system to the radiator beams to get rid

4402
06:41:41,910 --> 06:41:39,920
of heat that is collected from the

4403
06:41:44,390 --> 06:41:41,920
station's onboard equipment

4404
06:41:46,310 --> 06:41:44,400
each rbvm contains sensors that monitor

4405
06:41:47,510 --> 06:41:46,320
pressure temperature and the position of

4406
06:41:49,430 --> 06:41:47,520
the valve

4407
06:41:51,030 --> 06:41:49,440
in other words there's a box on the

4408
06:41:52,948 --> 06:41:51,040
space station that can be controlled by

4409
06:41:54,548 --> 06:41:52,958
flight controllers in mission control

4410
06:41:56,070 --> 06:41:54,558
and they're able to control the ammonia

4411
06:41:58,868 --> 06:41:56,080
flowing through the radiators to cool

4412
06:42:00,390 --> 06:41:58,878
down the orbiting lab

4413
06:42:02,708 --> 06:42:00,400

these hoses were found to have been

4414

06:42:06,070 --> 06:42:02,718

leaking several years ago removed during

4415

06:42:08,150 --> 06:42:06,080

a previous spacewalk in 2018 fixed back

4416

06:42:09,990 --> 06:42:08,160

on earth and flown to the space station

4417

06:42:11,910 --> 06:42:10,000

once again

4418

06:42:13,830 --> 06:42:11,920

when the hoses were removed that

4419

06:42:15,590 --> 06:42:13,840

particular radiator beam valve module

4420

06:42:17,270 --> 06:42:15,600

had to be shut down

4421

06:42:20,390 --> 06:42:17,280

fortunately the station has six

4422

06:42:21,910 --> 06:42:20,400

radiators with 12 total rvms so losing

4423

06:42:23,510 --> 06:42:21,920

functionality on one did not

4424

06:42:27,030 --> 06:42:23,520

significantly impact the station's

4425

06:42:31,030 --> 06:42:27,040

ability to get rid of excess heat

4426
06:42:36,948 --> 06:42:32,868
yes we'll take that and also a glove and

4427
06:42:41,190 --> 06:42:39,270
we're back now with a live view from esa

4428
06:42:45,030 --> 06:42:41,200
astronaut matthias maurer as he's

4429
06:42:48,948 --> 06:42:47,110
up facing cables starting mission hey

4430
06:42:50,708 --> 06:42:48,958
copy

4431
06:42:53,590 --> 06:42:50,718
all right i have a dry hat

4432
06:42:55,430 --> 06:42:53,600
uh no change on the right glove the wax

4433
06:42:56,708 --> 06:42:55,440
glove i got a smudge

4434
06:42:59,350 --> 06:42:56,718
on my

4435
06:43:07,350 --> 06:42:59,360
left arm near the thumb

4436
06:43:12,948 --> 06:43:10,310
the crew lock bag

4437
06:43:15,110 --> 06:43:12,958
on the external of the bag i have two

4438
06:43:18,150 --> 06:43:15,120

aet

4439

06:43:19,510 --> 06:43:18,160

and i have a tba bag yeah an ap i won't

4440

06:43:24,788 --> 06:43:19,520

inventory the inside of that since we

4441

06:43:32,070 --> 06:43:26,868

and then i also have a large small aeg

4442

06:43:32,080 --> 06:43:39,030

copy checking

4443

06:43:44,230 --> 06:43:42,468

connector j918 is connected and the cap

4444

06:43:46,150 --> 06:43:44,240

is back on j9

4445

06:43:49,110 --> 06:43:46,160

one niner on the

4446

06:43:56,390 --> 06:43:51,190

it's a good no fudge could be an eye

4447

06:44:16,948 --> 06:43:59,750

copy all on the report and nice work on

4448

06:44:16,958 --> 06:44:55,430

stand by roger

4449

06:44:55,440 --> 06:45:46,070

ugh

4450

06:45:51,590 --> 06:45:48,708

matias at this point uh with your work

4451
06:45:53,670 --> 06:45:51,600
on panel a316 complete i'd like you to

4452
06:45:56,548 --> 06:45:53,680
translate back to your green hook uh

4453
06:45:58,948 --> 06:45:56,558
pick that up head to the port cedar cart

4454
06:46:00,788 --> 06:45:58,958
uh pick up the p4 crew lock bag that's

4455
06:46:02,948 --> 06:46:00,798
on the cedar cart bundle that with the

4456
06:46:11,430 --> 06:46:02,958
rbvm crew lock bag and head to the

4457
06:46:14,548 --> 06:46:13,030
thank you

4458
06:46:16,230 --> 06:46:14,558
you're welcome and for roger we are

4459
06:46:47,030 --> 06:46:16,240
ready for the inventory on the inside of

4460
06:46:52,070 --> 06:46:50,150
for the bag it's got

4461
06:46:54,628 --> 06:46:52,080
a festival

4462
06:46:56,310 --> 06:46:54,638
attached to a scoop

4463
06:47:02,310 --> 06:46:56,320

and

4464

06:47:02,550 --> 06:47:02,320

a window cover attached to the hd camera

4465

06:47:03,830 --> 06:47:02,560

and

4466

06:47:06,230 --> 06:47:03,840

[Music]

4467

06:47:08,070 --> 06:47:06,240

hd camera is attached via one of the

4468

06:47:14,708 --> 06:47:08,080

internal aep

4469

06:47:20,948 --> 06:47:17,990

also inside i see another adjustable

4470

06:47:22,548 --> 06:47:20,958

that's attached to a small small red

4471

06:47:24,788 --> 06:47:22,558

and one end

4472

06:47:32,230 --> 06:47:24,798

of the adjustable is the scoop one scoop

4473

06:47:32,240 --> 06:47:35,350

i think that is it

4474

06:47:35,360 --> 06:47:40,150

copy checking

4475

06:48:07,750 --> 06:47:41,910

and that is a good inventory on the

4476

06:48:07,760 --> 06:48:35,350

copy thank you

4477

06:48:40,070 --> 06:48:37,030

you're getting a live view of now of

4478

06:48:43,350 --> 06:48:40,080

raja chahari on the robotic arm you can

4479

06:48:45,990 --> 06:48:43,360

see him center screen with a red stripe

4480

06:48:48,150 --> 06:48:46,000

on his legs of his space suit he's

4481

06:48:50,548 --> 06:48:48,160

holding a free-flying bag that is

4482

06:48:52,708 --> 06:48:50,558

attached to him it contains an old

4483

06:48:54,868 --> 06:48:52,718

camera that he unmounted from the

4484

06:49:00,788 --> 06:48:54,878

international space station and replaced

4485

06:49:04,708 --> 06:49:02,548

he's been aboard the robotic arm for the

4486

06:49:06,628 --> 06:49:04,718

majority of the spacewalk and now that

4487

06:49:08,548 --> 06:49:06,638

his tasks are concluded out at the

4488

06:49:12,230 --> 06:49:08,558

camera port 8 works site he's going to

4489

06:49:15,110 --> 06:49:12,240

be working to egress or get off of the

4490

06:50:02,230 --> 06:49:15,120

of the arm and stow away his portable

4491

06:50:05,270 --> 06:50:03,910

switching over to matthias mara's view

4492

06:50:06,230 --> 06:50:05,280

now you're looking

4493

06:50:10,628 --> 06:50:06,240

at

4494

06:50:11,910 --> 06:50:10,638

with him he's taking a quick inventory

4495

06:50:28,708 --> 06:50:11,920

make sure that he's got everything he

4496

06:50:32,868 --> 06:50:30,468

so i understand the

4497

06:50:34,150 --> 06:50:32,878

timeline flash plan if i just go into

4498

06:50:35,670 --> 06:50:34,160

this position

4499

06:50:37,510 --> 06:50:35,680

set up the robo

4500

06:50:41,270 --> 06:50:37,520

moves or the intent to go here and see

4501
06:50:43,110 --> 06:50:41,280
if we have time to do the 4k handle

4502
06:50:45,110 --> 06:50:43,120
and raja we are setting up to take you

4503
06:50:46,708 --> 06:50:45,120
to the egress back off position and to

4504
06:50:49,670 --> 06:50:46,718
the fhrc

4505
06:50:51,430 --> 06:50:49,680
um for egress so we're not doing the t

4506
06:50:55,110 --> 06:50:51,440
handles and we're almost ready for that

4507
06:50:55,120 --> 06:51:42,070
and jason concurs

4508
06:51:45,830 --> 06:51:43,910
matthias mara at the sea to cart here

4509
06:51:48,868 --> 06:51:45,840
you can see the word seed of one on your

4510
06:51:50,788 --> 06:51:48,878
screen sometimes as matthias mower gets

4511
06:51:52,628 --> 06:51:50,798
his eyes on it if you remember from

4512
06:51:55,190 --> 06:51:52,638
earlier in our coverage the ceda cart is

4513
06:51:57,830 --> 06:51:55,200

a place where space walkers can stow

4514

06:51:59,510 --> 06:51:57,840

their tool bags temporarily matthias

4515

06:52:01,030 --> 06:51:59,520

mower made several trips here throughout

4516

06:52:02,628 --> 06:52:01,040

the spacewalk

4517

06:52:04,468 --> 06:52:02,638

first getting a reel of cables so that

4518

06:52:06,468 --> 06:52:04,478

he could route the ethernet cable to

4519

06:52:07,750 --> 06:52:06,478

eventually lead to the camera port 8

4520

06:52:09,670 --> 06:52:07,760

worksite

4521

06:52:12,628 --> 06:52:09,680

where the camera was installed to the

4522

06:52:15,110 --> 06:52:12,638

ethernet cable he also got the tools

4523

06:52:16,788 --> 06:52:15,120

needed to work on the bartolomeo science

4524

06:52:23,910 --> 06:52:16,798

platform here

4525

06:52:26,628 --> 06:52:25,110

motion it'll be a three and a half

4526
06:52:28,070 --> 06:52:26,638
minute joe cast you'll be going forward

4527
06:52:29,670 --> 06:52:28,080
and seeing it five and a half meters

4528
06:52:44,628 --> 06:52:29,680
each and you'll turn around the face of

4529
06:52:48,310 --> 06:52:46,390
tom marshburn just commanded just

4530
06:52:50,150 --> 06:52:48,320
communicated with rajachary indicating

4531
06:52:51,350 --> 06:52:50,160
that he will be moving on the robotic

4532
06:52:53,830 --> 06:52:51,360
arm

4533
06:53:31,590 --> 06:52:53,840
to be in a position to egress or get off

4534
06:53:35,750 --> 06:53:33,190
and matias we realized there was some

4535
06:53:37,910 --> 06:53:35,760
calm going on with our mops just wanted

4536
06:53:49,750 --> 06:53:37,920
to double check that you were able to

4537
06:53:49,760 --> 06:54:05,990
let me check

4538
06:54:11,430 --> 06:54:09,830

i have my pepper pack nicely bonded

4539

06:54:14,150 --> 06:54:11,440

and

4540

06:54:17,190 --> 06:54:14,160

picked up the uh

4541

06:54:19,350 --> 06:54:17,200

the c4 the default bag bundle just also

4542

06:54:20,548 --> 06:54:19,360

and i'm on my way back

4543

06:54:36,468 --> 06:54:20,558

currently i'm below the mobile

4544

06:54:36,478 --> 06:54:43,110

that you see routed in front of me is

4545

06:54:43,120 --> 06:54:49,030

yes we concur and when you were in route

4546

06:54:49,040 --> 06:54:52,830

after leaving panel

4547

06:54:56,948 --> 06:54:54,628

a316

4548

06:55:02,150 --> 06:54:56,958

did you translate past p1 to pick up

4549

06:55:05,990 --> 06:55:03,670

if i confirm

4550

06:55:08,468 --> 06:55:06,000

and if the green hook is attached

4551
06:55:10,230 --> 06:55:08,478
now that's really

4552
06:55:17,990 --> 06:55:10,240
thank you that's a good configuration

4553
06:55:22,390 --> 06:55:20,150
okay we're happy and uh

4554
06:56:04,390 --> 06:55:22,400
thank you for the report and we'll

4555
06:56:08,150 --> 06:56:06,150
you're seeing the hands of esa astronaut

4556
06:56:11,830 --> 06:56:08,160
matthias mar as he's making his way back

4557
06:56:15,110 --> 06:56:13,430
he verified with the ground here that

4558
06:56:16,788 --> 06:56:15,120
he's got all the equipment that he needs

4559
06:57:00,230 --> 06:56:16,798
and that his tethers are in the proper

4560
06:57:04,390 --> 06:57:02,230
raja we are ready for your gca to

4561
06:57:07,030 --> 06:57:04,400
publish for the apfr ingress of the body

4562
06:57:09,270 --> 06:57:07,040
in two and a half meters okay we've got

4563
06:57:10,708 --> 06:57:09,280

my crew outside clear

4564

06:57:12,070 --> 06:57:10,718

uh

4565

06:57:14,310 --> 06:57:12,080

are you good

4566

06:57:15,590 --> 06:57:14,320

i'm on my way back i'm almost at the

4567

06:57:17,910 --> 06:57:15,600

secret spirit

4568

06:57:19,830 --> 06:57:17,920

so you take your time right might be

4569

06:57:21,430 --> 06:57:19,840

waiting there for a while i guess so i'm

4570

06:57:23,030 --> 06:57:21,440

doing the two here but all right i'm

4571

06:57:24,868 --> 06:57:23,040

ready for gca to publish the april

4572

06:57:33,270 --> 06:57:24,878

egress let's start cca

4573

06:57:33,280 --> 06:57:50,230

starting

4574

06:57:54,230 --> 06:57:51,990

roger you have clearance on your body

4575

06:58:04,310 --> 06:57:54,240

and the apron plate

4576
06:58:04,320 --> 06:58:10,548
that's me here we go

4577
06:58:16,310 --> 06:58:12,390
ready to go

4578
06:58:16,320 --> 06:58:21,910
to go

4579
06:58:25,990 --> 06:58:24,548
motion and we are performing additional

4580
06:58:28,230 --> 06:58:26,000
gca if you need

4581
06:58:29,510 --> 06:58:28,240
that should be good from here

4582
06:58:34,548 --> 06:58:29,520
gta complete

4583
06:58:34,558 --> 06:58:42,788
brakes are on your go for egress w

4584
06:58:42,798 --> 06:58:47,220
fhrc fishing get out of there

4585
06:58:47,230 --> 06:59:42,868
[Applause]

4586
06:59:42,878 --> 06:59:48,468
ii

4587
06:59:51,990 --> 06:59:50,070
and can i

4588
06:59:53,270 --> 06:59:52,000

open the hatch and insert the gear or

4589

07:00:06,948 --> 06:59:53,280

shall i wait

4590

07:00:10,628 --> 07:00:08,628

and matthias uh

4591

07:00:12,468 --> 07:00:10,638

you can open the thermal cover we'd like

4592

07:00:15,990 --> 07:00:12,478

you to stove the

4593

07:00:18,708 --> 07:00:16,000

bag bundle that you have

4594

07:00:21,350 --> 07:00:18,718

and the airlock on a large small red

4595

07:00:22,150 --> 07:00:21,360

and then it's your choice if you'd like

4596

07:00:25,830 --> 07:00:22,160

to

4597

07:00:41,350 --> 07:00:25,840

you can do that and just close the

4598

07:00:46,548 --> 07:00:43,910

just got confirmation that raj chari has

4599

07:00:48,390 --> 07:00:46,558

egressed the robotic arm and is now

4600

07:00:50,628 --> 07:00:48,400

working to remove the portable foot

4601
07:00:52,948 --> 07:00:50,638
restraint and put it back onto the cedar

4602
07:00:55,350 --> 07:00:52,958
cart where he got it you're looking now

4603
07:00:57,510 --> 07:00:55,360
at esa astronaut matthias mar who's

4604
07:00:59,750 --> 07:00:57,520
reached the quest airlock he's being

4605
07:01:00,948 --> 07:00:59,760
tasked with putting some bags away and

4606
07:01:02,788 --> 07:01:00,958
stowing them

4607
07:01:05,430 --> 07:01:02,798
out of the way

4608
07:01:08,868 --> 07:01:05,440
he'll soon be joined by raj atari at the

4609
07:01:11,990 --> 07:01:08,878
airlock once the ssrms or robotic arm

4610
07:01:14,948 --> 07:01:12,000
has been configured and put away

4611
07:01:16,390 --> 07:01:14,958
as you work to uh remove the aprfr

4612
07:01:21,830 --> 07:01:16,400
you can check the

4613
07:01:57,030 --> 07:01:23,430

it worked right there

4614

07:01:57,040 --> 07:02:18,708

uh

4615

07:02:22,708 --> 07:02:21,110

this view of the is of the inside of the

4616

07:02:24,150 --> 07:02:22,718

quest airlock where matthias mower is

4617

07:02:38,310 --> 07:02:24,160

stowing his equipment that was used

4618

07:02:38,320 --> 07:02:51,830

bye

4619

07:02:55,510 --> 07:02:54,310

once chary installs the apfr or we're

4620

07:02:57,830 --> 07:02:55,520

talking about the portable foot

4621

07:02:59,750 --> 07:02:57,840

restraint here he's going to be working

4622

07:03:07,970 --> 07:02:59,760

to swap his tethers over so that he can

4623

07:03:07,980 --> 07:03:15,590

[Music]

4624

07:03:19,270 --> 07:03:17,900

and using copies as well as you

4625

07:03:21,670 --> 07:03:19,280

[Music]

4626
07:03:42,548 --> 07:03:21,680
hang out below the airlock you can close

4627
07:03:42,558 --> 07:04:19,990
copyrighted

4628
07:04:24,070 --> 07:04:22,230
matias we have a proposal

4629
07:04:39,350 --> 07:04:24,080
how do you feel about doing a bit of

4630
07:04:39,360 --> 07:04:45,590
and make happy

4631
07:04:48,788 --> 07:04:47,110
matthias mower is now opening the

4632
07:04:50,628 --> 07:04:48,798
thermal cover so that he can take some

4633
07:04:52,230 --> 07:04:50,638
pictures of the pit pin

4634
07:04:54,150 --> 07:04:52,240
this is a bolt on the airlock that was

4635
07:04:55,590 --> 07:04:54,160
showing some minor wear and tear and

4636
07:04:57,670 --> 07:04:55,600
installing a new one was one of the get

4637
07:04:58,948 --> 07:04:57,680
ahead tasks from toma pesque and aki

4638
07:05:00,390 --> 07:04:58,958

hoshide

4639

07:05:03,350 --> 07:05:00,400

back on one of their previous space

4640

07:05:05,510 --> 07:05:03,360

walks this is unrelated to today's

4641

07:05:07,110 --> 07:05:05,520

spacewalk but since matthias maurer has

4642

07:05:08,868 --> 07:05:07,120

successfully stowed his equipment out of

4643

07:05:10,708 --> 07:05:08,878

the way the crew asked if he'd be

4644

07:05:12,788 --> 07:05:10,718

willing to verify that the pit pin is

4645

07:05:14,948 --> 07:05:12,798

still good and take some photographs of

4646

07:05:39,750 --> 07:05:14,958

it and matthias mara agreed that he has

4647

07:05:39,760 --> 07:05:52,708

yes

4648

07:05:55,510 --> 07:05:53,990

you can see the camera that he'll be

4649

07:06:03,190 --> 07:05:55,520

using to complete this task in his hands

4650

07:06:07,110 --> 07:06:04,628

matthias in your

4651
07:06:08,390 --> 07:06:07,120
helmet view it looks like it's the one

4652
07:06:13,590 --> 07:06:08,400
to your left

4653
07:06:25,910 --> 07:06:15,430
yeah the next one over

4654
07:06:25,920 --> 07:06:37,830
which is where it came from

4655
07:06:41,830 --> 07:06:40,150
that is correct

4656
07:06:51,670 --> 07:06:41,840
and with three

4657
07:06:51,680 --> 07:07:06,868
um

4658
07:07:06,878 --> 07:08:05,270
ah

4659
07:08:05,280 --> 07:08:13,830
all of you

4660
07:08:13,840 --> 07:08:20,628
yes and i have some words for you

4661
07:08:20,638 --> 07:08:27,860
ready to copy

4662
07:08:27,870 --> 07:08:38,548
[Music]

4663
07:08:47,030 --> 07:08:40,310

copying the pitch knob is locked and can

4664

07:08:52,390 --> 07:08:50,390

yes locked if you're depressed

4665

07:08:53,990 --> 07:08:52,400

excellent you can perform your safety

4666

07:09:01,670 --> 07:08:54,000

tether swap

4667

07:09:01,680 --> 07:09:05,110

good work

4668

07:09:10,390 --> 07:09:07,750

and that is for you for the imagery were

4669

07:09:13,910 --> 07:09:10,400

in particular looking for

4670

07:09:20,070 --> 07:09:13,920

an equipment hook do you see that

4671

07:09:20,080 --> 07:09:23,190

yes

4672

07:09:27,190 --> 07:09:24,948

you could even manipulate it if you want

4673

07:09:29,510 --> 07:09:27,200

me to do it

4674

07:09:34,230 --> 07:09:29,520

and we have good uh video of that just

4675

07:09:38,708 --> 07:09:36,310

raj atari is now safely off of the

4676
07:09:39,990 --> 07:09:38,718
robotic arm and is now a free-flying

4677
07:09:42,468 --> 07:09:40,000
astronaut

4678
07:09:44,788 --> 07:09:42,478
he is moving his tethers from the

4679
07:09:46,390 --> 07:09:44,798
robotic arm to the international space

4680
07:09:48,070 --> 07:09:46,400
station so he can make his way back to

4681
07:09:50,150 --> 07:09:48,080
the quest airlock and join matthias

4682
07:09:51,990 --> 07:09:50,160
maurer mara is doing some imagery checks

4683
07:09:54,628 --> 07:09:52,000
for the folks here on the ground

4684
07:09:56,548 --> 07:09:54,638
if you are able to get any close-up

4685
07:10:43,670 --> 07:09:56,558
photos of that equipment hook that would

4686
07:10:48,520 --> 07:10:44,868
from this

4687
07:10:48,530 --> 07:10:56,390
[Music]

4688
07:11:01,190 --> 07:10:58,150

thank you very much that completes the

4689

07:11:10,070 --> 07:11:01,200

airlock tip pin imagery you can hang out

4690

07:11:17,190 --> 07:11:11,590

and we'll take the thermal cover closed

4691

07:11:17,200 --> 07:11:28,948

whoops

4692

07:11:33,430 --> 07:11:30,468

just for completeness i'm already

4693

07:11:35,510 --> 07:11:33,440

attached to the internal steering

4694

07:11:36,310 --> 07:11:35,520

if i play this closed black on black so

4695

07:11:38,070 --> 07:11:36,320

that

4696

07:11:42,468 --> 07:11:38,080

i'll leave

4697

07:11:42,478 --> 07:12:05,590

and we copy thank you

4698

07:12:05,600 --> 07:12:18,628

uh

4699

07:12:23,110 --> 07:12:20,788

my red and white barber pole

4700

07:12:25,510 --> 07:12:23,120

hook is on my left extender gate closed

4701
07:12:27,430 --> 07:12:25,520
lock block on black

4702
07:12:32,070 --> 07:12:27,440
connected to the single wheel that reel

4703
07:12:36,628 --> 07:12:34,230
i'm going back to the

4704
07:12:38,868 --> 07:12:36,638
arm to pick up that safety feather pack

4705
07:12:41,270 --> 07:12:38,878
and we need your bag and then we'll come

4706
07:12:44,868 --> 07:12:41,280
back here and just go

4707
07:12:44,878 --> 07:13:57,750
houston copies

4708
07:14:01,430 --> 07:13:59,750
the international station space station

4709
07:14:03,430 --> 07:14:01,440
is currently in an orbital night time as

4710
07:14:05,830 --> 07:14:03,440
it flies over the northern territory of

4711
07:14:07,990 --> 07:14:05,840
australia however the station will be

4712
07:14:11,110 --> 07:14:08,000
moving into an orbit orbital daytime

4713
07:14:13,030 --> 07:14:11,120

shortly and when rajachary makes his way

4714

07:14:14,868 --> 07:14:13,040

back to the crew lock we should be able

4715

07:14:42,310 --> 07:14:14,878

to get a good view of that in some nice

4716

07:14:45,670 --> 07:14:43,750

this view gives us a good look at the

4717

07:14:46,868 --> 07:14:45,680

tethers that rajatari is working to

4718

07:14:48,788 --> 07:14:46,878

disconnect

4719

07:14:51,510 --> 07:14:48,798

his feet used to be attached to the

4720

07:14:54,468 --> 07:14:51,520

robotic arm and all tethers were on the

4721

07:14:56,150 --> 07:14:54,478

arm so that our robotic arm operators

4722

07:14:58,468 --> 07:14:56,160

tom marshburn and kayla baron could fly

4723

07:15:00,708 --> 07:14:58,478

him to the various work sites now that

4724

07:15:02,070 --> 07:15:00,718

his feet are free and he's already

4725

07:15:03,830 --> 07:15:02,080

installed the portable foot restraint

4726
07:15:05,670 --> 07:15:03,840
back onto the cedar cart you can see

4727
07:15:08,310 --> 07:15:05,680
that he's got one last hook that he's

4728
07:15:36,468 --> 07:15:08,320
grabbing for now to be fully back onto

4729
07:15:36,478 --> 07:15:48,070
anchor hook is off your ssoms leaves

4730
07:15:51,670 --> 07:15:49,270
we are going to leave the arm where it

4731
07:16:03,030 --> 07:15:51,680
is and there's safing at the end of step

4732
07:16:03,040 --> 07:16:14,230
copy

4733
07:16:14,240 --> 07:16:26,390
wow

4734
07:16:41,190 --> 07:16:38,708
and we're in a brief but expected

4735
07:16:42,628 --> 07:16:41,200
handover period as our astronauts work

4736
07:16:45,750 --> 07:16:42,638
to make their way back to the quest

4737
07:16:47,590 --> 07:16:45,760
airlock uh repressurization is about is

4738
07:16:50,310 --> 07:16:47,600

set to begin within the half hour we'll

4739

07:17:10,230 --> 07:16:50,320

need break candles on both see the carts

4740

07:17:56,520 --> 07:17:11,030

all right that's the first two of the

4741

07:17:56,530 --> 07:18:36,388

[Applause]

4742

07:18:40,070 --> 07:18:38,070

is now safely tethered to the

4743

07:18:42,708 --> 07:18:40,080

international space station away from

4744

07:18:44,628 --> 07:18:42,718

the station's robotic arm he's uh

4745

07:18:47,350 --> 07:18:44,638

grabbing the last of his belongings

4746

07:18:49,590 --> 07:18:47,360

including a bundle with an hd camera bag

4747

07:18:51,830 --> 07:18:49,600

and an empty reel bag that matthias

4748

07:18:55,270 --> 07:18:51,840

maurer had used earlier in the spacewalk

4749

07:18:58,548 --> 07:18:56,948

he'll stow that on his person and then

4750

07:19:29,030 --> 07:18:58,558

make his way back to the airlock for

4751
07:19:33,190 --> 07:19:30,948
here in mission control nasa astronaut

4752
07:19:35,670 --> 07:19:33,200
stephanie wilson was our ground iv today

4753
07:19:37,510 --> 07:19:35,680
communicating with our spacewalkers

4754
07:19:39,270 --> 07:19:37,520
we're able to hear her voice throughout

4755
07:19:41,350 --> 07:19:39,280
our coverage today

4756
07:19:43,110 --> 07:19:41,360
alex konoleko served as capcom for the

4757
07:19:45,030 --> 07:19:43,120
rest of the crew including our robotic

4758
07:19:46,230 --> 07:19:45,040
arm operators kayla baron and tom

4759
07:19:48,150 --> 07:19:46,240
marshburn

4760
07:20:02,230 --> 07:19:48,160
paul kanya is the flight director

4761
07:20:05,270 --> 07:20:04,388
our spacewalk officer sits just behind

4762
07:20:07,190 --> 07:20:05,280
them

4763
07:20:08,948 --> 07:20:07,200

the entire team meeting frequently

4764

07:20:11,510 --> 07:20:08,958

throughout today's spacewalk to discuss

4765

07:20:58,388 --> 07:20:11,520

tasks time and

4766

07:20:58,398 --> 07:21:52,788

10 seconds to a 20-second handover

4767

07:21:57,030 --> 07:21:55,270

come down the situation don't hurry too

4768

07:22:00,310 --> 07:21:57,040

much because i would like to take photos

4769

07:22:05,350 --> 07:22:01,750

great camos

4770

07:22:07,190 --> 07:22:05,360

on the inboard or cart

4771

07:22:13,430 --> 07:22:07,200

help you break handles on the inboard

4772

07:22:18,070 --> 07:22:15,190

and trying to trace our safety feather

4773

07:22:33,590 --> 07:22:18,080

back here since we try to

4774

07:22:33,600 --> 07:22:46,628

copy

4775

07:22:51,350 --> 07:22:48,948

our space walkers raj atari and matthias

4776

07:22:53,110 --> 07:22:51,360

mar were a part of nasa's

4777

07:22:55,670 --> 07:22:53,120

spacex crew 3 mission to the

4778

07:22:57,910 --> 07:22:55,680

international space station they arrived

4779

07:23:00,310 --> 07:22:57,920

there on a spacecraft which is a crew

4780

07:23:01,990 --> 07:23:00,320

dragon which they named endurance

4781

07:23:03,910 --> 07:23:02,000

if case you missed it during the course

4782

07:23:06,310 --> 07:23:03,920

of our coverage

4783

07:23:08,468 --> 07:23:06,320

commander chell lindgren of the crew 4

4784

07:23:10,548 --> 07:23:08,478

mission yet to fly but will be arriving

4785

07:23:12,948 --> 07:23:10,558

to the space station soon announce that

4786

07:23:27,350 --> 07:23:12,958

the capsule name of their

4787

07:23:27,360 --> 07:23:46,230

yep

4788

07:24:01,510 --> 07:23:47,840

do you want me to

4789

07:24:05,590 --> 07:24:03,350

if you can give it to me now then i can

4790

07:24:06,868 --> 07:24:05,600

push it in front of me it might be the

4791

07:24:27,030 --> 07:24:06,878

clear

4792

07:24:27,040 --> 07:24:56,628

right

4793

07:25:19,990 --> 07:24:57,990

do you want that back for the airlock

4794

07:25:25,110 --> 07:25:22,948

you have the bag bundle on a ret to you

4795

07:25:29,530 --> 07:25:25,120

and as you ingress you can also power

4796

07:26:02,948 --> 07:25:30,628

[Applause]

4797

07:26:02,958 --> 07:26:21,750

huh

4798

07:26:25,670 --> 07:26:23,830

and with ebt's waste tether already

4799

07:26:27,670 --> 07:26:25,680

attached to the airlock d-ring extender

4800

07:26:42,548 --> 07:26:27,680

the t is when you're ready you can give

4801
07:26:47,750 --> 07:26:44,868
there at the top of your screen working

4802
07:26:50,468 --> 07:26:47,760
his way into the airlock ev2 matthias

4803
07:26:51,670 --> 07:26:50,478
mar is already safely inside and is

4804
07:26:54,388 --> 07:26:51,680
working

4805
07:27:06,788 --> 07:26:54,398
with his crewmate to get rajari back

4806
07:27:10,468 --> 07:27:08,468
your

4807
07:27:12,070 --> 07:27:10,478
anchor hook is off the floor's

4808
07:27:13,830 --> 07:27:12,080
earrings

4809
07:27:15,350 --> 07:27:13,840
and attached to my left right tether

4810
07:27:17,510 --> 07:27:15,360
both are good clothes locked black on

4811
07:27:19,670 --> 07:27:17,520
black i thought i held yourselves past

4812
07:27:21,670 --> 07:27:19,680
eiu for station i'm gonna pick up my

4813
07:27:23,270 --> 07:27:21,680

anchor hook

4814

07:27:50,868 --> 07:27:23,280

do it

4815

07:27:50,878 --> 07:28:21,830

10 seconds to a 20-second handover

4816

07:28:26,310 --> 07:28:23,670

while we switch over our communications

4817

07:28:28,230 --> 07:28:26,320

between satellites astronaut raj atari

4818

07:28:30,230 --> 07:28:28,240

is making his way into the airlock

4819

07:28:32,388 --> 07:28:30,240

working closely with matthias maurer on

4820

07:28:34,628 --> 07:28:32,398

their tether configuration making sure

4821

07:28:36,150 --> 07:28:34,638

that nothing gets tangled or snagged and

4822

07:28:56,868 --> 07:28:36,160

that they're able to both fit into the

4823

07:29:18,310 --> 07:28:59,750

thermal cover

4824

07:29:18,320 --> 07:29:26,070

uh

4825

07:29:29,830 --> 07:29:28,310

once chari is safely inside the team

4826
07:29:32,150 --> 07:29:29,840
will work to close the hatch thermal

4827
07:29:34,230 --> 07:29:32,160
cover that you saw swing open to allow

4828
07:29:36,548 --> 07:29:34,240
them inside he'll then be working with

4829
07:29:38,468 --> 07:29:36,558
our suit ivs tom marshburn and kayla

4830
07:29:41,670 --> 07:29:38,478
baron no longer at the controls of the

4831
07:29:43,910 --> 07:29:41,680
robotic arm but inside the airlock or

4832
07:29:47,270 --> 07:29:43,920
inside the equipment lock section of the

4833
07:29:49,750 --> 07:29:47,280
quest airlock to get our space walkers

4834
07:30:03,190 --> 07:29:49,760
back into repressurization and out of

4835
07:30:07,590 --> 07:30:05,190
and here they are now tom marshburn with

4836
07:30:08,948 --> 07:30:07,600
the camera and kayla baron looking into

4837
07:30:09,830 --> 07:30:08,958
the airlock

4838
07:30:11,430 --> 07:30:09,840

where

4839

07:30:13,270 --> 07:30:11,440

she's getting the opposite view that you

4840

07:30:20,830 --> 07:30:13,280

were just seeing of

4841

07:30:24,310 --> 07:30:22,628

airlock we trying to get the thermal

4842

07:30:47,270 --> 07:30:24,320

cover then i'll divide the workstation

4843

07:31:17,030 --> 07:30:49,590

thermal cover

4844

07:31:28,468 --> 07:31:19,670

down kids yep brought up him down here

4845

07:31:28,478 --> 07:31:33,840

let me put your name

4846

07:31:33,850 --> 07:31:43,510

[Music]

4847

07:31:43,520 --> 07:31:59,190

with my legs

4848

07:32:02,548 --> 07:32:00,708

i can't get my head up to be able to get

4849

07:32:14,900 --> 07:32:02,558

to the hatch so i have to sort out what

4850

07:32:14,910 --> 07:32:24,948

[Applause]

4851
07:32:28,788 --> 07:32:27,430
your right foot break your right foot

4852
07:32:30,948 --> 07:32:28,798
and i put it off

4853
07:32:33,750 --> 07:32:30,958
this is this left foot

4854
07:32:35,030 --> 07:32:33,760
this is as much as you can

4855
07:32:36,868 --> 07:32:35,040
which way

4856
07:32:42,868 --> 07:32:36,878
up throughout your body

4857
07:32:49,270 --> 07:32:45,590
okay

4858
07:32:52,708 --> 07:32:49,280
all right

4859
07:32:54,548 --> 07:32:52,718
let me make sure i can tell my scu here

4860
07:32:58,628 --> 07:32:54,558
and make sure i can rotate to get to the

4861
07:33:04,150 --> 07:33:01,510
uh inside with the total cover closed

4862
07:33:06,230 --> 07:33:04,160
and i can see the hatch keep butter i'm

4863
07:33:08,150 --> 07:33:06,240

ready for more step step and cherry just

4864

07:33:11,990 --> 07:33:08,160

confirmed that the hatch is closed

4865

07:33:15,030 --> 07:33:12,000

remove the scu from the stowage pouch

4866

07:33:16,948 --> 07:33:15,040

then remove your dcm covers

4867

07:33:21,110 --> 07:33:16,958

velcro the cover to the dcm and connect

4868

07:33:25,750 --> 07:33:22,628

it works

4869

07:33:29,910 --> 07:33:27,270

the view you're seeing now is of the

4870

07:33:31,510 --> 07:33:29,920

equipment lock of the quest airlock um

4871

07:33:33,750 --> 07:33:31,520

our spacewalkers are actually on the

4872

07:33:35,110 --> 07:33:33,760

other side of the door that our

4873

07:33:36,830 --> 07:33:35,120

astronaut kayla baron right in the

4874

07:33:39,670 --> 07:33:36,840

middle that is looking

4875

07:33:41,430 --> 07:33:39,680

through they just configured themselves

4876
07:33:43,030 --> 07:33:41,440
in the crew lock portion again on the

4877
07:33:44,788 --> 07:33:43,040
other side of that door

4878
07:33:45,990 --> 07:33:44,798
and have closed the hatch and now

4879
07:33:47,590 --> 07:33:46,000
they're working on some last minute

4880
07:33:50,070 --> 07:33:47,600
steps then they'll be working with their

4881
07:33:57,430 --> 07:33:50,080
suit ivs who you say who you see here on

4882
07:34:01,670 --> 07:33:59,190
the number 20 in the corner indicates

4883
07:34:32,788 --> 07:34:01,680
that we'll be looking through his helmet

4884
07:34:37,430 --> 07:34:35,430
roger and matthias uh two minutes uh the

4885
07:34:42,310 --> 07:34:37,440
two-minute timer has expired how'd you

4886
07:34:42,320 --> 07:34:58,468
i did not see anything out there

4887
07:35:03,830 --> 07:35:01,510
verify verify hatch position per hatch

4888
07:35:05,270 --> 07:35:03,840

decal

4889

07:35:09,510 --> 07:35:05,280

and sorry that's the handle position

4890

07:35:09,520 --> 07:35:14,948

so i'm clear to close it

4891

07:35:18,468 --> 07:35:16,788

if you can verify the handle position is

4892

07:35:22,548 --> 07:35:18,478

for the hatch decal you can close and

4893

07:35:22,558 --> 07:35:26,230

i have not pivoted out of the house yet

4894

07:35:28,880 --> 07:35:27,190

sorry

4895

07:35:38,230 --> 07:35:28,890

i like you trashing me yes

4896

07:35:42,548 --> 07:35:40,788

yes if the handle is matching uh per the

4897

07:35:48,388 --> 07:35:42,558

decal which i believe you just said it

4898

07:35:48,398 --> 07:36:00,520

let me try this

4899

07:36:00,530 --> 07:36:10,548

[Music]

4900

07:36:23,030 --> 07:36:11,590

back here

4901
07:36:27,190 --> 07:36:24,788
the pressure in the crew lock now is

4902
07:36:29,030 --> 07:36:27,200
very close to zero matching that of the

4903
07:36:30,468 --> 07:36:29,040
vacuum of space

4904
07:36:36,388 --> 07:36:30,478
at repressurization they're going to

4905
07:36:47,750 --> 07:36:38,788
more towards

4906
07:36:50,868 --> 07:36:48,708
good

4907
07:36:57,430 --> 07:36:50,878
yep better thank you

4908
07:37:01,030 --> 07:36:58,868
okay

4909
07:37:05,270 --> 07:37:01,040
patch is down

4910
07:37:05,280 --> 07:37:20,948
that's a firm

4911
07:37:20,958 --> 07:37:26,710
okay

4912
07:37:26,720 --> 07:37:43,350
[Applause]

4913
07:37:47,830 --> 07:37:45,750

okay the hatch is locked in the last

4914

07:37:57,190 --> 07:37:47,840

position putting the top

4915

07:37:57,200 --> 07:38:01,270

nice work with the hatch

4916

07:38:01,280 --> 07:38:06,628

and we'll transition to this

4917

07:38:11,110 --> 07:38:08,868

we'll transition now to pre-repress on

4918

07:38:29,590 --> 07:38:11,120

the q card

4919

07:38:29,600 --> 07:38:33,910

check eb hatch closed and locked

4920

07:38:33,920 --> 07:38:37,350

the hatch is closed

4921

07:38:45,190 --> 07:38:41,590

on the uia check oxygen emu one and two

4922

07:38:51,510 --> 07:38:47,830

and i confirm both oxygen bars emu one

4923

07:38:57,750 --> 07:38:54,788

take power ev1 and two two switches to

4924

07:38:57,760 --> 07:39:03,190

okay switching it's gone

4925

07:39:09,030 --> 07:39:05,270

check power ev1 and two

4926

07:39:16,548 --> 07:39:13,670

three leds start on those on

4927

07:39:20,150 --> 07:39:16,558

check power ev1 in 2 volts between 18

4928

07:39:20,160 --> 07:39:25,430

13.6 and 18.6

4929

07:39:44,708 --> 07:39:27,830

copy on your dcms take your power

4930

07:39:52,230 --> 07:39:46,388

if you want to see you have the wearable

4931

07:39:52,240 --> 07:40:00,788

copy

4932

07:40:05,590 --> 07:40:03,430

houston copies both ev1 and ev2 power

4933

07:40:07,750 --> 07:40:05,600

switches are an scu

4934

07:40:09,670 --> 07:40:07,760

gentlemen you literally have been flown

4935

07:40:11,670 --> 07:40:09,680

and translated all over station today

4936

07:40:13,270 --> 07:40:11,680

and worked with many systems

4937

07:40:15,430 --> 07:40:13,280

definitely teamwork has been the theme

4938

07:40:17,750 --> 07:40:15,440

for the day and we admire your tenacity

4939

07:40:19,590 --> 07:40:17,760

on behalf of the rbvm jumper team we

4940

07:40:24,230 --> 07:40:19,600

thank you for your work today and we'll

4941

07:40:26,230 --> 07:40:24,240

hand you over now to kayla and tom

4942

07:40:27,590 --> 07:40:26,240

thanks killer it's uh been a pleasure to

4943

07:40:29,830 --> 07:40:27,600

work with you through training and then

4944

07:40:32,310 --> 07:40:29,840

today on the eva and uh to all the

4945

07:40:34,628 --> 07:40:32,320

people on the franken ed tayden pac our

4946

07:40:41,430 --> 07:40:34,638

thanks the flight director paul tanya

4947

07:40:46,310 --> 07:40:44,310

our emu specialist malik russell and our

4948

07:40:48,310 --> 07:40:46,320

airlock helper steve

4949

07:40:50,388 --> 07:40:48,320

and uh our incremental epa

4950

07:40:52,310 --> 07:40:50,398

rep as well michael vino and then thanks

4951
07:40:54,150 --> 07:40:52,320
to kate on tom for driving us around the

4952
07:40:55,830 --> 07:40:54,160
arm and getting this suit up after mark

4953
07:40:58,070 --> 07:40:55,840
who uh continues to break records on a

4954
07:40:59,830 --> 07:40:58,080
daily basis now it was awesome working

4955
07:41:02,628 --> 07:40:59,840
with you guys thanks for uh

4956
07:41:04,548 --> 07:41:02,638
putting us going despite some things to

4957
07:41:06,388 --> 07:41:04,558
work through like any great eba so

4958
07:41:09,270 --> 07:41:06,398
appreciate it and look forward to seeing

4959
07:41:11,190 --> 07:41:09,280
the underground stephanie and company

4960
07:41:13,510 --> 07:41:11,200
so maybe two always like to add huge

4961
07:41:15,910 --> 07:41:13,520
thanks to all our trainers who have

4962
07:41:17,830 --> 07:41:15,920
brought us all the way to be able to

4963
07:41:18,708 --> 07:41:17,840

perform today's facebook and obviously

4964

07:41:22,788 --> 07:41:18,718

all

4965

07:41:22,798 --> 07:41:28,628

and we appreciate the words thank you

4966

07:41:31,830 --> 07:41:30,230

very well done out there guys we're

4967

07:41:33,590 --> 07:41:31,840

excited to get you back inside we're

4968

07:41:35,830 --> 07:41:33,600

going to be picking up on the crew lock

4969

07:41:38,310 --> 07:41:35,840

repress cue card

4970

07:41:39,270 --> 07:41:38,320

on your dcm take the o2 actuator to

4971

07:42:40,388 --> 07:41:39,280

press

4972

07:42:42,708 --> 07:42:40,398

easyhatch mpeg is closed

4973

07:42:44,070 --> 07:42:42,718

it is closed

4974

07:42:45,910 --> 07:42:44,080

after that where you're going to start

4975

07:42:47,990 --> 07:42:45,920

re-pressing the crew lock i'll be

4976
07:42:50,310 --> 07:42:48,000
throttling the iv hatch equalization

4977
07:42:52,868 --> 07:42:50,320
valve let me know if you would like a

4978
07:42:55,030 --> 07:42:52,878
change to the rate yes

4979
07:43:00,150 --> 07:42:55,040
thank you in the beginning just pretty

4980
07:43:10,948 --> 07:43:02,230
right at a slow rate you let me know if

4981
07:43:14,708 --> 07:43:12,868
kayla baron just let our spacewalking

4982
07:43:16,868 --> 07:43:14,718
astronauts know that

4983
07:43:37,830 --> 07:43:16,878
repressurization will begin soon at

4984
07:43:41,350 --> 07:43:39,910
and indeed repressurization has started

4985
07:43:44,310 --> 07:43:41,360
and the pressure of the crew lock is

4986
07:43:45,510 --> 07:43:44,320
steadily increasing

4987
07:43:46,708 --> 07:43:45,520
engage with this right if you want to

4988
07:43:51,030 --> 07:43:46,718

pick it up a little bit i'll give you a

4989

07:43:55,670 --> 07:43:52,788

so that bumped up the right a little bit

4990

07:43:58,230 --> 07:43:55,680

for ev2 check o2 actuator and press

4991

07:44:02,628 --> 07:43:59,590

yes

4992

07:44:03,590 --> 07:44:02,638

just popped in a little bit

4993

07:44:05,510 --> 07:44:03,600

but

4994

07:44:10,708 --> 07:44:05,520

now

4995

07:44:12,948 --> 07:44:10,718

thank you

4996

07:44:15,270 --> 07:44:12,958

chari and maurer reported that they are

4997

07:44:17,350 --> 07:44:15,280

comfortable with the rate that the crew

4998

07:44:18,548 --> 07:44:17,360

lock is pressurizing and in fact that

4999

07:44:20,310 --> 07:44:18,558

they could have it go a little bit

5000

07:44:53,590 --> 07:44:20,320

faster so kayla baron responded that

5001
07:45:00,708 --> 07:44:55,110
and you can pick up the weight a bit for

5002
07:45:06,948 --> 07:45:01,830
all right i'm increased straight a

5003
07:45:13,270 --> 07:45:09,190
and today's space walk has concluded at

5004
07:45:16,788 --> 07:45:13,280
2 26 p.m central time 3 26 p.m eastern

5005
07:45:19,670 --> 07:45:16,798
time totaling 6 hours and 54 minutes

5006
07:45:21,990 --> 07:45:19,680
as a fun fact this is the exact time of

5007
07:45:24,150 --> 07:45:22,000
the spacewalk that occurred just eight

5008
07:45:32,948 --> 07:45:24,160
days ago

5009
07:45:32,958 --> 07:45:38,070
one psi on the gauge

5010
07:45:42,868 --> 07:45:40,468
step at four psi you'll expect an alert

5011
07:45:45,110 --> 07:45:42,878
tone when we get to five psi

5012
07:45:47,270 --> 07:45:45,120
i'll be stopping the depress for two

5013
07:46:06,310 --> 07:45:47,280

minute week check

5014

07:46:11,350 --> 07:46:08,388

the space walk just eight days ago was

5015

07:46:14,628 --> 07:46:11,360

rajatari's first spacewalk of his career

5016

07:46:17,030 --> 07:46:14,638

clocking in at six hours and 54 minutes

5017

07:46:19,030 --> 07:46:17,040

today was his the second spacewalk of

5018

07:46:34,310 --> 07:46:19,040

his career so he has essentially doubled

5019

07:46:41,990 --> 07:46:36,548

yeah i think it's good right it's kind

5020

07:46:42,000 --> 07:46:53,590

confirm you said a little bit faster yes

5021

07:46:59,990 --> 07:46:56,310

the crew lock just approached 2 psi when

5022

07:47:10,788 --> 07:47:00,000

the pressure approach is 5 psi the crew

5023

07:47:14,708 --> 07:47:12,948

you have enough room to do this i can

5024

07:47:16,708 --> 07:47:14,718

be wherever you want at this point

5025

07:47:41,510 --> 07:47:16,718

very good if you need more room just

5026
07:47:44,230 --> 07:47:43,190
see if they're wet on the inside when we

5027
07:47:47,350 --> 07:47:44,240
get out

5028
07:48:00,468 --> 07:47:49,510
this is a good way taylor

5029
07:48:00,478 --> 07:48:08,450
loss of calm in the right ear for ev2

5030
07:48:08,460 --> 07:48:12,868
[Music]

5031
07:48:15,990 --> 07:48:13,830
to see if that

5032
07:48:18,310 --> 07:48:16,000
[Music]

5033
07:48:21,350 --> 07:48:18,320
has an effect but so far i only hear you

5034
07:48:23,590 --> 07:48:21,360
on the right side

5035
07:48:25,670 --> 07:48:23,600
several times now

5036
07:48:30,708 --> 07:48:25,680
copy you have a good ability to clear

5037
07:48:39,270 --> 07:48:33,190
but not in the left

5038
07:48:43,750 --> 07:48:41,270

all right we're at five pounds we're

5039

07:48:45,910 --> 07:48:43,760

gonna wait uh two minutes

5040

07:48:47,110 --> 07:48:45,920

for the crew lock pressure to stabilize

5041

07:49:41,590 --> 07:48:47,120

and then we're gonna do a one minute

5042

07:49:47,350 --> 07:49:43,990

our spacewalk today began at 7 32 a.m

5043

07:49:49,990 --> 07:49:47,360

central 8 30 2 a.m eastern time when

5044

07:49:51,670 --> 07:49:50,000

astronauts raj atari and matthias mar

5045

07:49:54,070 --> 07:49:51,680

switch their spacesuits to internal

5046

07:49:55,750 --> 07:49:54,080

battery power

5047

07:49:57,670 --> 07:49:55,760

they ran into a flub right out of the

5048

07:49:59,510 --> 07:49:57,680

gate with a light and helmet camera not

5049

07:50:01,030 --> 07:49:59,520

staying put but the team here on the

5050

07:50:03,590 --> 07:50:01,040

ground came up with a fix and the

5051
07:50:05,270 --> 07:50:03,600
spacewalkers were on their way rajatari

5052
07:50:07,430 --> 07:50:05,280
went on to replace two hoses on the

5053
07:50:09,270 --> 07:50:07,440
radiator beam valve module it had

5054
07:50:10,868 --> 07:50:09,280
previously been leaking but the space

5055
07:50:12,708 --> 07:50:10,878
station's other radiators were able to

5056
07:50:13,830 --> 07:50:12,718
do their job and keep the space station

5057
07:50:15,590 --> 07:50:13,840
cool

5058
07:50:16,868 --> 07:50:15,600
chari's work replacing these hoses

5059
07:50:18,788 --> 07:50:16,878
improved the performance of the

5060
07:50:20,468 --> 07:50:18,798
station's radiators and gave us more

5061
07:50:22,708 --> 07:50:20,478
wiggle room in case any of the hoses

5062
07:50:24,388 --> 07:50:22,718
were to become faulty in the future

5063
07:50:25,830 --> 07:50:24,398

the team also replaced an old camera

5064

07:50:27,190 --> 07:50:25,840

with a high definition camera and

5065

07:50:28,948 --> 07:50:27,200

brought it online

5066

07:50:31,030 --> 07:50:28,958

matthias mara was able to make his way

5067

07:50:33,270 --> 07:50:31,040

to the columbus module and bartolomeo

5068

07:50:34,708 --> 07:50:33,280

science platform to set our robotics

5069

07:50:36,788 --> 07:50:34,718

officers here on the ground up for

5070

07:50:58,868 --> 07:50:36,798

success for future installation of

5071

07:51:03,910 --> 07:51:01,670

so at 2 26 p.m central for a total

5072

07:51:06,868 --> 07:51:03,920

spacewalk time of six hours and 54

5073

07:51:08,708 --> 07:51:06,878

minutes the 248th spacewalk in support

5074

07:51:11,350 --> 07:51:08,718

of international space station assembly

5075

07:51:13,910 --> 07:51:11,360

maintenance and upgrades has concluded

5076
07:51:17,270 --> 07:51:13,920
this is the third spacewalk of 2022 and

5077
07:51:19,270 --> 07:51:17,280
the fourth spacewalk of expedition 66.

5078
07:51:21,270 --> 07:51:19,280
this was the second spacewalk of chari's

5079
07:51:23,750 --> 07:51:21,280
career his first occurring just eight

5080
07:51:27,590 --> 07:51:23,760
days ago so his total spacewalking time

5081
07:51:29,430 --> 07:51:27,600
brings us to 13 hours and 48 minutes

5082
07:51:31,430 --> 07:51:29,440
this was matthias mars first ever

5083
07:51:33,430 --> 07:51:31,440
spacewalk so the total time of our

5084
07:51:35,590 --> 07:51:33,440
spacewalk today is the total spacewalk

5085
07:51:40,548 --> 07:51:35,600
time of his career 6 hours and 54

5086
07:51:45,670 --> 07:51:42,468
among the total spacewalking time of

5087
07:51:48,628 --> 07:51:45,680
those 248 spacewalks our spacewalkers

5088
07:51:50,548 --> 07:51:48,638

have spent 65 days eight hours and 25

5089

07:51:52,548 --> 07:51:50,558

minutes suited up and outside of the

5090

07:52:00,388 --> 07:51:52,558

international space station in support

5091

07:52:06,708 --> 07:52:03,670

good leak check we are going to be

5092

07:52:09,350 --> 07:52:06,718

continuing now on the cue card by

5093

07:52:11,830 --> 07:52:09,360

checking that your glove heaters are off

5094

07:52:13,990 --> 07:52:11,840

off yeah i prefer mine now

5095

07:52:15,350 --> 07:52:14,000

offer me ev1

5096

07:52:18,070 --> 07:52:15,360

copy that check your gloves for

5097

07:52:19,510 --> 07:52:18,080

contamination and report any to us into

5098

07:52:21,590 --> 07:52:19,520

houston if you don't i don't see

5099

07:52:23,350 --> 07:52:21,600

anything at my gloves don't come coming

5100

07:52:25,910 --> 07:52:23,360

for you too

5101
07:52:27,990 --> 07:52:25,920
be that no signs of contamination a

5102
07:52:30,310 --> 07:52:28,000
reminder that cuff one symptoms that

5103
07:52:32,708 --> 07:52:30,320
result resolve upon repressed should be

5104
07:52:35,350 --> 07:52:32,718
reported as cuff 2 to ensure your proper

5105
07:52:37,510 --> 07:52:35,360
dcs treatment and if you have any dcs

5106
07:52:41,910 --> 07:52:37,520
symptoms leave o2 actuator and press to

5107
07:52:41,920 --> 07:52:49,190
take your o2 actuator to iv

5108
07:52:52,468 --> 07:52:50,708
our spacewalkers today are just on the

5109
07:52:54,388 --> 07:52:52,478
other side of that hatch that you see in

5110
07:52:57,590 --> 07:52:54,398
the center of your screen

5111
07:52:59,510 --> 07:52:57,600
the pressure inside is slowly increasing

5112
07:53:00,868 --> 07:52:59,520
it went from zero and has paused at

5113
07:53:03,510 --> 07:53:00,878

about five

5114

07:53:06,150 --> 07:53:03,520

but with a good leak check and good suit

5115

07:53:08,868 --> 07:53:06,160

check the pressure is resuming to go up

5116

07:53:11,190 --> 07:53:08,878

to continue with the repressed by taking

5117

07:53:34,310 --> 07:53:11,200

the ivy hatch equalization valve to norm

5118

07:53:50,548 --> 07:53:36,150

differential pressure is about zero

5119

07:53:54,788 --> 07:53:52,468

when repressurization started both

5120

07:53:56,948 --> 07:53:54,798

spacewalkers issued a huge thanks to

5121

07:53:58,708 --> 07:53:56,958

everyone on the ground and a huge thank

5122

07:54:00,948 --> 07:53:58,718

you to their crewmates kayla baron and

5123

07:54:03,430 --> 07:54:00,958

tom marshburn for driving chary all

5124

07:54:04,388 --> 07:54:03,440

around on the station's robotic arm they

5125

07:54:06,070 --> 07:54:04,398

also

5126
07:54:07,990 --> 07:54:06,080
sent their congratulations to their crew

5127
07:54:56,868 --> 07:54:08,000
member mark vande high who they said

5128
07:55:21,830 --> 07:54:58,230
the pressure of the crew lock just

5129
07:55:25,430 --> 07:55:23,750
once pressure is equalized across the

5130
07:55:27,910 --> 07:55:25,440
hatch we're going to be opening the

5131
07:55:29,430 --> 07:55:27,920
hatch and bringing you into daft safers

5132
07:55:30,548 --> 07:55:29,440
and put you on the edit

5133
07:55:32,310 --> 07:55:30,558
that's good

5134
07:55:34,788 --> 07:55:32,320
like a wonderful plan and we're still

5135
07:55:36,788 --> 07:55:34,798
happy

5136
07:55:50,628 --> 07:55:36,798
a firm ground will inform you when you

5137
07:55:54,948 --> 07:55:53,670
just momentarily our suit ivs tom

5138
07:55:56,788 --> 07:55:54,958

marshburn here at the front of the

5139

07:55:59,830 --> 07:55:56,798

screen and kayla baron will work to open

5140

07:56:04,548 --> 07:55:59,840

the hatch and bring our space walkers

5141

07:56:08,708 --> 07:56:06,310

there's the record breaker himself mark

5142

07:56:10,868 --> 07:56:08,718

vande high coming into the equipment

5143

07:56:19,800 --> 07:56:10,878

lock as well to greet our space walkers

5144

07:56:19,810 --> 07:56:55,590

[Music]

5145

07:56:55,600 --> 07:57:11,670

oh

5146

07:57:16,548 --> 07:57:14,230

do some station on one now we're waiting

5147

07:57:22,708 --> 07:57:16,558

for your work in step four

5148

07:57:25,830 --> 07:57:24,388

station houston we'll take care of step

5149

07:57:30,708 --> 07:57:25,840

four we'll let you know on five you can

5150

07:57:30,718 --> 07:57:48,948

happy continuing on step seven

5151
07:57:48,958 --> 07:58:04,388
uh

5152
07:58:04,398 --> 07:58:16,468
all right

5153
07:58:16,478 --> 07:58:19,910
and taylor

5154
07:58:19,920 --> 07:58:23,510
said mike

5155
07:58:23,520 --> 07:58:48,548
coming in

5156
07:58:48,558 --> 07:59:18,150
bye

5157
07:59:21,750 --> 07:59:20,548
matthias maher was the first one out of

5158
07:59:24,708 --> 07:59:21,760
the crew lock and is now in the

5159
07:59:27,030 --> 07:59:24,718
equipment lock as our suit ivs kayla

5160
07:59:29,990 --> 07:59:27,040
baron and tom marshburn with the help of

5161
07:59:30,830 --> 07:59:30,000
astronaut mark vanda high gets his safer

5162
07:59:33,590 --> 07:59:30,840
units

5163
07:59:36,070 --> 07:59:33,600

off station on one wanted to report that

5164

07:59:37,750 --> 07:59:36,080

matthias has some water in his helmet

5165

07:59:39,190 --> 07:59:37,760

it's a little bit difficult to judge the

5166

07:59:41,030 --> 07:59:39,200

volume because it's spread across the

5167

07:59:42,468 --> 07:59:41,040

front of the disperser but i think we

5168

07:59:49,990 --> 07:59:42,478

should accelerate the steps to get them

5169

07:59:50,000 --> 07:59:53,510

what can we do

5170

08:00:01,270 --> 07:59:56,230

we copy kayla we can focus all the

5171

08:00:03,030 --> 08:00:01,280

attention on mathias so removed

5172

08:00:04,948 --> 08:00:03,040

has the safer bin removed you can get

5173

08:01:04,548 --> 08:00:04,958

them on the eda and start

5174

08:01:08,150 --> 08:01:06,230

he just got a brief glance at the huge

5175

08:01:10,628 --> 08:01:08,160

smile across matthias mara's face after

5176

08:01:13,350 --> 08:01:10,638

a job well done on his facebook

5177

08:01:15,350 --> 08:01:13,360

115 in the eva systems book

5178

08:01:17,510 --> 08:01:15,360

the crew is now working to first get his

5179

08:01:18,788 --> 08:01:17,520

safer unit off which they completed and

5180

08:01:59,750 --> 08:01:18,798

then they're going to take his helmet

5181

08:02:11,830 --> 08:02:03,670

and we got step two at 4.115.

5182

08:02:18,830 --> 08:02:14,150

and mark for your essay the crew is no

5183

08:02:18,840 --> 08:02:49,190

ground you

5184

08:02:53,270 --> 08:02:51,270

although our ground ivs are expediting

5185

08:02:55,110 --> 08:02:53,280

the removal of matthias mars suit

5186

08:02:57,030 --> 08:02:55,120

spacesuit because they noticed an excess

5187

08:02:57,990 --> 08:02:57,040

of water in his helmet

5188

08:03:02,070 --> 08:02:58,000

the ground

5189

08:03:04,388 --> 08:03:02,080

matthias mar is in good health and is in

5190

08:03:05,990 --> 08:03:04,398

no danger with the excess water but they

5191

08:04:49,510 --> 08:03:06,000

are interested in collecting that water

5192

08:04:53,990 --> 08:04:51,270

station houston

5193

08:04:56,868 --> 08:04:54,000

on one we see the helmet is off if you

5194

08:04:59,430 --> 08:04:56,878

can help us estimate the quantity of

5195

08:05:01,430 --> 08:04:59,440

loose water inside the helmet

5196

08:05:15,350 --> 08:05:01,440

and report the

5197

08:05:18,868 --> 08:05:17,430

is a little bit moist but i think it

5198

08:05:22,070 --> 08:05:18,878

would have been difficult to detect

5199

08:05:23,750 --> 08:05:22,080

through a calm cap

5200

08:05:27,510 --> 08:05:23,760

let's talk about how much water we think

5201
08:05:31,910 --> 08:05:29,750
kayla baron removed the helmet of issa

5202
08:05:34,230 --> 08:05:31,920
astronaut matthias mar and now they're

5203
08:05:37,190 --> 08:05:34,240
evaluating the hap or the helmet

5204
08:05:38,868 --> 08:05:37,200
absorption pad baron reported that it

5205
08:05:40,868 --> 08:05:38,878
was a little bit damp

5206
08:05:44,468 --> 08:05:40,878
maybe a

5207
08:05:47,590 --> 08:05:44,478
8 to 10 inch diameter circle

5208
08:05:49,030 --> 08:05:47,600
thin film of water on the helmet mark's

5209
08:05:52,788 --> 08:05:49,040
going to take a picture

5210
08:06:07,270 --> 08:05:52,798
and there is water at his

5211
08:06:13,110 --> 08:06:10,548
got the airlock on that can we get some

5212
08:06:15,510 --> 08:06:13,120
more clarification on the water that is

5213
08:06:23,990 --> 08:06:15,520

at the vent port the the size of the

5214

08:06:28,070 --> 08:06:25,750

copy the photos also we'd like you to

5215

08:06:29,910 --> 08:06:28,080

remove the hat and take photos of the

5216

08:06:41,670 --> 08:06:29,920

hat especially if you can get a

5217

08:06:45,350 --> 08:06:43,430

you're looking over the shoulder of tom

5218

08:06:47,190 --> 08:06:45,360

marshburn as he removes that helmet

5219

08:06:56,230 --> 08:06:47,200

absorption pad for some quantitative

5220

08:06:59,110 --> 08:06:57,910

now this is a maybe another way to

5221

08:07:01,510 --> 08:06:59,120

describe the amount of water on the

5222

08:07:03,670 --> 08:07:01,520

helmet tom said is about thirty to fifth

5223

08:07:09,990 --> 08:07:03,680

three zero to five zero percent of the

5224

08:07:31,750 --> 08:07:12,388

copy thirty to fifty percent coated with

5225

08:07:37,510 --> 08:07:33,670

and uh for the hap if you could go ahead

5226

08:07:43,590 --> 08:07:37,520

and ziploc bag that hap

5227

08:07:48,628 --> 08:07:45,270

okay that's in work and we got the

5228

08:07:49,750 --> 08:07:48,638

photos matias is fine and we're planning

5229

08:07:54,548 --> 08:07:49,760

to

5230

08:07:58,708 --> 08:07:54,558

get raja out of the crew lock so that's

5231

08:08:03,670 --> 08:08:00,868

we concur with that plan and we have a

5232

08:08:15,910 --> 08:08:03,680

couple of other requests when you get to

5233

08:08:19,430 --> 08:08:17,990

kayla baron removed the helmet of issa

5234

08:08:20,868 --> 08:08:19,440

astronaut

5235

08:08:23,030 --> 08:08:20,878

matthias mar

5236

08:08:25,430 --> 08:08:23,040

and took documentation took some photos

5237

08:08:38,628 --> 08:08:25,440

and some visual reports of the inside of

5238

08:08:42,388 --> 08:08:40,548

baron is removing the gloves now while

5239

08:08:44,468 --> 08:08:42,398

tom marshburn is stowing away the helmet

5240

08:09:35,350 --> 08:08:44,478

absorption pad so that the crew can look

5241

08:09:40,388 --> 08:09:37,670

we're in a brief handover period however

5242

08:09:42,948 --> 08:09:40,398

the ground team here uh working the

5243

08:09:45,110 --> 08:09:42,958

spacewalk is thinking up ways that they

5244

08:09:47,350 --> 08:09:45,120

can get more data from the crew whether

5245

08:09:49,110 --> 08:09:47,360

that's looking at matthias mars head or

5246

08:09:52,310 --> 08:09:49,120

parts of his space suit so that they can

5247

08:09:53,750 --> 08:09:52,320

determine just how much water was found

5248

08:09:55,270 --> 08:09:53,760

in the meantime kayla baron is going to

5249

08:09:58,310 --> 08:09:55,280

be working to

5250

08:10:40,230 --> 08:09:58,320

get our astronaut rajatari out of the

5251

08:10:44,468 --> 08:10:42,150

we're back now with live views of the

5252

08:10:46,310 --> 08:10:44,478

equipment lock and roger chari just had

5253

08:15:06,788 --> 08:10:46,320

his safer unit removed from his

5254

08:15:10,628 --> 08:15:08,788

both of our spacewalking astronauts are

5255

08:15:12,468 --> 08:15:10,638

now back in the crew lot in the

5256

08:15:13,590 --> 08:15:12,478

equipment lock section of the quest

5257

08:15:16,468 --> 08:15:13,600

airlock

5258

08:15:18,150 --> 08:15:16,478

uh when matthias maher entered the crew

5259

08:15:22,468 --> 08:15:18,160

lock it was

5260

08:15:25,030 --> 08:15:22,478

that maher had water in his helmet at no

5261

08:15:27,030 --> 08:15:25,040

time was he in any danger but marred and

5262

08:15:29,830 --> 08:15:27,040

marr did not know any discomfort during

5263

08:15:31,510 --> 08:15:29,840

the eva itself

5264

08:15:33,830 --> 08:15:31,520

the crew is going to continue to take

5265

08:16:02,868 --> 08:15:33,840

documentation of the water for analysis

5266

08:16:07,990 --> 08:16:05,110

airlock houston on one

5267

08:16:09,910 --> 08:16:08,000

i have deltas for you starting in step

5268

08:16:11,110 --> 08:16:09,920

37 let me know when you're ready we

5269

08:16:16,070 --> 08:16:11,120

don't need to

5270

08:16:16,080 --> 08:16:36,388

happy thumbs

5271

08:16:40,948 --> 08:16:38,628

the helmet absorption pad

5272

08:16:42,548 --> 08:16:40,958

that went inside of matthias mars helmet

5273

08:16:44,548 --> 08:16:42,558

has been stowed away for further

5274

08:16:46,948 --> 08:16:44,558

analysis the ground crew will look at

5275

08:16:48,628 --> 08:16:46,958

that as well as other data that the crew

5276

08:16:51,110 --> 08:16:48,638

provides including they were looking at

5277

08:16:54,070 --> 08:16:51,120

the wetness of his head and possibly the

5278

08:16:55,750 --> 08:16:54,080

levels of his onboard consumables like

5279

08:16:58,070 --> 08:16:55,760

the water he was drinking

5280

08:17:00,468 --> 08:16:58,080

all of this plus more will be used to

5281

08:17:02,070 --> 08:17:00,478

help the ground crews here determine the

5282

08:17:04,308 --> 08:17:02,080

cause and how much water ultimately

5283

08:17:06,548 --> 08:17:04,318

ended up in his helmet but matthias is

5284

08:18:10,468 --> 08:17:06,558

now safe in the equipment lock section

5285

08:18:15,510 --> 08:18:12,708

the ground here was made aware of this

5286

08:18:17,590 --> 08:18:15,520

water only after matthias mower was in

5287

08:18:19,350 --> 08:18:17,600

the equipment lock he did not note

5288

08:18:41,270 --> 08:18:19,360

feeling any water in his helmet during

5289

08:18:54,468 --> 08:18:44,708

raja there was no water in his helmet

5290

08:18:59,270 --> 08:18:56,948

raja chari's helmet has been removed and

5291

08:19:01,270 --> 08:18:59,280

the crew did note that there was not any

5292

08:19:05,590 --> 08:19:01,280

water inside then they're going to work

5293

08:19:13,830 --> 08:19:10,868

okay in step 37 we would like to have

5294

08:19:15,510 --> 08:19:13,840

matthias's comm cap earphone inspected

5295

08:19:17,510 --> 08:19:15,520

earphones inspected to see if there's

5296

08:19:18,708 --> 08:19:17,520

moisture in the earphones for the loss

5297

08:19:20,830 --> 08:19:18,718

of calm

5298

08:19:25,030 --> 08:19:20,840

also we'd like to

5299

08:19:26,388 --> 08:19:25,040

um see if the the comcap absorbed any

5300

08:19:28,230 --> 08:19:26,398

moisture

5301

08:19:37,030 --> 08:19:28,240

uh from the helmet like the top of the

5302

08:19:41,750 --> 08:19:40,468

yes alex in both of the ev2's ear cups

5303

08:19:44,388 --> 08:19:41,760

there are

5304

08:19:46,388 --> 08:19:44,398

several i would say you know maybe 20

5305

08:19:49,110 --> 08:19:46,398

large droplets of water in each one

5306

08:19:52,070 --> 08:19:49,120

we'll take some photos the comcap itself

5307

08:19:54,548 --> 08:19:52,080

doesn't really maybe just very slightly

5308

08:20:00,070 --> 08:19:54,558

damp but i wouldn't call it wet

5309

08:20:06,468 --> 08:20:03,990

copy that i have deltas in step 46 47

5310

08:20:10,948 --> 08:20:06,478

and 60. i can read them now we can wait

5311

08:20:15,910 --> 08:20:13,030

kayla baron now working to document

5312

08:20:17,750 --> 08:20:15,920

other parts of matthias mars

5313

08:20:19,430 --> 08:20:17,760

spacesuit what he was wearing today

5314

08:20:22,388 --> 08:20:19,440

including an earpiece

5315

08:23:23,350 --> 08:20:22,398

she did note some water but she's giving

5316

08:24:42,708 --> 08:23:25,510

matthias mara is now out of the hard

5317

08:24:49,030 --> 08:24:46,070

we're ready for the delta step 46

5318

08:24:52,230 --> 08:24:49,040

all right thanks mark uh so if you could

5319

08:24:54,070 --> 08:24:52,240

please take photos of raja's right boot

5320

08:24:55,510 --> 08:24:54,080

the top of his boot

5321

08:24:57,430 --> 08:24:55,520

uh

5322

08:24:59,990 --> 08:24:57,440

that would be appreciated we think it

5323

08:25:01,030 --> 08:25:00,000

may have contacted the the lee at some

5324

08:25:03,750 --> 08:25:01,040

point

5325

08:25:06,708 --> 08:25:03,760

and then in step 47 could you please

5326
08:25:08,788 --> 08:25:06,718
have matthias inspect the electro leads

5327
08:25:09,830 --> 08:25:08,798
of his sternal harness

5328
08:25:12,308 --> 08:25:09,840
we had

5329
08:25:13,830 --> 08:25:12,318
an intermittent biomed connection at the

5330
08:25:15,990 --> 08:25:13,840
end of the eda and so if he could

5331
08:25:22,948 --> 08:25:16,000
inspect the sternal harness

5332
08:25:29,190 --> 08:25:26,150
okay capital right foot for raja and

5333
08:25:39,590 --> 08:25:29,200
sternal harness for matthias

5334
08:25:43,830 --> 08:25:41,590
astronauts kayla baron

5335
08:25:46,788 --> 08:25:43,840
and tom marshburn our suit ivs are

5336
08:25:49,510 --> 08:25:46,798
continuing on to help our spacewalkers

5337
08:25:50,948 --> 08:25:49,520
out of their spacesuits today however

5338
08:25:52,548 --> 08:25:50,958

they're going to continue to monitor the

5339

08:25:54,708 --> 08:25:52,558

situation with the water in the

5340

08:26:02,388 --> 08:25:54,718

spacesuit taking pictures and taking

5341

08:26:05,830 --> 08:26:03,750

go ahead

5342

08:26:08,788 --> 08:26:05,840

yeah mark we're being told we actually

5343

08:26:11,030 --> 08:26:08,798

lost raja's biomed also at the end of

5344

08:26:13,190 --> 08:26:11,040

the eba so if we could have him inspect

5345

08:26:16,308 --> 08:26:13,200

the electroleads on that as well we

5346

08:26:31,990 --> 08:26:18,468

and thank you for taking all around

5347

08:26:35,990 --> 08:26:34,388

and houston from there like matthias's

5348

08:26:37,750 --> 08:26:36,000

three

5349

08:26:39,670 --> 08:26:37,760

connectors on his kernel harness are

5350

08:26:42,388 --> 08:26:39,680

very well connected with moleski

5351
08:26:44,548 --> 08:26:42,398
moleskin and

5352
08:26:47,430 --> 08:26:44,558
and the tape that is holding it down to

5353
08:26:58,070 --> 08:26:47,440
the skin they're all completely intact

5354
08:27:03,910 --> 08:27:02,230
he's insane is true for russia

5355
08:27:07,510 --> 08:27:03,920
all three electorates are still well

5356
08:27:22,708 --> 08:27:07,520
adhered to his skin and well taped

5357
08:27:55,190 --> 08:27:25,030
and airlock our next delta is in step

5358
08:27:59,830 --> 08:27:57,430
in the six-hour 54-minute spacewalk

5359
08:28:02,548 --> 08:27:59,840
today astronauts raj atari and matthias

5360
08:28:04,468 --> 08:28:02,558
mar were able to route an ethernet cable

5361
08:28:06,628 --> 08:28:04,478
install two ammonia hoses between the

5362
08:28:09,510 --> 08:28:06,638
radiator beam valve module and one of

5363
08:28:11,830 --> 08:28:09,520

the station's radiators they also set up

5364

08:28:14,308 --> 08:28:11,840

the bartolomeo science platform so it

5365

08:28:16,070 --> 08:28:14,318

can receive scientific experiments

5366

08:28:18,230 --> 08:28:16,080

secured some loose insulation and

5367

08:28:20,150 --> 08:28:18,240

swapped a camera on the exterior of the

5368

08:28:25,030 --> 08:28:20,160

space station

5369

08:28:27,190 --> 08:28:25,040

after the eva waters found in the helmet

5370

08:28:29,670 --> 08:28:27,200

of european space agency astronaut

5371

08:28:31,670 --> 08:28:29,680

matthias marrer he did not know any

5372

08:28:32,628 --> 08:28:31,680

water or discomfort during the spacewalk

5373

08:28:34,308 --> 08:28:32,638

itself

5374

08:28:36,070 --> 08:28:34,318

but our team here on the ground is going

5375

08:28:37,990 --> 08:28:36,080

to continue to look at components of his

5376

08:28:40,468 --> 08:28:38,000

spacesuit and work with the astronauts

5377

08:28:42,948 --> 08:28:40,478

in orbit for further investigation

5378

08:28:45,030 --> 08:28:42,958

he's now safely outside of his spacesuit

5379

08:28:47,670 --> 08:28:45,040

and continuing on with his day this

5380

08:28:49,430 --> 08:28:47,680

concludes the third spacewalk of 2022

5381

08:28:53,360 --> 08:28:49,440

this is mission control houston thanks