



1
00:00:00,659 --> 00:00:03,670
foreign

2
00:00:08,390 --> 00:00:06,289
good morning and welcome this is Mission

3
00:00:10,310 --> 00:00:08,400
Control Houston you're getting a live

4
00:00:11,930 --> 00:00:10,320
look now at the quest airlocks equipment

5
00:00:14,089 --> 00:00:11,940
lock inside the International Space

6
00:00:16,129 --> 00:00:14,099
Station where preparations are underway

7
00:00:17,750 --> 00:00:16,139
to begin a six and a half hour single

8
00:00:19,550 --> 00:00:17,760
task spacewalk

9
00:00:21,230 --> 00:00:19,560
our spacewalkers today are NASA

10
00:00:22,670 --> 00:00:21,240
astronauts Tom marshburn and Kayla

11
00:00:24,290 --> 00:00:22,680
Barron

12
00:00:25,910 --> 00:00:24,300
they're just now on the other side of

13
00:00:28,189 --> 00:00:25,920

the hatch in what's known as the crew

14

00:00:30,169 --> 00:00:28,199

lock when they come into view Tom

15

00:00:32,630 --> 00:00:30,179

marshburn will be wearing the suit with

16

00:00:34,610 --> 00:00:32,640

the red stripes and Kayla Baron will be

17

00:00:37,010 --> 00:00:34,620

wearing a white striped or unmarked

18

00:00:38,630 --> 00:00:37,020

space suit they are not visible on

19

00:00:40,430 --> 00:00:38,640

screen now

20

00:00:42,110 --> 00:00:40,440

the two launched to the space station as

21

00:00:43,130 --> 00:00:42,120

part of the crew 3 mission earlier this

22

00:00:44,690 --> 00:00:43,140

month

23

00:00:47,389 --> 00:00:44,700

right now on your screen you can see

24

00:00:49,610 --> 00:00:47,399

Mark vandehyde and Roger Chari they'll

25

00:00:50,389 --> 00:00:49,620

be flying in and out of view as they

26

00:00:52,850 --> 00:00:50,399

help

27

00:01:03,830 --> 00:00:52,860

marshburn and baron along to get their

28

00:01:09,230 --> 00:01:06,830

mark vandehei on your screen now in the

29

00:01:11,510 --> 00:01:09,240

pants well rajachari is wearing the

30

00:01:13,490 --> 00:01:11,520

green shorts

31

00:01:15,530 --> 00:01:13,500

Baron and marshburn have completed the

32

00:01:21,109 --> 00:01:15,540

suit up process in preparation to exit

33

00:01:21,119 --> 00:01:28,730

we caught biraja

34

00:01:32,390 --> 00:01:30,950

the task they'll be completing today is

35

00:01:33,890 --> 00:01:32,400

to replace a faulty Communications

36

00:01:35,090 --> 00:01:33,900

antenna system

37

00:01:38,149 --> 00:01:35,100

the system we're going to be talking

38

00:01:41,270 --> 00:01:38,159

about today is called the s-band antenna

39

00:01:43,310 --> 00:01:41,280

sub-assembly or Sasa

40

00:01:44,929 --> 00:01:43,320

airlock Houston on one in one minute

41

00:01:50,950 --> 00:01:44,939

you'll be hot mics on Space to ground

42

00:01:55,069 --> 00:01:53,149

the salsa went down sometime in

43

00:01:56,690 --> 00:01:55,079

mid-september but fortunately a spare

44

00:01:58,550 --> 00:01:56,700

has already on board the exterior of the

45

00:02:07,550 --> 00:01:58,560

space station and the station has a

46

00:02:07,560 --> 00:02:25,750

Wilco

47

00:02:28,610 --> 00:02:27,530

rajatari just talking about how we're

48

00:02:31,190 --> 00:02:28,620

about six minutes away from

49

00:02:32,869 --> 00:02:31,200

depressurization again astronauts Kayla

50

00:02:34,369 --> 00:02:32,879

Baron and Tom marshburn are kind of on

51
00:02:35,750 --> 00:02:34,379
the other side of the door there in the

52
00:02:45,670 --> 00:02:35,760
crew lock getting ready for

53
00:02:54,369 --> 00:02:48,830
do step 81 while we're waiting on uh you

54
00:02:54,379 --> 00:02:58,610
coffee we're good

55
00:03:01,309 --> 00:03:00,350
our spacewalkers today are running ahead

56
00:03:02,930 --> 00:03:01,319
of schedule

57
00:03:17,649 --> 00:03:02,940
we expect to get out the door a little

58
00:03:22,250 --> 00:03:20,270
all right so how do Baron and marshburn

59
00:03:24,770 --> 00:03:22,260
go about replacing the Sasa what will

60
00:03:26,809 --> 00:03:24,780
they be doing today first they'll get to

61
00:03:28,910 --> 00:03:26,819
the robotic arm and get it set up and

62
00:03:30,770 --> 00:03:28,920
configured and set up the work site at

63
00:03:32,570 --> 00:03:30,780

the express Logistics carrier 3 where

64

00:03:34,729 --> 00:03:32,580

the spare Sasa lives

65

00:03:36,770 --> 00:03:34,739

they'll then remove the failed Sasa on

66

00:03:38,930 --> 00:03:36,780

the station's Port 1 truss and stow it

67

00:03:40,610 --> 00:03:38,940

temporarily

68

00:03:44,030 --> 00:03:40,620

they'll retrieve the spare and install

69

00:03:47,809 --> 00:03:46,190

they'll then Stow the failed sassa where

70

00:03:50,449 --> 00:03:47,819

the spare once was on the express

71

00:04:01,369 --> 00:03:50,459

Logistics carrier serial number zero

72

00:04:01,379 --> 00:04:07,809

and cruise hot miked foreign

73

00:04:12,350 --> 00:04:10,429

ly they'll conclude their Eva by

74

00:04:14,089 --> 00:04:12,360

cleaning up their work site and since

75

00:04:15,649 --> 00:04:14,099

the spacewalkers are getting an early

76
00:04:24,189 --> 00:04:15,659
start this morning they may have time to

77
00:04:28,070 --> 00:04:25,930
thank you

78
00:04:29,629 --> 00:04:28,080
you just heard the voice of NASA

79
00:04:42,370 --> 00:04:29,639
astronaut Jessica Meir wishing the team

80
00:04:42,380 --> 00:05:14,050
thank you

81
00:05:27,890 --> 00:05:16,670
airlock for Raja you have a go for step

82
00:05:27,900 --> 00:05:40,310
good words

83
00:05:48,770 --> 00:05:42,010
all right Kayla you can check that the

84
00:05:48,780 --> 00:05:55,909
years

85
00:05:55,919 --> 00:06:18,650
Sherlock waiting for your go on step 80.

86
00:06:21,770 --> 00:06:20,809
the flight director is now polling

87
00:06:24,950 --> 00:06:21,780
whether they want to go for

88
00:06:24,960 --> 00:06:34,370

foreign

89

00:07:14,210 --> 00:06:58,690

[Music]

90

00:07:19,070 --> 00:07:16,309

we're on a brief but expected Handover

91

00:07:20,809 --> 00:07:19,080

period but between satellites uh flight

92

00:07:23,029 --> 00:07:20,819

director Vincent McCourt is in Mission

93

00:07:24,830 --> 00:07:23,039

Control today and he's in the process of

94

00:07:42,409 --> 00:07:24,840

polling his flight directors to see if

95

00:07:49,550 --> 00:07:43,809

um

96

00:07:53,930 --> 00:07:51,589

30 seconds right now flight director

97

00:07:56,150 --> 00:07:53,940

Vincent Lacourt is visible in your view

98

00:08:02,680 --> 00:07:56,160

sitting by him as astronaut Drew Morgan

99

00:08:02,690 --> 00:08:09,670

[Music]

100

00:08:14,150 --> 00:08:12,050

you may hear the voice of NASA astronaut

101
00:08:19,129 --> 00:08:14,160
Johnny Kim who will be speaking he's

102
00:08:19,139 --> 00:08:26,629
Sherlock Houston Russia

103
00:08:26,639 --> 00:08:30,650
you have to go for depressed except 80.

104
00:08:38,690 --> 00:08:32,690
you go for the crew lock depression

105
00:08:44,690 --> 00:08:40,250
and we just got official confirmation

106
00:08:48,170 --> 00:08:47,090
this is expected to debate take about 30

107
00:08:57,530 --> 00:08:48,180
minutes

108
00:08:57,540 --> 00:09:00,949
okay we're gonna

109
00:09:00,959 --> 00:09:07,930
we're gonna

110
00:09:14,230 --> 00:09:10,790
switch the defense isolation valve to

111
00:09:16,670 --> 00:09:14,240
open expect an alert Zone

112
00:09:19,130 --> 00:09:16,680
ISO valve is open

113
00:09:21,110 --> 00:09:19,140

okay for both of you Tom and Kayla check

114

00:09:23,870 --> 00:09:21,120

your dcms to monitor the suit pressure

115

00:09:27,050 --> 00:09:23,880

gauge is less than five decimal five

116

00:09:28,250 --> 00:09:27,060

ever gets into greater than five decimal

117

00:09:35,509 --> 00:09:28,260

five we're going to stop the beat press

118

00:09:41,269 --> 00:09:38,449

when the crew lock is at six

119

00:10:10,690 --> 00:09:41,279

expect an alert tone

120

00:10:14,930 --> 00:10:12,470

depressurization is now officially

121

00:10:17,449 --> 00:10:14,940

underway during the depressurization the

122

00:10:19,370 --> 00:10:17,459

pressure will be taken down to 5 PSI

123

00:10:21,050 --> 00:10:19,380

then they'll pause and do a system check

124

00:10:23,329 --> 00:10:21,060

with Mission Control Houston and a suit

125

00:10:24,590 --> 00:10:23,339

check to make sure there are no leaks if

126

00:10:26,569 --> 00:10:24,600

all goes well as expected

127

00:10:27,829 --> 00:10:26,579

depressurization will continue down to

128

00:10:29,449 --> 00:10:27,839

vacuum

129

00:10:31,069 --> 00:10:29,459

they'll do one more check and receive a

130

00:10:32,569 --> 00:10:31,079

go to turn their suits to internal

131

00:10:34,850 --> 00:10:32,579

battery power

132

00:10:38,630 --> 00:10:34,860

which is the official start time of the

133

00:10:46,430 --> 00:10:42,250

the PSI of the crew lock is now about 12

134

00:10:59,269 --> 00:10:46,440

12.2 and steadily going down

135

00:11:52,550 --> 00:11:09,590

a

136

00:11:54,650 --> 00:11:52,560

suit with the red stripes ev2 will be

137

00:11:56,170 --> 00:11:54,660

Kayla Baron wearing the suit with the

138

00:11:59,690 --> 00:11:56,180

White Stripes

139

00:12:03,949 --> 00:11:59,700

ev1 will lead out by going up to Cedar

140

00:12:06,050 --> 00:12:03,959

spur and translating on to phase one

141

00:12:09,769 --> 00:12:06,060

there he will begin setting up the

142

00:12:16,790 --> 00:12:13,690

two will follow the same path initially

143

00:12:19,610 --> 00:12:16,800

translate up to phase one and then

144

00:12:22,490 --> 00:12:19,620

continue Zenith past the failed s-band

145

00:12:25,900 --> 00:12:22,500

antenna and out to express Logistics

146

00:12:25,910 --> 00:12:29,810

[Music]

147

00:12:35,410 --> 00:12:32,690

once at their work site ev2 will Stow

148

00:12:38,509 --> 00:12:35,420

two bags

149

00:12:41,150 --> 00:12:38,519

and then retrieve a rigidizable tether

150

00:12:43,670 --> 00:12:41,160

this tether will be installed on the

151

00:12:45,769 --> 00:12:43,680

forward face of the logistics carrier it

152

00:12:49,129 --> 00:12:45,779

will be used to temporarily Stow the

153

00:12:53,230 --> 00:12:49,139

degraded antenna as it's brought over to

154

00:12:58,370 --> 00:12:55,730

ev1 will set up the robotic arm by

155

00:12:59,810 --> 00:12:58,380

installing a portable foot restraint and

156

00:13:02,870 --> 00:12:59,820

then we'll Ingress that foot restraint

157

00:13:05,210 --> 00:13:02,880

and get ready for arm motion

158

00:13:07,550 --> 00:13:05,220

82 will continue some prep work at the

159

00:13:10,490 --> 00:13:07,560

express Logistics carrier

160

00:13:13,680 --> 00:13:10,500

and then we'll translate to a degraded

161

00:13:19,910 --> 00:13:13,690

Sasa or s-band antenna

162

00:13:22,970 --> 00:13:19,920

[Music]

163

00:13:26,030 --> 00:13:22,980

ev1 will then provide guidance to the

164

00:13:28,069 --> 00:13:26,040

robotic arm to get him to his next work

165

00:13:30,829 --> 00:13:28,079

site

166

00:13:33,470 --> 00:13:30,839

while ev2 will release three connectors

167

00:13:34,690 --> 00:13:33,480

that provide heater power functional

168

00:13:38,870 --> 00:13:34,700

power and data

169

00:13:45,590 --> 00:13:42,110

one will put gimbal locks in place these

170

00:13:48,710 --> 00:13:45,600

will prevent the antenna from moving as

171

00:13:54,590 --> 00:13:48,720

it's translated back and forth from P1

172

00:13:58,520 --> 00:13:56,930

this four bolts will then be driven by

173

00:14:01,189 --> 00:13:58,530

the pistol grip tool

174

00:14:03,350 --> 00:14:01,199

[Music]

175

00:14:05,810 --> 00:14:03,360

DB1 will then have the robotic arm

176
00:14:10,069 --> 00:14:05,820
rotate them around to the handrail side

177
00:14:11,750 --> 00:14:10,079
of the s-band antenna while ev2 releases

178
00:14:13,490 --> 00:14:11,760
the stanchion bolt that secures the

179
00:14:15,470 --> 00:14:13,500
antenna to structure

180
00:14:16,670 --> 00:14:15,480
once that bolt is released the crew will

181
00:14:19,370 --> 00:14:16,680
work together

182
00:14:21,350 --> 00:14:19,380
to free the antenna and eb1 will

183
00:14:26,590 --> 00:14:21,360
translate on the robotic arm to express

184
00:14:31,970 --> 00:14:29,329
both crew members will work together to

185
00:14:34,250 --> 00:14:31,980
temporarily Stow this s-band antenna and

186
00:14:36,769 --> 00:14:34,260
that rigidizable tether

187
00:14:39,310 --> 00:14:36,779
they'll then begin to prepare the spare

188
00:14:42,230 --> 00:14:39,320

so that it can be brought over to P1

189

00:14:44,389 --> 00:14:42,240

they'll remove a thermal blanket

190

00:14:46,189 --> 00:14:44,399

Stow that out of the way

191

00:14:47,449 --> 00:14:46,199

this provides thermal conditioning for

192

00:14:49,550 --> 00:14:47,459

the unit

193

00:14:51,350 --> 00:14:49,560

they each have two bolts each to release

194

00:14:53,389 --> 00:14:51,360

and they'll be using a special tool

195

00:14:58,490 --> 00:14:53,399

called a right angle Drive in order to

196

00:15:06,829 --> 00:15:00,470

the two will then get into position to

197

00:15:11,800 --> 00:15:08,990

pistol grip tool will be used for that

198

00:15:13,009 --> 00:15:11,810

as well these are called the Mast bolts

199

00:15:15,949 --> 00:15:13,019

[Music]

200

00:15:19,310 --> 00:15:15,959

there's a soft dock to overcome once

201
00:15:21,949 --> 00:15:19,320
that is overcome eb1 will gain control

202
00:15:27,410 --> 00:15:21,959
of the spare unit and then we'll ride

203
00:15:32,689 --> 00:15:30,170
once at the P1 work site both crew

204
00:15:35,030 --> 00:15:32,699
members will work together to soft dock

205
00:15:36,949 --> 00:15:35,040
this or will be temporarily held into

206
00:15:39,590 --> 00:15:36,959
the truss

207
00:15:45,290 --> 00:15:39,600
while vd2 drives a stanchion bolt that

208
00:15:49,790 --> 00:15:47,930
82 will then reconnect the three

209
00:15:53,540 --> 00:15:49,800
connectors that provide heater power

210
00:15:59,210 --> 00:15:54,650
[Music]

211
00:16:00,050 --> 00:15:59,220
even one will release the four gimbal

212
00:16:01,670 --> 00:16:00,060
locks

213
00:16:03,769 --> 00:16:01,680

at this point

214

00:16:06,230 --> 00:16:03,779

the antenna will be free to track

215

00:16:09,200 --> 00:16:06,240

satellites to allow good communication

216

00:16:16,310 --> 00:16:09,210

between the space station and the ground

217

00:16:19,850 --> 00:16:18,290

once the crew is clear of the work site

218

00:16:21,170 --> 00:16:19,860

they'll perform a checkout on this

219

00:16:23,689 --> 00:16:21,180

antenna

220

00:16:28,189 --> 00:16:23,699

both crew members will then head back to

221

00:16:33,430 --> 00:16:28,430

foreign

222

00:16:39,110 --> 00:16:35,389

at this point they'll be working

223

00:16:41,030 --> 00:16:39,120

together to Stow the degraded unit back

224

00:16:43,009 --> 00:16:41,040

onto the flight releasable attach

225

00:16:46,189 --> 00:16:43,019

mechanism or Fram

226

00:16:48,170 --> 00:16:46,199

is the way that these or use or orbital

227

00:16:51,910 --> 00:16:48,180

replacement units are brought onto the

228

00:16:56,710 --> 00:16:54,710

this one has heater power that helps to

229

00:16:59,990 --> 00:16:56,720

keep it alive

230

00:17:01,810 --> 00:17:00,000

82 will drive two bolts to secure it to

231

00:17:08,529 --> 00:17:01,820

structure

232

00:17:13,549 --> 00:17:10,850

once those bolts are driven the final

233

00:17:15,409 --> 00:17:13,559

step will be to install a thermal

234

00:17:17,390 --> 00:17:15,419

blanket that provides thermal

235

00:17:19,789 --> 00:17:17,400

conditioning and keeps this degraded

236

00:17:23,569 --> 00:17:19,799

unit available as a spare if it's ever

237

00:17:28,309 --> 00:17:26,270

DB1 will then back away from the work

238

00:17:29,590 --> 00:17:28,319

site on the robotic arm and head back

239

00:17:33,430 --> 00:17:29,600

towards the truss

240

00:17:40,450 --> 00:17:36,289

82 will then gather the bags and tools

241

00:17:40,460 --> 00:17:45,830

Stow those on her body restraint tether

242

00:17:51,830 --> 00:17:48,169

so head back to the airlock

243

00:17:56,930 --> 00:17:51,840

we can Stow those bags meanwhile ev-1

244

00:18:02,390 --> 00:17:59,830

and remove the portable foot restraint

245

00:18:04,130 --> 00:18:02,400

and you'll return it to the starboard

246

00:18:05,810 --> 00:18:04,140

seat of cart

247

00:18:09,360 --> 00:18:05,820

this is where he picked it up at the

248

00:18:09,370 --> 00:18:14,210

[Music]

249

00:18:17,350 --> 00:18:15,950

and one will then head back to the

250

00:18:20,350 --> 00:18:17,360

airlock as well

251
00:18:24,010 --> 00:18:20,360
they're both Ingress

252
00:18:27,650 --> 00:18:24,020
and this will conclude us EBA 78.

253
00:18:35,110 --> 00:18:27,660
[Music]

254
00:18:39,169 --> 00:18:37,490
officer art Thomason providing a

255
00:18:41,690 --> 00:18:39,179
voiceover for the animation describing

256
00:18:44,049 --> 00:18:41,700
today's tasks we're back live in the

257
00:18:46,190 --> 00:18:44,059
equipment lock of the crew airlock

258
00:18:47,930 --> 00:18:46,200
rajatari in the green shorts on the left

259
00:18:50,330 --> 00:18:47,940
of your screen and Mark Vande high on

260
00:18:51,830 --> 00:18:50,340
the right marshburn and baron are on the

261
00:18:54,409 --> 00:18:51,840
other side of the hatch in the crew lock

262
00:18:56,870 --> 00:18:54,419
as depressurization is underway pressure

263
00:19:08,270 --> 00:18:56,880

is nearing 5 PSI at which point they'll

264

00:19:08,280 --> 00:19:15,010

foreign

265

00:19:19,730 --> 00:19:18,230

this will be the 245th spacewalk in

266

00:19:21,770 --> 00:19:19,740

support of space station assembly

267

00:19:23,330 --> 00:19:21,780

maintenance and upgrades it will be the

268

00:19:26,150 --> 00:19:23,340

fifth spacewalk for astronaut Tom

269

00:19:27,770 --> 00:19:26,160

marshburn he completed 24 hours and 29

270

00:19:30,230 --> 00:19:27,780

minutes of space walking time in his

271

00:19:31,909 --> 00:19:30,240

previous four Evas it'll be Kayla

272

00:19:33,710 --> 00:19:31,919

Baron's first space walk in her career

273

00:19:36,049 --> 00:19:33,720

this is the first spacewalk of

274

00:19:38,210 --> 00:19:36,059

expedition 66 which began back in

275

00:19:42,890 --> 00:19:38,220

mid-october and today's operation will

276
00:19:42,900 --> 00:20:13,690
foreign

277
00:20:20,090 --> 00:20:16,250
is now walking our spacewalkers through

278
00:20:22,310 --> 00:20:20,100
some system checks what does the same a

279
00:20:23,990 --> 00:20:22,320
good switch display to yes hold for two

280
00:20:56,090 --> 00:20:24,000
seconds and follow the displayed

281
00:20:56,100 --> 00:21:31,960
foreign

282
00:21:31,970 --> 00:21:49,930
[Music]

283
00:21:55,970 --> 00:21:53,450
actuator is an EPA

284
00:21:57,890 --> 00:21:55,980
happy O2 actuator for ev2 is an Eva Tom

285
00:21:59,750 --> 00:21:57,900
I I you may have already started writing

286
00:22:13,789 --> 00:21:59,760
catch it not yet

287
00:22:30,710 --> 00:22:15,430
I'll get my

288
00:22:30,720 --> 00:22:36,390

foreign

289

00:22:36,400 --> 00:22:43,270

[Applause]

290

00:22:43,280 --> 00:22:46,810

actuator fault

291

00:22:50,690 --> 00:22:49,070

now that typically happens when you put

292

00:22:52,190 --> 00:22:50,700

it it's not completely in position so

293

00:22:53,810 --> 00:22:52,200

try to get it all the way into the

294

00:23:01,400 --> 00:22:53,820

correct position Eva they should say

295

00:23:26,380 --> 00:23:02,630

[Music]

296

00:23:33,110 --> 00:23:30,909

[Applause]

297

00:23:35,630 --> 00:23:33,120

was originally scheduled for Tuesday

298

00:23:41,049 --> 00:23:35,640

November 30th however the evening before

299

00:23:48,649 --> 00:23:43,850

valve to open both of you can expect an

300

00:23:48,659 --> 00:23:55,870

open standby

301
00:24:00,470 --> 00:23:58,549
okay the emergency empath over here is

302
00:24:02,510 --> 00:24:00,480
open for both of you monitor the two

303
00:24:04,190 --> 00:24:02,520
pressure gauge stays less than five

304
00:24:08,210 --> 00:24:04,200
decimal five

305
00:24:14,149 --> 00:24:11,690
the crew lock is at 2 PSI we're going to

306
00:24:16,250 --> 00:24:14,159
deep change the D press pump manual

307
00:24:18,950 --> 00:24:16,260
isolation valve back to close

308
00:24:27,890 --> 00:24:18,960
two copies at upsi we'll take the Deep

309
00:24:31,789 --> 00:24:29,690
that was astronaut Mark Vande High

310
00:24:34,669 --> 00:24:31,799
communicating that the checks were good

311
00:24:36,230 --> 00:24:34,679
after the planned hold at 5 PSI we've

312
00:24:48,190 --> 00:24:36,240
continued to bring the crew lock down to

313
00:24:52,549 --> 00:24:50,269

NASA originally had planned on the

314

00:24:54,289 --> 00:24:52,559

spacewalk for Tuesday November 30th but

315

00:24:55,610 --> 00:24:54,299

the evening before NASA received a

316

00:24:57,230 --> 00:24:55,620

debris notification for the

317

00:24:59,029 --> 00:24:57,240

International Space Station

318

00:25:01,070 --> 00:24:59,039

due to the lack of opportunity to

319

00:25:03,590 --> 00:25:01,080

properly assess the risk it could pose

320

00:25:05,510 --> 00:25:03,600

to the astronauts teams decided to delay

321

00:25:08,210 --> 00:25:05,520

the spacewalk until more information was

322

00:25:11,930 --> 00:25:10,130

however NASA determined that the orbit

323

00:25:13,730 --> 00:25:11,940

of the debris did not pose a risk to the

324

00:25:15,950 --> 00:25:13,740

scheduled spacewalk died by Tom

325

00:25:18,409 --> 00:25:15,960

marshburn and Kayla Baron or to the

326

00:25:20,149 --> 00:25:18,419

International Space Station operations

327

00:25:22,010 --> 00:25:20,159

delaying the spacewalk provided an

328

00:25:24,409 --> 00:25:22,020

opportunity for NASA to evaluate the

329

00:25:26,029 --> 00:25:24,419

risk from the debris notification the

330

00:25:27,769 --> 00:25:26,039

space station schedule and operations

331

00:25:45,289 --> 00:25:27,779

were able to easily accommodate the

332

00:25:45,299 --> 00:26:17,269

foreign

333

00:26:17,279 --> 00:26:44,390

huh

334

00:26:48,590 --> 00:26:46,909

even though this also became faulty the

335

00:26:50,510 --> 00:26:48,600

crews had no trouble communicating with

336

00:26:52,010 --> 00:26:50,520

Mission Control in Houston the

337

00:26:53,870 --> 00:26:52,020

International Space Station has several

338

00:26:56,450 --> 00:26:53,880

built-in redundancies so in the event

339

00:27:05,990 --> 00:26:56,460

that something happens they always have

340

00:27:09,529 --> 00:27:08,149

even though this antenna becoming false

341

00:27:11,390 --> 00:27:09,539

he hasn't had a big impact on the

342

00:27:13,130 --> 00:27:11,400

astronauts Mission managers decided to

343

00:28:13,970 --> 00:27:13,140

go ahead and plan the spacewalk to

344

00:28:18,950 --> 00:28:16,010

okay Kayla we're seeing the crew locks

345

00:28:25,690 --> 00:28:18,960

at 2 PSI go ahead and change the defense

346

00:28:35,029 --> 00:28:27,769

and report your initial tether

347

00:28:38,570 --> 00:28:37,130

Tom would you like meet us there or

348

00:28:41,810 --> 00:28:38,580

would you like to go first I'll start

349

00:28:43,490 --> 00:28:41,820

they just need my voice over Roger

350

00:28:46,909 --> 00:28:43,500

goodness

351
00:28:49,190 --> 00:28:46,919
but for ev1 on the right

352
00:28:50,930 --> 00:28:49,200
my right knee extender

353
00:28:53,510 --> 00:28:50,940
and my weight doesn't small Hook is

354
00:28:55,310 --> 00:28:53,520
closed and put a lot

355
00:29:00,049 --> 00:28:55,320
we're talking about white sugar

356
00:29:02,389 --> 00:29:00,059
is closed and locked on Kayla's hook for

357
00:29:06,769 --> 00:29:02,399
everybody and her

358
00:29:11,690 --> 00:29:06,779
book is closed and locked as well

359
00:29:15,649 --> 00:29:13,310
now on my left

360
00:29:18,110 --> 00:29:15,659
I left d-ring extender

361
00:29:20,149 --> 00:29:18,120
is on my Red Hook which is closed and

362
00:29:22,190 --> 00:29:20,159
locked

363
00:29:25,610 --> 00:29:22,200

onto the red reel

364

00:29:27,470 --> 00:29:25,620

my yellow Hook is closed and locked on

365

00:29:31,250 --> 00:29:27,480

the green reel

366

00:29:33,049 --> 00:29:31,260

the green Hook is closed and not locked

367

00:29:36,470 --> 00:29:33,059

on the red reel

368

00:29:45,110 --> 00:29:36,480

of my anchor Hook from the engine reel

369

00:29:52,789 --> 00:29:49,909

Roger and for ev2 I have a single wave

370

00:29:55,250 --> 00:29:52,799

cutter it is packed in with the small

371

00:29:58,250 --> 00:29:55,260

hooks to my right d-ring extender a

372

00:30:00,049 --> 00:29:58,260

skate closed side or locked my waist

373

00:30:02,450 --> 00:30:00,059

tether alarm clock is attached to the

374

00:30:04,490 --> 00:30:02,460

airlock steering extender

375

00:30:07,970 --> 00:30:04,500

first fighter locked

376
00:30:10,510 --> 00:30:07,980
by Red Hook and attached to my right

377
00:30:13,610 --> 00:30:10,520
viewing extender

378
00:30:16,310 --> 00:30:13,620
get closed spider walks

379
00:30:18,710 --> 00:30:16,320
my red reel is unlocked

380
00:30:22,730 --> 00:30:18,720
yellow Hook is attached to my green rail

381
00:30:24,110 --> 00:30:22,740
it closed wider locked my green reel is

382
00:30:26,210 --> 00:30:24,120
unlocked

383
00:30:30,529 --> 00:30:26,220
my green Hook is attached to my red

384
00:30:34,010 --> 00:30:30,539
wheel and my green Hook is unlocked

385
00:30:36,889 --> 00:30:34,020
and my anchor hook as Tom reported is

386
00:30:41,450 --> 00:30:36,899
attached to his waist to their larger

387
00:30:43,490 --> 00:30:41,460
most gauge clothes both have swapped

388
00:30:44,750 --> 00:30:43,500

okay that sounds like a good thing let

389

00:30:49,010 --> 00:30:44,760

me check with Houston see if they have

390

00:30:54,409 --> 00:30:51,350

the station Houston airlock on one any

391

00:30:55,909 --> 00:30:54,419

questions about the tether config

392

00:30:59,210 --> 00:30:55,919

hey good morning Mark we heard a good

393

00:31:06,070 --> 00:31:01,909

all right sounds great thanks

394

00:31:11,630 --> 00:31:08,930

eight is about zero you can expect an

395

00:31:12,950 --> 00:31:11,640

alert tone and let me know when the

396

00:31:14,810 --> 00:31:12,960

evening half stealthy pressure shows

397

00:31:17,750 --> 00:31:14,820

less than 0.5 PSI

398

00:31:26,930 --> 00:31:17,760

free original 1.2 right now

399

00:31:31,190 --> 00:31:29,389

Mark Vanda High a suit IV for this

400

00:31:33,049 --> 00:31:31,200

operation just confirming with our space

401
00:31:35,330 --> 00:31:33,059
Walkers that they have good tether

402
00:31:51,009 --> 00:31:35,340
configuration as the crew lock goes down

403
00:31:57,049 --> 00:31:53,870
earlier this morning Baron and marshburn

404
00:31:59,330 --> 00:31:57,059
completed a pre-breathe exercise they

405
00:32:01,610 --> 00:31:59,340
breathed 100 oxygen not yet in their

406
00:32:03,950 --> 00:32:01,620
spacesuits just threw a mask to purge

407
00:32:07,850 --> 00:32:03,960
the nitrogen from their bodies the next

408
00:32:10,370 --> 00:32:07,860
portion of that exercise is to involve

409
00:32:13,070 --> 00:32:10,380
the next portion is to do some ensue

410
00:32:14,389 --> 00:32:13,080
light exercise or aisle this time in

411
00:32:16,190 --> 00:32:14,399
their spacesuits

412
00:32:19,130 --> 00:32:16,200
so it's all completed before we went on

413
00:32:22,490 --> 00:32:21,350

these are movements that they did as

414

00:32:24,289 --> 00:32:22,500

another way of increasing their

415

00:32:26,389 --> 00:32:24,299

metabolic rate and purging excess

416

00:32:28,070 --> 00:32:26,399

nitrogen from their blood it helps them

417

00:32:31,149 --> 00:32:28,080

acclimate the body to the lower pressure

418

00:32:35,509 --> 00:32:33,529

doing so causes the spacewalking

419

00:32:37,730 --> 00:32:35,519

astronauts to avoid getting the bends or

420

00:32:39,230 --> 00:32:37,740

decompression sickness this is something

421

00:33:02,269 --> 00:32:39,240

that scuba divers on Earth may be

422

00:33:06,649 --> 00:33:04,730

we're talking now about the PSI or the

423

00:33:10,009 --> 00:33:06,659

pounds per square inch in the crew lock

424

00:33:13,190 --> 00:33:10,019

it's currently at about 1.1

425

00:33:14,930 --> 00:33:13,200

we experience here on the ground 14.7 at

426

00:33:16,990 --> 00:33:14,940

normal operating pressure

427

00:33:20,269 --> 00:33:17,000

the spacesuits are pressurized to about

428

00:33:21,830 --> 00:33:20,279

4.3 PSI that's about what you would

429

00:33:24,289 --> 00:33:21,840

experience if you were standing at an

430

00:34:37,849 --> 00:33:24,299

elevation of roughly 30 000 feet here on

431

00:34:37,859 --> 00:34:48,169

foreign

432

00:34:53,569 --> 00:34:50,329

you're getting a live view of NASA

433

00:34:55,970 --> 00:34:53,579

astronauts rajatari and Mark vandehei

434

00:34:58,430 --> 00:34:55,980

Chari on the left Amanda hi on the right

435

00:35:00,589 --> 00:34:58,440

they're known as the suit IVs and are

436

00:35:02,329 --> 00:35:00,599

assisting marshburn and Baron in the

437

00:35:03,650 --> 00:35:02,339

they assisted them in the suit up

438

00:35:05,870 --> 00:35:03,660

process

439

00:35:07,609 --> 00:35:05,880

in addition to the suit IVs up in space

440

00:35:09,230 --> 00:35:07,619

we also have a team of people here in

441

00:35:11,089 --> 00:35:09,240

Mission Control who will support

442

00:35:12,890 --> 00:35:11,099

marshburn and baron today

443

00:35:14,990 --> 00:35:12,900

Vincent Lacourt is the lead flight

444

00:35:17,150 --> 00:35:15,000

director for today's Sasa spacewalk and

445

00:35:19,670 --> 00:35:17,160

NASA astronaut Drew Morgan is serving as

446

00:35:21,170 --> 00:35:19,680

the ground IV the ground IV is the one

447

00:35:23,270 --> 00:35:21,180

who communicates with marshburn and

448

00:35:24,770 --> 00:35:23,280

baron during the spacewalk while the

449

00:35:26,690 --> 00:35:24,780

Capcom is the person who communicates

450

00:35:28,370 --> 00:35:26,700

with the crews staying inside

451
00:35:29,810 --> 00:35:28,380
you'll likely hear Morgan's voice quite

452
00:36:52,730 --> 00:35:29,820
often as the spacewalkers move through

453
00:37:17,510 --> 00:36:56,750
age is showing just other point to eight

454
00:37:21,950 --> 00:37:19,849
of course we can't forget about European

455
00:37:23,870 --> 00:37:21,960
Space Agency astronaut Matthias Maurer

456
00:37:25,790 --> 00:37:23,880
he's not visible now but he will be

457
00:37:28,370 --> 00:37:25,800
operating the robotic arm during today's

458
00:37:30,170 --> 00:37:28,380
spacewalk NASA astronaut Tom marshburn

459
00:37:31,790 --> 00:37:30,180
will take the robotic arm to and from

460
00:37:52,930 --> 00:37:31,800
the express Logistics carrier number

461
00:37:59,630 --> 00:37:55,190
depressurization is still underway the

462
00:38:58,390 --> 00:37:59,640
crew lock sitting at about 0.7 PSI

463
00:39:02,089 --> 00:39:00,410

rajatari on the left of your screen was

464

00:39:03,950 --> 00:39:02,099

selected to be an astronaut at the same

465

00:39:05,810 --> 00:39:03,960

time as first-time space walker Kayla

466

00:39:08,390 --> 00:39:05,820

Baron they were both selected to the

467

00:39:10,910 --> 00:39:08,400

astronaut Encore in 2017 and are a part

468

00:39:12,290 --> 00:39:10,920

of the turtles astronaut class they are

469

00:39:53,390 --> 00:39:12,300

both the first of their class to fly to

470

00:39:57,589 --> 00:39:55,970

NASA astronaut mark vandehei on the

471

00:39:59,210 --> 00:39:57,599

right has quite a bit of space blocking

472

00:40:01,490 --> 00:39:59,220

experience himself even though he's not

473

00:40:04,069 --> 00:40:01,500

spacewalking today he's conducted four

474

00:40:06,290 --> 00:40:04,079

spacewalks previously totaling 26 hours

475

00:41:02,030 --> 00:40:06,300

and 42 minutes a record that Tom

476
00:41:05,270 --> 00:41:03,890
we will be taking your questions

477
00:41:07,250 --> 00:41:05,280
throughout the six and a half hour

478
00:41:08,809 --> 00:41:07,260
operation today so if you have any

479
00:41:11,089 --> 00:41:08,819
questions about the spacewalk space

480
00:41:13,130 --> 00:41:11,099
suits or the replacement of the antenna

481
00:42:31,069 --> 00:41:13,140
system today head on over to Twitter and

482
00:42:36,589 --> 00:42:34,190
hey Tom we are showing less than 0.5 PSI

483
00:42:38,990 --> 00:42:36,599
your go to open the hatch but after you

484
00:42:40,550 --> 00:42:39,000
unlatch that's make sure you pause a

485
00:42:44,030 --> 00:42:40,560
second before opening and storing the EV

486
00:42:46,190 --> 00:42:44,040
hatch probably going up in the hatch and

487
00:42:49,970 --> 00:42:46,200
falling for a second before

488
00:43:02,450 --> 00:42:52,609

it's happy

489

00:43:08,450 --> 00:43:03,950

latch

490

00:43:08,460 --> 00:43:16,309

and opening the hatch

491

00:43:20,450 --> 00:43:17,690

let me know if you'd like me to adjust

492

00:43:24,589 --> 00:43:20,460

my body position Tom okay

493

00:43:24,599 --> 00:43:37,550

at this program

494

00:43:44,990 --> 00:43:39,109

anytime let me know when you've got that

495

00:43:48,770 --> 00:43:46,910

and they had to stowed in the hatch

496

00:43:51,230 --> 00:43:48,780

keeper

497

00:43:52,730 --> 00:43:51,240

okay the emergency m pev is closed Tom

498

00:43:53,750 --> 00:43:52,740

and Kayla go crush it out there today

499

00:43:55,130 --> 00:43:53,760

we're really looking forward to seeing

500

00:43:56,870 --> 00:43:55,140

it safely back inside and celebrating

501
00:43:58,790 --> 00:43:56,880

your successes

502
00:44:00,770 --> 00:43:58,800

um take care of yourselves and with that

503
00:44:04,870 --> 00:44:00,780

Drew what were you have a good day with

504
00:44:10,190 --> 00:44:07,550

hey thanks Mark Raja for getting us to

505
00:44:12,650 --> 00:44:10,200

this point Tom Kayla good morning we are

506
00:44:14,210 --> 00:44:12,660

all very excited to be with you we are

507
00:44:16,910 --> 00:44:14,220

in the post depressed portion of the cue

508
00:44:18,530 --> 00:44:16,920

card now and with that on your dcms if

509
00:44:20,750 --> 00:44:18,540

you would switch power to battery

510
00:44:23,990 --> 00:44:20,760

stagger your switch throws and you can

511
00:44:29,620 --> 00:44:24,000

expect a warning tone with that

512
00:44:29,630 --> 00:44:35,809

[Applause]

513
00:44:49,190 --> 00:44:37,970

s

514

00:44:53,329 --> 00:44:49,200

in battery if you check that your

515

00:44:57,050 --> 00:44:55,190

Network

516

00:44:59,930 --> 00:44:57,060

are you switch essential which is

517

00:45:06,010 --> 00:45:02,390

okay Kayla for you on the UIA if you'd

518

00:45:08,990 --> 00:45:06,020

switch power for ev1 and ev2 to off off

519

00:45:11,150 --> 00:45:09,000

both and then verify that all four LEDs

520

00:45:17,030 --> 00:45:11,160

are out

521

00:45:24,410 --> 00:45:21,170

power or Evie one and two is off all

522

00:45:29,150 --> 00:45:26,630

okay copy

523

00:45:33,770 --> 00:45:29,160

and then on your DCM you can disconnect

524

00:45:33,780 --> 00:45:44,390

we're connecting

525

00:45:49,010 --> 00:45:47,329

a DCM or my sdu is disconnected from the

526

00:45:52,030 --> 00:45:49,020

vcm and working on getting it in the

527

00:45:56,809 --> 00:45:54,829

back in place

528

00:45:59,870 --> 00:45:56,819

okay copy you guys are working the

529

00:46:12,589 --> 00:45:59,880

covers and the DCM covers as well as the

530

00:46:19,609 --> 00:46:15,050

and I have a

531

00:46:19,619 --> 00:46:23,890

that's expected Drew

532

00:46:29,809 --> 00:46:26,630

yep Kayla we're tracking and uh that's

533

00:46:33,109 --> 00:46:31,490

yeah Kayla that's an expected message

534

00:46:36,470 --> 00:46:33,119

we'll just you're gonna breathe it down

535

00:46:43,309 --> 00:46:39,829

and uh my SVU is throwed in the pouch my

536

00:46:55,550 --> 00:46:46,849

for ev1 my sdu is in the pouch

537

00:46:55,560 --> 00:47:00,130

all right

538

00:47:05,170 --> 00:47:02,510

okay it sounds like you're both in a

539

00:47:10,190 --> 00:47:07,550

let's complete the one

540

00:47:13,069 --> 00:47:10,200

okay copy and then Kayla if you can take

541

00:47:22,250 --> 00:47:13,079

the depress pump manual ISO isolation

542

00:47:26,089 --> 00:47:24,109

okay all right then if you guys would

543

00:47:28,010 --> 00:47:26,099

both check your tcvs

544

00:47:33,650 --> 00:47:28,020

and we're going to take those to Max hot

545

00:47:33,660 --> 00:47:38,329

and work

546

00:47:43,549 --> 00:47:41,630

at 5 15 a.m Central the 13th spacewalk

547

00:47:48,950 --> 00:47:43,559

of the year and the first spacewalk of

548

00:47:55,790 --> 00:47:50,930

hey let's switch your Waters to the on

549

00:47:55,800 --> 00:47:59,210

time

550

00:48:02,690 --> 00:48:01,010

the spacewalkers are ahead of schedule

551
00:48:04,430 --> 00:48:02,700
they originally scheduled to begin on

552
00:48:06,849 --> 00:48:04,440
the six o'clock hour they are about an

553
00:48:08,710 --> 00:48:06,859
hour ahead

554
00:48:15,530 --> 00:48:08,720
right off

555
00:48:17,030 --> 00:48:15,540
okay coffee you guys can set your tcvs

556
00:48:22,549 --> 00:48:17,040
as desired if you just give us an

557
00:48:30,230 --> 00:48:26,450
for one setting of seven

558
00:48:35,870 --> 00:48:32,510
and for two I'm also going to start out

559
00:48:40,309 --> 00:48:37,910
okay copy of both

560
00:48:43,569 --> 00:48:40,319
if you would check your suit P gauge and

561
00:48:58,910 --> 00:48:47,030
pjs for what is 4.2

562
00:49:03,170 --> 00:49:00,829
okay copy guys those are good numbers

563
00:49:05,569 --> 00:49:03,180

and we are probably going to be coming

564

00:49:07,010 --> 00:49:05,579

out uh right around the sun will be

565

00:49:09,890 --> 00:49:07,020

coming up shortly

566

00:49:11,690 --> 00:49:09,900

um so visors as required as you see out

567

00:49:15,290 --> 00:49:11,700

there we will be coming out over South

568

00:49:26,170 --> 00:49:17,809

happy and it is dark outside right now

569

00:49:31,670 --> 00:49:29,390

okay Tom yeah you are go to open the

570

00:49:34,069 --> 00:49:31,680

hatch thermal cover and you can just

571

00:49:35,510 --> 00:49:34,079

release that hook from the d-ring and

572

00:49:37,190 --> 00:49:35,520

then attach it to that stowage tether

573

00:49:38,930 --> 00:49:37,200

point that you see there and if you just

574

00:49:51,549 --> 00:49:38,940

make sure that you cinch the straps so

575

00:49:56,809 --> 00:49:55,309

5 15 a.m Central Time 6 15 a.m eastern

576
00:49:58,549 --> 00:49:56,819
time is the official start time of the

577
00:50:00,770 --> 00:49:58,559
spacewalk marking the beginning of the

578
00:50:08,030 --> 00:50:00,780
245th spacewalk in support of space

579
00:50:11,450 --> 00:50:10,309
Baron and marshburn are expected to

580
00:50:13,010 --> 00:50:11,460
spend about six and a half hours

581
00:50:15,410 --> 00:50:13,020
replacing a faulty Communications

582
00:50:18,109 --> 00:50:15,420
antenna system called the Sasa on the

583
00:50:19,549 --> 00:50:18,119
port 1 trust structure ground IV Drew

584
00:50:31,670 --> 00:50:19,559
Morgan told the spacewalkers to expect

585
00:50:39,589 --> 00:50:36,170
and I can see six lines of this stove

586
00:50:43,309 --> 00:50:41,690
listen Open to Thermal hatch

587
00:50:46,730 --> 00:50:43,319
thermal cover

588
00:50:46,740 --> 00:50:50,349

all right that's open

589

00:50:55,130 --> 00:50:53,210

okay Tom your go to egress and then if

590

00:50:57,470 --> 00:50:55,140

you'd attach your anchor hook to the

591

00:51:22,069 --> 00:50:57,480

forward external d-ring and we'll stand

592

00:51:28,930 --> 00:51:25,790

are easy one I've got my

593

00:51:33,530 --> 00:51:28,940

anchor hook clothes and luck on the Ford

594

00:51:37,970 --> 00:51:35,569

copy that Tom and your go to connect

595

00:51:43,430 --> 00:51:37,980

Kayla's now to the AFT external d-ring

596

00:51:47,930 --> 00:51:45,589

you may hear our ground IV Drew Morgan

597

00:51:50,690 --> 00:51:47,940

refer to the astronauts as ev1 and ev2

598

00:51:52,549 --> 00:51:50,700

Tom marshburn is designated ev1 while

599

00:51:54,650 --> 00:51:52,559

Kayla Baron is ev2

600

00:51:56,089 --> 00:51:54,660

Tom is wearing the suit with the red

601
00:52:10,069 --> 00:51:56,099
stripes while Baron is wearing the

602
00:52:17,390 --> 00:52:13,790
okay I understand that you are

603
00:52:19,490 --> 00:52:17,400
safe inside right now

604
00:52:22,910 --> 00:52:19,500
I uh waste other

605
00:52:26,750 --> 00:52:25,190
the airlock or the airlock during

606
00:52:29,870 --> 00:52:26,760
extender

607
00:52:31,670 --> 00:52:29,880
hey Kayla you're anchor hook db2 closed

608
00:52:33,290 --> 00:52:31,680
and locked on the f

609
00:52:35,569 --> 00:52:33,300
Carl airlock

610
00:52:38,150 --> 00:52:35,579
hear it

611
00:52:40,130 --> 00:52:38,160
Roger

612
00:52:42,290 --> 00:52:40,140
um where can I get out of your way

613
00:52:48,290 --> 00:52:42,300

I am getting in position to transfer you

614

00:52:52,609 --> 00:52:50,630

Al and Tom we hear you guys both in good

615

00:52:54,170 --> 00:52:52,619

tether configuration you can give Kayla

616

00:52:55,790 --> 00:52:54,180

a go to release your waste tether at any

617

00:52:57,470 --> 00:52:55,800

point and I understand you guys are

618

00:52:59,809 --> 00:52:57,480

working the bag so we'll stand back from

619

00:53:02,510 --> 00:52:59,819

that know you guys have a plan and we'll

620

00:53:06,410 --> 00:53:04,609

Kayla you are go to release that when

621

00:53:09,530 --> 00:53:06,420

you can when you want to

622

00:53:11,210 --> 00:53:09,540

uh there's the bed can't get my VRT

623

00:53:12,829 --> 00:53:11,220

ready

624

00:53:15,069 --> 00:53:12,839

if you take a close look at the top of

625

00:53:17,329 --> 00:53:15,079

your screen you can see Tom marshburn

626
00:53:18,890 --> 00:53:17,339
NASA astronaut wearing the spacesuit

627
00:53:21,370 --> 00:53:18,900
with the red stripes being the first one

628
00:53:34,609 --> 00:53:21,380
out the door

629
00:53:38,990 --> 00:53:36,650
now it's astronaut Kayla Baron is inside

630
00:53:40,670 --> 00:53:39,000
the crew lock still working to get Tom

631
00:53:42,049 --> 00:53:40,680
marshburn some equipment that they'll

632
00:53:43,849 --> 00:53:42,059
need throughout the day before she goes

633
00:53:45,829 --> 00:53:43,859
out the door

634
00:53:47,990 --> 00:53:45,839
about it

635
00:53:50,390 --> 00:53:48,000
and bye for the ready

636
00:53:52,430 --> 00:53:50,400
and actually if you have a good eye on

637
00:54:10,490 --> 00:53:52,440
it once you have your tether you can

638
00:54:22,730 --> 00:54:13,130

my rent is on Roger

639

00:54:30,109 --> 00:54:27,049

his office coming back to you thank you

640

00:54:32,990 --> 00:54:30,119

I've got it and I will put it on the

641

00:54:34,370 --> 00:54:33,000

airlock during the center all right go

642

00:54:40,370 --> 00:54:34,380

ahead and prep your visors the sun is

643

00:54:44,390 --> 00:54:42,349

Survivor is down

644

00:54:46,309 --> 00:54:44,400

and Tom if it's okay with you I'm going

645

00:54:49,430 --> 00:54:46,319

to stick my feet out the hatch while I

646

00:55:00,049 --> 00:54:49,440

work my bag yeah it's just clear

647

00:55:10,549 --> 00:55:02,150

if we need that lighter down

648

00:55:15,950 --> 00:55:12,230

and Tom while you're out there you can

649

00:55:15,960 --> 00:55:18,650

work

650

00:55:22,690 --> 00:55:21,049

all right I got my brt rep on the media

651
00:55:26,390 --> 00:55:22,700
mower eubeg

652
00:55:28,130 --> 00:55:26,400
and my intention is to tend it out after

653
00:55:33,049 --> 00:55:28,140
me if you

654
00:55:36,470 --> 00:55:34,849
marshburn got the cue to turn on his

655
00:55:38,630 --> 00:55:36,480
heca

656
00:55:40,910 --> 00:55:38,640
copy Tom and Kayla we see you're heading

657
00:55:47,089 --> 00:55:40,920
out sun's coming up you'll be right over

658
00:55:47,099 --> 00:55:50,349
brother

659
00:55:55,970 --> 00:55:52,849
extender and I'm coming out Tom are you

660
00:56:04,849 --> 00:55:55,980
okay I see ya

661
00:56:08,150 --> 00:56:06,530
take a close look at the top of your

662
00:56:10,609 --> 00:56:08,160
screen there you can see NASA astronaut

663
00:56:15,530 --> 00:56:10,619

Kayla Baron making her way out to her

664

00:56:19,490 --> 00:56:17,510

got my waist tether down and I'm gonna

665

00:56:22,730 --> 00:56:19,500

start working on getting me medium

666

00:56:39,950 --> 00:56:22,740

already back on my brt

667

00:56:39,960 --> 00:56:47,109

foreign

668

00:56:50,930 --> 00:56:49,309

Caleb Baron will be tasked with closing

669

00:57:21,049 --> 00:56:50,940

the hatch thermal cover that they passed

670

00:57:25,309 --> 00:57:23,329

be sure to send my

671

00:57:26,750 --> 00:57:25,319

under the other side of the bag here

672

00:57:49,130 --> 00:57:26,760

okay

673

00:57:50,750 --> 00:57:49,140

I see

674

00:57:52,490 --> 00:57:50,760

I don't see a heck of light you have

675

00:57:53,750 --> 00:57:52,500

your phone yet I do not but I'll do it

676

00:57:57,410 --> 00:57:53,760

now

677

00:57:59,690 --> 00:57:57,420

Europe I see two green lights red lamps

678

00:58:02,089 --> 00:57:59,700

are on I'm looking for

679

00:58:05,569 --> 00:58:02,099

I want you jaw to your left

680

00:58:08,630 --> 00:58:05,579

I see three tabs up

681

00:58:11,329 --> 00:58:08,640

and right paper handles down left over

682

00:58:14,390 --> 00:58:11,339

handle is down

683

00:58:16,370 --> 00:58:14,400

and I see your weight filter on the

684

00:58:19,010 --> 00:58:16,380

door locked

685

00:58:21,770 --> 00:58:19,020

handrail and your safety partner looks

686

00:58:23,930 --> 00:58:21,780

to be in a good config in your Oru bag

687

00:58:26,089 --> 00:58:23,940

is nicely tendered to your left

688

00:58:29,630 --> 00:58:26,099

better

689

00:58:33,710 --> 00:58:29,640

and for you Tom I see a few green lights

690

00:58:35,150 --> 00:58:33,720

one for w2cs one for heka I see three

691

00:58:38,270 --> 00:58:35,160

tabs up

692

00:58:40,789 --> 00:58:38,280

I see two safety handles

693

00:58:43,730 --> 00:58:40,799

crush and safer handles down

694

00:58:45,890 --> 00:58:43,740

and I see your crew lock bag nicely off

695

00:58:48,170 --> 00:58:45,900

to your left there on your brt

696

00:58:51,410 --> 00:58:48,180

and your tethers look like they're in a

697

00:58:54,589 --> 00:58:51,420

good config and my Baseline hat check is

698

00:59:01,069 --> 00:58:54,599

my half is dry and for one my half is

699

00:59:01,079 --> 00:59:04,910

okay guys

700

00:59:08,450 --> 00:59:06,650

yeah guys that sounds like good buddy

701
00:59:10,130 --> 00:59:08,460
checks and we heard the half bass lines

702
00:59:11,630 --> 00:59:10,140
of just take a peek at your gloves let

703
00:59:13,130 --> 00:59:11,640
us know how they look and then we've

704
00:59:15,829 --> 00:59:13,140
budgeted some time for translation

705
00:59:17,150 --> 00:59:15,839
adaptation take it as you feel like you

706
00:59:19,069 --> 00:59:17,160
need it

707
00:59:22,069 --> 00:59:19,079
um and we'll stand by here quietly and

708
00:59:30,049 --> 00:59:25,609
and for Evie on my gloves Unchained from

709
00:59:36,470 --> 00:59:33,890
and for ev2 I got a good Baseline gold

710
00:59:40,990 --> 00:59:36,480
check they look great

711
00:59:45,890 --> 00:59:43,430
okay Kayla and if you wouldn't mind just

712
00:59:47,450 --> 00:59:45,900
closing the hatch thermal covers and if

713
00:59:49,069 --> 00:59:47,460

that doesn't stick to the magnet you can

714

00:59:51,289 --> 00:59:49,079

also use that wire tie that's right

715

00:59:55,089 --> 00:59:51,299

there staged on handrail zero five five

716

00:59:59,030 --> 00:59:57,470

Baron is now being tasked with closing

717

01:00:01,430 --> 00:59:59,040

the hatch thermal cover that they pass

718

01:00:03,890 --> 01:00:01,440

through they just completed bunny checks

719

01:00:07,309 --> 01:00:03,900

those are conducted periodically

720

01:00:19,010 --> 01:00:09,109

all right that's good news and we'll

721

01:00:24,109 --> 01:00:21,890

these buddy checks are used to check on

722

01:00:26,210 --> 01:00:24,119

their space walking colleagues uh the

723

01:00:27,950 --> 01:00:26,220

camera making sure that's on the the

724

01:00:29,329 --> 01:00:27,960

tethers and tools are still in a good

725

01:00:31,250 --> 01:00:29,339

configuration

726

01:00:32,809 --> 01:00:31,260

you'll also periodically hear a call out

727

01:00:34,789 --> 01:00:32,819

for the crew member to do a glove check

728

01:00:36,770 --> 01:00:34,799

which they also just completed

729

01:00:38,390 --> 01:00:36,780

the space walking astronauts have to be

730

01:00:40,010 --> 01:00:38,400

mindful of any sharp edges or small

731

01:00:41,569 --> 01:00:40,020

objects that could damage the Integrity

732

01:01:20,270 --> 01:00:41,579

of their gloves so they often need to

733

01:01:23,690 --> 01:01:22,130

they also got the cue to turn on their

734

01:01:26,329 --> 01:01:23,700

hiccups this stands for high definition

735

01:01:29,390 --> 01:01:26,339

extra vehicular activity Mobility unit

736

01:01:31,490 --> 01:01:29,400

camera assembly it's a fancy way of

737

01:01:36,589 --> 01:01:31,500

saying of asking astronauts to turn on

738

01:01:39,950 --> 01:01:38,569

this allows us to sometimes see the

739

01:01:41,690 --> 01:01:39,960

operation from an astronaut's point of

740

01:01:43,430 --> 01:01:41,700

view you'll know we're taking the hecka

741

01:01:44,450 --> 01:01:43,440

cameras when you see number 22 in the

742

01:01:46,910 --> 01:01:44,460

corner

743

01:01:57,230 --> 01:01:46,920

this means you're seeing the spacewalk

744

01:02:00,650 --> 01:01:58,910

see that Tom we got caught in our hand

745

01:02:02,750 --> 01:02:00,660

over there

746

01:02:04,549 --> 01:02:02,760

you'll see a number 16 on your screen

747

01:02:05,990 --> 01:02:04,559

when Kayla Baron's heck of views are on

748

01:02:08,150 --> 01:02:06,000

display

749

01:02:10,609 --> 01:02:08,160

and we reported that we're good to go if

750

01:02:12,230 --> 01:02:10,619

you guys are Drew

751
01:02:14,029 --> 01:02:12,240
sorry about that guys we got caught in a

752
01:02:15,770 --> 01:02:14,039
hand over there but uh yes you guys are

753
01:02:17,450 --> 01:02:15,780
go to start your translation out I know

754
01:02:18,890 --> 01:02:17,460
you guys are know where you're headed I

755
01:02:21,109 --> 01:02:18,900
can uh you're headed out to the

756
01:02:23,029 --> 01:02:21,119
starboard seat of cart Tom and you can

757
01:02:25,250 --> 01:02:23,039
let us know where you put decide to put

758
01:02:27,349 --> 01:02:25,260
Fair leads at the base of the seat of

759
01:02:30,470 --> 01:02:27,359
spur and then Kayla you're heading out

760
01:02:31,910 --> 01:02:30,480
to elc3 and uh we'll check in with you

761
01:02:33,410 --> 01:02:31,920
when you get to your green hook we do

762
01:02:39,250 --> 01:02:33,420
have a couple cautions and warnings to

763
01:02:46,250 --> 01:02:43,430

mile marker 8420

764

01:02:48,230 --> 01:02:46,260

affirmative uh Taylor about the time

765

01:02:50,870 --> 01:02:48,240

that your feet are over pmm you'll be

766

01:02:54,170 --> 01:02:50,880

looking for mile marker 8420 and that's

767

01:03:02,870 --> 01:02:54,180

where you'll head zenith

768

01:03:02,880 --> 01:03:07,250

wanted to see this first

769

01:03:13,910 --> 01:03:09,049

copy Tom

770

01:03:19,910 --> 01:03:15,890

stand by at the circular handrail until

771

01:03:19,920 --> 01:03:56,690

foreign

772

01:04:01,609 --> 01:03:59,690

Andrew copy Tom and your first national

773

01:04:03,950 --> 01:04:01,619

we just tempt Stone your crew lock bag

774

01:04:08,150 --> 01:04:03,960

and that'll be about in the area where

775

01:04:08,160 --> 01:04:11,329

okay

776

01:04:15,109 --> 01:04:13,069

um I'm coming up behind you on the

777

01:04:22,130 --> 01:04:15,119

toolboxes all right I'm heading up to

778

01:04:26,029 --> 01:04:24,170

the astronauts are now headed to their

779

01:04:27,470 --> 01:04:26,039

respective workstations outside of the

780

01:04:30,950 --> 01:04:27,480

space station

781

01:04:32,870 --> 01:04:30,960

Kayla Baron will take a path to the ex

782

01:04:34,549 --> 01:04:32,880

the one that you see in blue here on

783

01:04:36,230 --> 01:04:34,559

your screen to the external Logistics

784

01:04:38,809 --> 01:04:36,240

carrier number three where the spare

785

01:04:40,670 --> 01:04:38,819

sassa is mounted Tom marshburn will take

786

01:04:42,349 --> 01:04:40,680

the shorter path in red on the bottom

787

01:04:43,670 --> 01:04:42,359

third of your screen to Canada arm to

788

01:04:45,829 --> 01:04:43,680

the robotic arm

789

01:04:47,630 --> 01:04:45,839

once configured European Space Agency

790

01:04:49,609 --> 01:04:47,640

astronaut Matthias Maurer will control

791

01:04:55,130 --> 01:04:49,619

the robotic arm and take marshburn to

792

01:04:57,950 --> 01:04:56,750

copy that Tom and I can give you a

793

01:04:59,630 --> 01:04:57,960

specific mile marker if you're looking

794

01:05:01,970 --> 01:04:59,640

for but if I think if you look out there

795

01:05:05,089 --> 01:05:01,980

to uh and Brian you'll be able to see

796

01:05:08,690 --> 01:05:07,130

all right coffee

797

01:05:10,730 --> 01:05:08,700

looks like we're getting our first

798

01:05:12,529 --> 01:05:10,740

helmet camera of the day you can see the

799

01:05:14,569 --> 01:05:12,539

number 16 in the corner indicating this

800

01:05:16,730 --> 01:05:14,579

is NASA astronaut Kayla Baron's point of

801
01:05:28,450 --> 01:05:16,740
view she's on her way to the external

802
01:05:33,410 --> 01:05:31,010
at the cedar handrail getting ready to

803
01:05:36,289 --> 01:05:33,420
head out Port as well okay I'm gonna let

804
01:05:42,470 --> 01:05:36,299
my safety cover kind of stand below you

805
01:05:42,480 --> 01:06:06,890
okay guys on it

806
01:06:06,900 --> 01:06:21,710
I see your progress looking good

807
01:06:28,549 --> 01:06:24,230
Baron will actually pass by the faulty

808
01:06:33,170 --> 01:06:29,930
going on to the express Logistics

809
01:06:38,569 --> 01:06:35,750
copy that Tom and we think it's probably

810
01:06:40,309 --> 01:06:38,579
going to be about mile marker 86.70

811
01:06:42,230 --> 01:06:40,319
anywhere in there is good for your clue

812
01:06:44,390 --> 01:06:42,240
lock bag

813
01:06:46,270 --> 01:06:44,400

okay

814

01:06:49,250 --> 01:06:46,280

here's the FDA

815

01:06:52,309 --> 01:06:49,260

1986 70.

816

01:06:53,860 --> 01:06:52,319

I'm gonna put that on my

817

01:07:00,529 --> 01:06:53,870

screen lock back here

818

01:07:11,750 --> 01:07:02,750

copy that Kayla and you'll head Zenith

819

01:07:11,760 --> 01:07:15,650

I see it Andrew

820

01:07:19,849 --> 01:07:17,990

okay and the next thing to look for is

821

01:07:22,130 --> 01:07:19,859

the fpmu and then you're looking for a

822

01:07:23,990 --> 01:07:22,140

handrail at the base of that 3613 for

823

01:07:25,190 --> 01:07:24,000

your green hook and as you place your

824

01:07:34,849 --> 01:07:25,200

green hook I'll give you those cautions

825

01:07:38,089 --> 01:07:36,470

once Baron gets there she'll work to

826

01:07:41,870 --> 01:07:38,099

Stow two work bags that she brought with

827

01:07:45,710 --> 01:07:41,880

her the seat of cart and looking for

828

01:07:49,970 --> 01:07:45,720

whiff one to grab that apfr

829

01:07:53,930 --> 01:07:51,829

she'll also get out a tether and install

830

01:07:56,569 --> 01:07:53,940

it to the elc3

831

01:08:05,150 --> 01:07:56,579

it'll be used later to temporarily Stow

832

01:08:11,390 --> 01:08:08,390

you're on my handrail eight six one or

833

01:08:13,370 --> 01:08:11,400

correction three six one three

834

01:08:16,189 --> 01:08:13,380

okay you can drop your green hook there

835

01:08:18,169 --> 01:08:16,199

and then if you look out to the port

836

01:08:19,669 --> 01:08:18,179

side there you'll see the UHF antenna

837

01:08:21,590 --> 01:08:19,679

and the charge you kind of thread the

838

01:08:23,090 --> 01:08:21,600

needle there we just want you to avoid

839

01:08:24,709 --> 01:08:23,100

contact with both of those if you do

840

01:08:26,749 --> 01:08:24,719

have inadvertent contact with the charge

841

01:08:29,990 --> 01:08:26,759

let us know we might have to sit still

842

01:08:34,130 --> 01:08:32,269

Roger

843

01:08:36,950 --> 01:08:34,140

and then the last warning I'll have for

844

01:08:38,450 --> 01:08:36,960

you is when you get out to elc3 face as

845

01:09:09,169 --> 01:08:38,460

you're climbing up on it I have one more

846

01:09:13,309 --> 01:09:11,510

the acrylic bag is 10th Road right there

847

01:09:16,789 --> 01:09:13,319

in front of the NPA

848

01:09:16,799 --> 01:09:21,410

sounds good Tom meet you at whip one

849

01:09:27,890 --> 01:09:25,669

copy dude my green Hook is down on

850

01:09:32,209 --> 01:09:27,900

three six one three

851

01:09:32,219 --> 01:09:47,749

copy that Taylor all sounds great

852

01:09:51,349 --> 01:09:49,910

we're now getting live views from helmet

853

01:09:53,390 --> 01:09:51,359

camera number two belonging to Tom

854

01:09:56,209 --> 01:09:53,400

marshburn

855

01:09:59,390 --> 01:09:56,219

okay Tom and it's uh there on that with

856

01:10:01,130 --> 01:09:59,400

X with with number one your call whether

857

01:10:02,870 --> 01:10:01,140

that apr if you want to try to ten it

858

01:10:06,350 --> 01:10:02,880

back or put it on your brt and then

859

01:10:06,360 --> 01:10:17,030

y

860

01:10:17,040 --> 01:10:21,709

and I'm past the UHS antenna

861

01:10:21,719 --> 01:10:38,149

tequila

862

01:10:42,050 --> 01:10:40,430

you can see the word Ceta on your screen

863

01:10:44,750 --> 01:10:42,060

that stands for crew and Equipment

864

01:10:46,970 --> 01:10:44,760

translation Aid marshburn will stop here

865

01:10:48,890 --> 01:10:46,980

to set up the robotic arm this involves

866

01:10:50,689 --> 01:10:48,900

installing a portable foot restraint and

867

01:10:52,970 --> 01:10:50,699

using it to get himself situated inside

868

01:10:57,770 --> 01:10:52,980

the robotic arm the portable foot

869

01:11:00,950 --> 01:10:59,750

once installed and with the go from a

870

01:11:02,570 --> 01:11:00,960

flight director he'll be ready for

871

01:11:10,370 --> 01:11:02,580

motion at the controls of Matthias

872

01:11:14,330 --> 01:11:12,290

since the portable foot restraint is

873

01:11:15,410 --> 01:11:14,340

outside of the station marshburn did not

874

01:11:16,490 --> 01:11:15,420

have to bring the foot restraint with

875

01:11:18,169 --> 01:11:16,500

him

876

01:11:36,970 --> 01:11:18,179

he'll install it back on the seat and

877

01:11:41,870 --> 01:11:39,770

hey Kayla and one of our camera views we

878

01:11:44,030 --> 01:11:41,880

thought we saw maybe your D5 camera was

879

01:11:46,070 --> 01:11:44,040

hanging a little low and we just wanted

880

01:11:48,770 --> 01:11:46,080

to have you check to make sure it wasn't

881

01:11:53,570 --> 01:11:48,780

snagged on anything

882

01:11:53,580 --> 01:12:15,590

copy that

883

01:12:20,110 --> 01:12:18,350

is been working on getting the apfr out

884

01:12:23,870 --> 01:12:20,120

of it

885

01:12:23,880 --> 01:12:28,550

and I am approaching the base of vlc3

886

01:12:32,870 --> 01:12:30,169

okay Kayla this is just that reminder

887

01:12:35,090 --> 01:12:32,880

about the thesis where have you come up

888

01:12:36,890 --> 01:12:35,100

the outboard face of the ELC it's in the

889

01:12:38,330 --> 01:12:36,900

upper right corner that app Zenith

890

01:12:41,090 --> 01:12:38,340

Corner we just want to avoid contact

891

01:12:41,100 --> 01:13:03,590

how's your avoid contact with you

892

01:13:03,600 --> 01:13:09,470

I'm on the lc3 heading Phoenix

893

01:13:15,169 --> 01:13:12,470

okay you're exactly where we had hoped

894

01:13:16,790 --> 01:13:15,179

you'd be you're doing very well I know

895

01:13:17,990 --> 01:13:16,800

that you've got your checklist there of

896

01:13:20,090 --> 01:13:18,000

items that we're going to go through we

897

01:13:22,729 --> 01:13:20,100

want to get that Medium Oru bag crew

898

01:13:24,470 --> 01:13:22,739

lock bag staged I can give you any

899

01:13:26,990 --> 01:13:24,480

additional words that you require there

900

01:13:29,510 --> 01:13:27,000

then we want to move that ball stack mod

901
01:13:32,330 --> 01:13:29,520
over to 8708 and we'll catch up with you

902
01:13:35,390 --> 01:13:33,590
better

903
01:13:37,189 --> 01:13:35,400
I've got what I need and I'll check and

904
01:13:38,750 --> 01:13:37,199
if I have any questions

905
01:13:41,149 --> 01:13:38,760
and through

906
01:13:42,050 --> 01:13:41,159
I'm definitely out of black on black for

907
01:13:47,630 --> 01:13:42,060
the

908
01:13:52,430 --> 01:13:47,640
currently

909
01:13:52,440 --> 01:14:08,450
copy time checking

910
01:14:12,850 --> 01:14:10,430
moving around see if I'm side loading it

911
01:14:12,860 --> 01:14:21,470
yeah Tom that's a good call

912
01:14:25,550 --> 01:14:23,810
NASA astronaut Kayla Baron is now tasked

913
01:14:28,010 --> 01:14:25,560

with stowing two work brags that she

914

01:14:30,709 --> 01:14:28,020

brought out with her she'll also put out

915

01:14:33,410 --> 01:14:30,719

a tether and install it to the elc3

916

01:14:46,030 --> 01:14:33,420

it'll be used later on to temporarily

917

01:14:51,229 --> 01:14:49,430

hey Tom we're um so we want to try to

918

01:14:54,110 --> 01:14:51,239

get your hands circumferentially around

919

01:14:57,050 --> 01:14:54,120

that collar and then cycle it to

920

01:14:58,669 --> 01:14:57,060

completely through its range of motion

921

01:15:02,390 --> 01:14:58,679

use two hands if you're able just for

922

01:15:02,400 --> 01:15:11,930

I see yep

923

01:15:20,390 --> 01:15:15,290

did get a little further that time

924

01:15:23,990 --> 01:15:22,370

you're getting a live look now of NASA

925

01:15:25,850 --> 01:15:24,000

astronaut Tom marshburn as he configures

926

01:15:31,729 --> 01:15:25,860

the portable foot restraint all in

927

01:16:14,149 --> 01:15:56,800

s

928

01:16:14,159 --> 01:16:16,910

hey Kayla

929

01:16:21,169 --> 01:16:19,189

copy that um we'll meet you at the arm

930

01:16:23,990 --> 01:16:21,179

and uh Kayla for you if you wouldn't

931

01:16:25,970 --> 01:16:24,000

mind checking your hecka light for us

932

01:16:28,189 --> 01:16:25,980

and then power cycle it if you don't see

933

01:16:31,250 --> 01:16:28,199

it on

934

01:16:37,070 --> 01:16:31,260

here the light is on

935

01:16:37,080 --> 01:16:45,290

striking

936

01:16:51,169 --> 01:16:47,090

yeah Kayla if you would power cycle it

937

01:16:55,669 --> 01:16:53,810

NASA astronaut Drew Morgan our ground IV

938

01:17:00,410 --> 01:16:55,679

today is working with astronaut Kayla

939

01:17:09,830 --> 01:17:03,169

this allows us to see the Eva from Kayla

940

01:17:14,510 --> 01:17:12,709

if you're just joining us today two NASA

941

01:17:16,669 --> 01:17:14,520

astronauts are on a spacewalk outside of

942

01:17:18,770 --> 01:17:16,679

the International Space Station they'll

943

01:17:24,470 --> 01:17:18,780

be working with the Sasa or s-band and

944

01:17:28,550 --> 01:17:26,630

Roger I'm doing well out here and I'm

945

01:17:31,750 --> 01:17:28,560

just going to execute for a credit card

946

01:17:37,990 --> 01:17:34,729

on the ground I'm ready for the uh

947

01:17:43,790 --> 01:17:38,000

far movement all right we're ready

948

01:17:50,030 --> 01:17:47,149

we're ready we'll stand by

949

01:17:53,209 --> 01:17:50,040

e okay Roger I'm ready for the CCA to

950

01:17:53,219 --> 01:17:56,870

Ed standby

951
01:18:01,550 --> 01:17:58,850
no you guys are go we're gonna we will

952
01:18:03,410 --> 01:18:01,560
pull out and while you guys uh work this

953
01:18:09,250 --> 01:18:03,420
Kayla knows what she needs to do so the

954
01:18:09,260 --> 01:18:13,689
are ready for the Jeep

955
01:18:17,510 --> 01:18:15,770
apfr install position that's going to be

956
01:18:19,010 --> 01:18:17,520
about a half meter Nader and about a

957
01:18:38,630 --> 01:18:19,020
meter after set it up I'll let you know

958
01:18:38,640 --> 01:18:46,430
rear motion Tom

959
01:18:55,130 --> 01:18:48,709
that's a good motion

960
01:18:55,140 --> 01:19:11,390
and Here Comes Your station after motion

961
01:19:11,400 --> 01:19:21,229
halfway there

962
01:19:21,239 --> 01:19:23,750
is

963
01:19:27,830 --> 01:19:25,669

you're getting a great view now of

964

01:19:33,169 --> 01:19:27,840

canadarm 2 the robotic arm that will be

965

01:19:36,770 --> 01:19:35,330

NASA astronaut Tom marshburn will take

966

01:19:38,750 --> 01:19:36,780

the robotic arm to and from the work

967

01:19:40,850 --> 01:19:38,760

sites

968

01:19:43,729 --> 01:19:40,860

and I copied uh

969

01:19:48,470 --> 01:19:46,189

yeah that's good read back Tom yep

970

01:19:51,050 --> 01:19:48,480

that's a good and Status install at 12

971

01:19:53,090 --> 01:19:51,060

and we expect that probably pitch and

972

01:19:54,410 --> 01:19:53,100

yaw are already set but just yeah we'll

973

01:19:56,209 --> 01:19:54,420

take a confirmation of that once you're

974

01:19:58,790 --> 01:19:56,219

installed

975

01:20:01,729 --> 01:19:58,800

yeah I can confirm that the pitch is

976
01:20:01,739 --> 01:20:38,510
and I'll check on the rest in a moment

977
01:20:42,470 --> 01:20:40,610
the movements of the robotic arm today

978
01:21:45,229 --> 01:20:42,480
conducted by European Space Agency

979
01:21:51,229 --> 01:21:48,770
hey the people are black on black but

980
01:21:53,510 --> 01:21:51,239
rotate this good pull tests

981
01:21:56,090 --> 01:21:53,520
and the pitch knob

982
01:21:57,830 --> 01:21:56,100
is nope

983
01:22:00,649 --> 01:21:57,840
we're gonna talk about the chicken on

984
01:22:00,659 --> 01:22:18,470
good check so far Tom

985
01:22:22,070 --> 01:22:20,510
and Kayla we did get your heck of back

986
01:22:23,990 --> 01:22:22,080
so your actions were successful thank

987
01:22:44,330 --> 01:22:24,000
you

988
01:22:49,729 --> 01:22:47,689

now it's an astronaut working now with

989

01:22:51,649 --> 01:22:49,739

Issa astronaut Matthias Maurer to

990

01:22:54,950 --> 01:22:51,659

configure the robotic arm the space

991

01:22:57,709 --> 01:22:54,960

station is now flying over the ocean and

992

01:23:25,250 --> 01:22:57,719

will shortly reach the eastern coast of

993

01:23:25,260 --> 01:23:28,209

foreign

994

01:23:32,590 --> 01:23:31,070

six are confirmed

995

01:23:35,030 --> 01:23:32,600

foreign

996

01:23:36,709 --> 01:23:35,040

that sounds like your APR is in a good

997

01:23:38,209 --> 01:23:36,719

configuration and so we'll have you

998

01:23:40,129 --> 01:23:38,219

retrieve your crew lock bag and put it

999

01:23:42,350 --> 01:23:40,139

on your brt and then I'll be ready to

1000

01:23:44,689 --> 01:23:42,360

talk you through your tether swap to the

1001

01:23:49,250 --> 01:23:46,850

okay copy that

1002

01:23:55,250 --> 01:23:49,260

it's for Sao I've got the muffle segment

1003

01:24:00,290 --> 01:23:56,810

is setting up for the stanchion mount

1004

01:24:05,290 --> 01:24:00,300

bolt looking good so far Kayla while I'm

1005

01:24:40,310 --> 01:24:07,310

copy that you're going for those three

1006

01:24:40,320 --> 01:24:48,590

class

1007

01:24:52,610 --> 01:24:50,810

Andrew I'm going to get the two more

1008

01:24:54,410 --> 01:24:52,620

neater ones and save the other ones for

1009

01:24:55,010 --> 01:24:54,420

when I get to the other side or Tom's

1010

01:24:58,910 --> 01:24:55,020

here

1011

01:25:01,250 --> 01:24:58,920

the two are you know

1012

01:25:02,870 --> 01:25:01,260

okay copy that Kayla so that could you

1013

01:25:05,570 --> 01:25:02,880

give us a total then that is that you've

1014

01:25:08,209 --> 01:25:05,580

already worked

1015

01:25:49,430 --> 01:25:08,219

two total are removed

1016

01:26:22,910 --> 01:25:50,750

foreign

1017

01:26:27,290 --> 01:26:25,669

Master astronaut Kayla Barron is now

1018

01:26:29,810 --> 01:26:27,300

working to tie back some insulation

1019

01:26:31,729 --> 01:26:29,820

layers on the spare sassa this is a task

1020

01:26:55,729 --> 01:26:31,739

that will help them later on in their

1021

01:27:02,750 --> 01:26:59,810

Drew I got good PGT checks uh Cal

1022

01:27:07,910 --> 01:27:02,760

complete and I'm ready for PGT settings

1023

01:27:14,870 --> 01:27:10,790

okay we're looking for Bravo 7 clockwise

1024

01:27:19,990 --> 01:27:16,790

here I've got Bravos Bravo's room

1025

01:27:20,000 --> 01:27:30,470

okay we're expecting nine to ten turns

1026

01:27:30,480 --> 01:27:33,709

and we expected

1027

01:27:38,810 --> 01:27:35,629

and we expect it'll spring back when

1028

01:27:41,510 --> 01:27:38,820

it's fully released

1029

01:28:09,830 --> 01:27:41,520

other starting turns for nine percent

1030

01:28:16,250 --> 01:28:14,030

and I've got nine to ten turns

1031

01:28:18,950 --> 01:28:16,260

um it there is play in it now so it is

1032

01:28:21,169 --> 01:28:18,960

bringing back as expected uh bolt

1033

01:28:26,169 --> 01:28:23,570

out of the launch or well I guess it's

1034

01:28:28,790 --> 01:28:26,179

driven out of the launch block

1035

01:28:30,590 --> 01:28:28,800

all right that's great news and you can

1036

01:28:32,629 --> 01:28:30,600

go ahead and Stow your PGT and then you

1037

01:28:35,390 --> 01:28:32,639

can start working the rest and

1038

01:28:41,390 --> 01:28:37,490

I already have

1039

01:28:43,610 --> 01:28:41,400

um stage for the tint and clam shell I'm

1040

01:28:47,510 --> 01:28:43,620

gonna work nzgl Taps and then I will

1041

01:28:50,229 --> 01:28:47,520

stage the reduces tether for

1042

01:28:59,270 --> 01:28:50,239

um the shirt and stuff

1043

01:29:02,209 --> 01:29:00,830

you're hearing the voice of NASA

1044

01:29:03,950 --> 01:29:02,219

astronaut Kayla Baron as she

1045

01:29:06,709 --> 01:29:03,960

communicates to our ground IV Drew

1046

01:29:09,169 --> 01:29:06,719

Morgan about some tasks that the elc3

1047

01:29:15,890 --> 01:29:09,179

that will help prep the spare Sasa to be

1048

01:29:19,610 --> 01:29:17,510

and so I'm just checking back in with

1049

01:29:22,010 --> 01:29:19,620

you and we're just looking for when you

1050

01:29:23,689 --> 01:29:22,020

tell us that your green Hook is locked I

1051
01:29:27,290 --> 01:29:23,699
can talk you through the other steps or

1052
01:29:29,870 --> 01:29:27,300
you can continue to work ahead

1053
01:29:35,990 --> 01:29:29,880
I am

1054
01:29:43,070 --> 01:29:37,910
okay copy

1055
01:29:49,669 --> 01:29:44,750
okay I understand that your green Hook

1056
01:29:53,750 --> 01:29:51,709
green Hook is locked on your red reel so

1057
01:29:56,570 --> 01:29:53,760
now you can attach your yellow hook to

1058
01:29:59,810 --> 01:29:56,580
the arm Leaf forward stanchion and then

1059
01:30:07,610 --> 01:29:59,820
give us those checks yellow hook

1060
01:30:11,990 --> 01:30:10,070
as NASA astronaut Kayla Baron preps the

1061
01:30:13,669 --> 01:30:12,000
spare sassa you just heard ground IV

1062
01:30:15,470 --> 01:30:13,679
Drew Morgan checking in with NASA

1063
01:30:20,930 --> 01:30:15,480

astronaut Tom marshburn as he configures

1064

01:30:20,940 --> 01:30:25,669

looks great Caleb

1065

01:30:29,209 --> 01:30:27,229

a yellow hook

1066

01:30:30,169 --> 01:30:29,219

is closed unlocked on the forward part

1067

01:30:32,990 --> 01:30:30,179

of the

1068

01:30:34,910 --> 01:30:33,000

in the factory General

1069

01:30:38,990 --> 01:30:34,920

going for my green I'm gonna read

1070

01:30:58,810 --> 01:30:40,430

sounds good just let us know where you

1071

01:31:02,570 --> 01:31:00,649

[Applause]

1072

01:31:04,850 --> 01:31:02,580

we're starting to get some Earth views

1073

01:31:06,470 --> 01:31:04,860

down below the space station is

1074

01:31:16,790 --> 01:31:06,480

currently passing over the western coast

1075

01:31:16,800 --> 01:32:02,510

all right

1076

01:32:09,709 --> 01:32:05,330

through my green hook for this eight

1077

01:32:09,719 --> 01:32:16,610

we copy Tom

1078

01:32:24,290 --> 01:32:20,930

and Drew I'm complete with staging the

1079

01:32:27,350 --> 01:32:24,300

mli tether and if you agree I'm gonna

1080

01:32:31,610 --> 01:32:27,360

start working on removing the front and

1081

01:32:37,010 --> 01:32:34,450

we'll go with that

1082

01:32:42,470 --> 01:32:37,020

NASA astronaut Kayla band I'm working to

1083

01:32:48,050 --> 01:32:44,390

meanwhile Tom marshburn is getting ready

1084

01:32:48,060 --> 01:32:53,090

you are in the calm as yours

1085

01:32:57,410 --> 01:32:54,770

are ready for the

1086

01:32:59,570 --> 01:32:57,420

Indiana published for the apfr Ingress

1087

01:33:06,770 --> 01:32:59,580

are you ready for maneuver to GCA to

1088

01:33:09,709 --> 01:33:08,149

and this movement's gonna be about a

1089

01:33:11,810 --> 01:33:09,719

half meter Zenith and if you could just

1090

01:33:13,610 --> 01:33:11,820

keep an eye on that in Grace Aid Forest

1091

01:33:15,050 --> 01:33:13,620

Tom we can't quite see in the camera so

1092

01:33:16,669 --> 01:33:15,060

this the t-handed looks like it was kind

1093

01:33:18,050 --> 01:33:16,679

of close to a hand roll as it moves

1094

01:33:19,729 --> 01:33:18,060

xenos just let us know if you get too

1095

01:33:20,990 --> 01:33:19,739

close I can move it a little bit there

1096

01:33:28,310 --> 01:33:21,000

by one I'm going to move it a little bit

1097

01:33:28,320 --> 01:33:43,750

foreign

1098

01:33:49,010 --> 01:33:46,310

now switching his tethers over to attach

1099

01:33:50,390 --> 01:33:49,020

himself to the robotic arm soon he'll

1100

01:33:52,010 --> 01:33:50,400

get into the foot restraint where

1101
01:34:05,930 --> 01:33:52,020
Matthias Maurer can take him to the work

1102
01:34:21,290 --> 01:34:08,270
both astronauts will meet at the Port 1

1103
01:34:30,530 --> 01:34:23,090
hey that's the published position how's

1104
01:34:30,540 --> 01:34:34,250
thank you sir on

1105
01:34:34,260 --> 01:34:37,490
Congress

1106
01:34:41,810 --> 01:34:39,290
okay Tom you can attach your waist

1107
01:34:44,570 --> 01:34:41,820
tether and Ingress uh to the Ingress Aid

1108
01:34:46,790 --> 01:34:44,580
or on the Ingress Aid itself or at the

1109
01:34:52,910 --> 01:34:46,800
tether Point your choice and then go

1110
01:34:52,920 --> 01:35:00,109
lka

1111
01:35:04,250 --> 01:35:02,689
astronaut Tom marshburn is a is visible

1112
01:35:06,830 --> 01:35:04,260
on screen you can tell it's him because

1113
01:35:08,510 --> 01:35:06,840

of the red stripes on his spacesuit you

1114

01:35:10,430 --> 01:35:08,520

can see that his feet are flying free

1115

01:35:18,050 --> 01:35:10,440

but they'll soon be attached to the

1116

01:36:10,910 --> 01:35:46,010

foreign

1117

01:36:17,390 --> 01:36:12,189

[Music]

1118

01:36:21,410 --> 01:36:18,709

it wasn't because there's a clear

1119

01:36:23,870 --> 01:36:21,420

Ingress Aid isn't close

1120

01:36:26,330 --> 01:36:23,880

okay then you can work with Raja and

1121

01:36:29,470 --> 01:36:26,340

Matthias and go to the move it to the

1122

01:36:33,109 --> 01:36:31,609

ready for the maneuver

1123

01:36:38,030 --> 01:36:33,119

maneuver to gimbal back off position

1124

01:36:41,930 --> 01:36:39,890

right this will be about a two meter

1125

01:37:14,570 --> 01:36:41,940

forward move uh we'll let you know what

1126

01:37:14,580 --> 01:37:23,149

starting motion

1127

01:37:23,159 --> 01:37:29,590

pretty good motion

1128

01:37:37,310 --> 01:37:31,790

Tom while you're in motion we'll take a

1129

01:37:37,320 --> 01:37:40,669

here we go

1130

01:37:48,470 --> 01:37:43,250

15.

1131

01:37:48,480 --> 01:37:52,910

we can't be done

1132

01:37:52,920 --> 01:38:10,189

and senators

1133

01:38:10,199 --> 01:38:18,950

and we're setting up a joke

1134

01:38:23,450 --> 01:38:21,229

how's the trail going Taylor

1135

01:38:25,490 --> 01:38:23,460

all right Dad I got the clam shoulder

1136

01:38:27,350 --> 01:38:25,500

move and it tended back towards the high

1137

01:38:30,350 --> 01:38:27,360

pressure gas tank as we hope

1138

01:38:32,750 --> 01:38:30,360

and I am working on

1139

01:38:45,530 --> 01:38:32,760

tents as we speak

1140

01:38:49,430 --> 01:38:47,390

Tom here comes the jocast it's the

1141

01:38:50,810 --> 01:38:49,440

mostly Zenith and some after motion it's

1142

01:38:56,570 --> 01:38:50,820

gonna take about two minutes starting

1143

01:38:56,580 --> 01:39:27,250

very good motion

1144

01:39:31,910 --> 01:39:29,629

NASA astronaut Kayla Baron reporting

1145

01:39:34,010 --> 01:39:31,920

that she's wrapping up her tasks um at

1146

01:39:36,890 --> 01:39:34,020

the first stop of the elc3 today where

1147

01:39:45,590 --> 01:39:36,900

the spare staff that lives she's removed

1148

01:40:22,790 --> 01:39:47,510

and she's also driven a stanchion

1149

01:40:22,800 --> 01:40:28,310

subscriber

1150

01:40:31,310 --> 01:40:29,810

we're setting up some cameras and

1151
01:40:34,250 --> 01:40:31,320
they'll be ready to maneuver you to the

1152
01:40:57,050 --> 01:40:34,260
GCA to publish cable position great I'm

1153
01:41:01,189 --> 01:40:59,570
hey would that be your uh ready Tom and

1154
01:41:02,870 --> 01:41:01,199
with that we'll go ahead and start GCA

1155
01:41:04,370 --> 01:41:02,880
to publish gimbal position it's going to

1156
01:41:06,890 --> 01:41:04,380
be about starboard about a meter and

1157
01:41:09,350 --> 01:41:06,900
then aft about a meter and a half

1158
01:41:11,450 --> 01:41:09,360
there you go it's our GTA and Melissa

1159
01:41:14,330 --> 01:41:11,460
service what you just said

1160
01:41:36,169 --> 01:41:14,340
all right starting motion

1161
01:41:40,370 --> 01:41:38,990
and stop motion

1162
01:41:43,310 --> 01:41:40,380
hey that's the end of your starboard

1163
01:42:20,510 --> 01:41:43,320

motion and here comes about uh

1164

01:42:26,390 --> 01:42:22,850

I copied that

1165

01:42:27,649 --> 01:42:26,400

see if I can work with this here and I

1166

01:42:30,050 --> 01:42:27,659

do need starboard about another 10

1167

01:42:31,729 --> 01:42:30,060

centimeters

1168

01:42:34,129 --> 01:42:31,739

learn a brief but expected Handover

1169

01:42:35,930 --> 01:42:34,139

period between satellites

1170

01:42:41,510 --> 01:42:35,940

we expect to get our live views of our

1171

01:42:49,129 --> 01:42:45,169

that motion stopped and then GPA okay

1172

01:42:49,139 --> 01:42:52,430

and breaks around

1173

01:42:57,649 --> 01:42:55,250

working the gimbal knuckles

1174

01:42:59,990 --> 01:42:57,659

okay we're with you Tom let us know how

1175

01:43:01,910 --> 01:43:00,000

it looks to you uh those you can adjust

1176

01:43:04,850 --> 01:43:01,920

the gimbal as you need to to get those

1177

01:43:06,950 --> 01:43:04,860

bolts locked into their or rotated into

1178

01:43:09,410 --> 01:43:06,960

their locked position and once they're

1179

01:43:11,149 --> 01:43:09,420

engaged we want you to push inward on

1180

01:43:12,830 --> 01:43:11,159

the base of the antenna to ensure that

1181

01:43:15,590 --> 01:43:12,840

that the septum is heated against those

1182

01:43:17,030 --> 01:43:15,600

spacer blocks we do have a caution here

1183

01:43:20,510 --> 01:43:17,040

for you that we don't want you to use

1184

01:43:22,850 --> 01:43:20,520

more than 7.7 pounds of force because

1185

01:43:28,189 --> 01:43:22,860

that can actually dislodge them to take

1186

01:43:33,109 --> 01:43:30,890

okay just so you know they are not

1187

01:43:37,669 --> 01:43:33,119

easily coming out of the uh

1188

01:43:54,770 --> 01:43:39,050

I don't want to put too much force on

1189

01:43:57,770 --> 01:43:56,149

in time does it look like you have

1190

01:44:01,790 --> 01:43:57,780

pretty good access to all four from this

1191

01:44:06,890 --> 01:44:04,370

it does I'll try to move it around I

1192

01:44:08,209 --> 01:44:06,900

didn't get any motion on any of them

1193

01:44:09,770 --> 01:44:08,219

start with

1194

01:44:32,810 --> 01:44:09,780

I'm gonna try to move the septum a

1195

01:44:52,270 --> 01:44:35,330

okay there's one particular in the

1196

01:44:52,280 --> 01:45:10,669

there's three out of the third division

1197

01:45:19,070 --> 01:45:14,990

and Drew I have the uh clamshell and

1198

01:45:20,810 --> 01:45:19,080

tent tethered down and tucked in I think

1199

01:45:23,930 --> 01:45:20,820

sufficiently for to allow me to

1200

01:45:25,370 --> 01:45:23,940

translate across I'm just wondering if

1201

01:45:29,810 --> 01:45:25,380

you think I should start working the

1202

01:45:34,010 --> 01:45:31,490

yeah Kayla we think that's the next best

1203

01:45:36,050 --> 01:45:34,020

step so we'll work towards getting your

1204

01:45:40,729 --> 01:45:36,060

e-rad on give us those checks and then

1205

01:45:40,739 --> 01:46:03,970

how's your handwork

1206

01:46:08,750 --> 01:46:06,770

Kayla Baron reporting out that she has

1207

01:46:10,910 --> 01:46:08,760

finished removing some layers of

1208

01:46:12,590 --> 01:46:10,920

insulation from the spare sassa this is

1209

01:46:14,629 --> 01:46:12,600

after she drove the stanchion mount bolt

1210

01:46:16,070 --> 01:46:14,639

out of its launch position and now that

1211

01:46:18,709 --> 01:46:16,080

she's working ahead of schedule she's

1212

01:46:19,970 --> 01:46:18,719

doing some tasks that was planned for

1213

01:46:22,370 --> 01:46:19,980

the next time she was supposed to be

1214

01:46:29,030 --> 01:46:22,380

here at this workstation just doing a

1215

01:46:46,669 --> 01:46:30,709

Sun's going down if you guys want to

1216

01:46:52,390 --> 01:46:48,350

we drew up that all four out of the

1217

01:46:59,750 --> 01:46:56,930

copy that Tom means I'm going to need uh

1218

01:47:03,109 --> 01:46:59,760

I'm gonna use a little more GPA go one

1219

01:47:08,090 --> 01:47:05,330

that sounds good

1220

01:47:10,189 --> 01:47:08,100

work with the uh work the team up there

1221

01:47:11,990 --> 01:47:10,199

with Matthias and Raja and we'll give

1222

01:47:13,370 --> 01:47:12,000

the com over you and it sounds like

1223

01:47:18,070 --> 01:47:13,380

Kayla's good to go while she's getting

1224

01:47:23,390 --> 01:47:21,229

workout one which is my right shoulder

1225

01:47:25,430 --> 01:47:23,400

step upside down then I'll switch over

1226
01:47:26,930 --> 01:47:25,440
to two three and then four we're giving

1227
01:47:29,570 --> 01:47:26,940
them in the locked position but not

1228
01:47:32,030 --> 01:47:29,580
working them yet

1229
01:47:38,450 --> 01:47:32,040
copy you're just engaging them but not

1230
01:47:38,460 --> 01:47:42,950
a few fries are ready for uh GCA

1231
01:47:48,830 --> 01:47:45,169
okay we're ready uh where do you want to

1232
01:47:50,270 --> 01:47:48,840
go uh 23 millimeters starboard and y'all

1233
01:47:52,129 --> 01:47:50,280
left

1234
01:47:53,390 --> 01:47:52,139
20 centimeter starboard and then y'all

1235
01:47:58,250 --> 01:47:53,400
left we'll do the starboard first and

1236
01:47:58,260 --> 01:48:02,990
it breaks her off

1237
01:48:03,000 --> 01:48:11,870
and different station starboard

1238
01:48:25,490 --> 01:48:14,570

emotions

1239

01:48:25,500 --> 01:48:29,270

stop motion

1240

01:48:41,109 --> 01:48:31,189

for that for a little uh station to ask

1241

01:48:41,119 --> 01:48:44,629

good copy

1242

01:48:44,639 --> 01:48:50,290

that's a good motion

1243

01:48:56,689 --> 01:48:53,330

okay there's your 10 centimeters

1244

01:48:58,790 --> 01:48:56,699

and now the yard left body y'all left

1245

01:49:11,689 --> 01:48:58,800

43 degrees

1246

01:49:15,290 --> 01:49:13,790

okay stop Marshall

1247

01:49:19,250 --> 01:49:15,300

we got a hand over coming over stopping

1248

01:49:29,450 --> 01:49:23,870

and uh one more uh station Venus

1249

01:49:36,589 --> 01:49:32,870

20 centimeters Zenith good copy

1250

01:49:40,250 --> 01:49:37,850

stop motion

1251

01:49:44,510 --> 01:49:40,260

emotions

1252

01:49:48,470 --> 01:49:44,520

and in GTA did you see I complete

1253

01:49:55,070 --> 01:49:52,970

and Drew I have the thread on my PGT

1254

01:49:57,950 --> 01:49:55,080

with a good pull test the wobble is now

1255

01:50:00,290 --> 01:49:57,960

on the socket caddy also a good pull

1256

01:50:04,270 --> 01:50:00,300

test and I'm getting in position

1257

01:50:11,390 --> 01:50:07,550

coffee Kayla and what about we've got

1258

01:50:14,689 --> 01:50:13,070

there were about 30 seconds to hand over

1259

01:50:17,209 --> 01:50:14,699

so Kayla we're going to have you do a

1260

01:50:21,649 --> 01:50:17,219

glove and hap check and we'll catch you

1261

01:50:27,530 --> 01:50:24,050

Roger we'll stand by

1262

01:50:29,030 --> 01:50:27,540

the PSN Roger are ready for a GTA back

1263

01:50:31,430 --> 01:50:29,040

to the original position and this is the

1264

01:50:35,209 --> 01:50:33,530

so I knew what we did that's going to be

1265

01:50:37,129 --> 01:50:35,219

taking you about 20 centimeters later

1266

01:50:50,570 --> 01:50:37,139

we'll take out the yaw and then take you

1267

01:50:55,250 --> 01:50:52,850

Kayla Baron now reporting out that she's

1268

01:50:57,770 --> 01:50:55,260

done some tasks ahead of time with the

1269

01:50:59,390 --> 01:50:57,780

extra time that she's had originally she

1270

01:51:01,070 --> 01:50:59,400

was supposed to prep the spare sassa

1271

01:51:02,450 --> 01:51:01,080

head over to the P1 trust with Tom

1272

01:51:04,970 --> 01:51:02,460

marshburn and then they would both come

1273

01:51:07,550 --> 01:51:04,980

back to the spare together and work to

1274

01:51:09,770 --> 01:51:07,560

loosen some bolts however since Baron is

1275

01:51:11,810 --> 01:51:09,780

already at the spare Sasa she decided to

1276

01:51:14,810 --> 01:51:11,820

do some tasks ahead of time

1277

01:51:18,109 --> 01:51:14,820

and uh I mean just for the NATO Park so

1278

01:51:20,870 --> 01:51:18,119

I'll take uh motion y'all

1279

01:51:23,450 --> 01:51:20,880

and the support

1280

01:51:38,450 --> 01:51:23,460

I could work on the other side I'm sorry

1281

01:51:38,460 --> 01:51:41,390

Marshall

1282

01:51:51,589 --> 01:51:43,970

's back out here comes uh 10 centimeters

1283

01:51:55,850 --> 01:51:54,530

and stop motion having motion there and

1284

01:52:00,350 --> 01:51:55,860

then you're ready for your 20 centimeter

1285

01:52:11,209 --> 01:52:06,470

ion

1286

01:52:13,430 --> 01:52:11,219

how's that look

1287

01:52:14,770 --> 01:52:13,440

everything all clear I'll take uh

1288

01:52:18,470 --> 01:52:14,780

station

1289

01:52:20,450 --> 01:52:18,480

give me another 10 centimeters there

1290

01:52:23,030 --> 01:52:20,460

okay another 10 centimeter station aft

1291

01:52:25,370 --> 01:52:23,040

booting good copy

1292

01:52:34,310 --> 01:52:25,380

commercial

1293

01:52:34,320 --> 01:52:39,649

breaks around confirms APA complete

1294

01:52:43,910 --> 01:52:42,470

are you back with us

1295

01:52:46,310 --> 01:52:43,920

yeah okay we're back we just were

1296

01:52:49,970 --> 01:52:46,320

waiting for the GCA complete I have

1297

01:52:56,030 --> 01:52:52,810

I already have uh Bravo four

1298

01:52:58,970 --> 01:52:56,040

counterclockwise two set and I'm in

1299

01:53:00,770 --> 01:52:58,980

position to drive on your bill

1300

01:53:02,689 --> 01:53:00,780

okay we'll go for that you're on the low

1301
01:53:03,890 --> 01:53:02,699
gain antenna side decide what we were

1302
01:53:07,370 --> 01:53:03,900
expecting

1303
01:53:09,169 --> 01:53:07,380
11 to 19 turns on the PGT if you're

1304
01:53:10,430 --> 01:53:09,179
counting at the PGT

1305
01:53:13,490 --> 01:53:10,440
and then just let us know whether you're

1306
01:53:19,729 --> 01:53:16,129
and I'll start with the Ford

1307
01:53:24,709 --> 01:53:22,850
Drew I'm waking up my uh ppg it looks

1308
01:53:27,589 --> 01:53:24,719
like all bolts are in place

1309
01:53:29,689 --> 01:53:27,599
ready to be torqued

1310
01:53:33,050 --> 01:53:29,699
okay Tom your settings are alpha five

1311
01:53:33,060 --> 01:53:40,209
also five o'clockwise two

1312
01:53:44,629 --> 01:53:42,470
Baron reporting out that she's ready to

1313
01:54:02,030 --> 01:53:44,639

work on the release of two launch bolts

1314

01:54:05,990 --> 01:54:03,830

you can see her now working with the

1315

01:54:08,030 --> 01:54:06,000

pistol grip tool

1316

01:54:09,470 --> 01:54:08,040

to say I'm just gonna put down my end

1317

01:54:11,209 --> 01:54:09,480

effector to keep me a little closer to

1318

01:54:12,770 --> 01:54:11,219

stretch my hair and then try

1319

01:54:15,350 --> 01:54:12,780

bolts

1320

01:54:17,810 --> 01:54:15,360

sounds like a great plan

1321

01:54:20,830 --> 01:54:17,820

the pistol grip tool or PGT is basically

1322

01:54:20,840 --> 01:54:25,010

ready for the settings again please

1323

01:54:31,310 --> 01:54:28,070

Alpha 5 clockwise two you're driving and

1324

01:54:34,790 --> 01:54:31,320

it'll only be three turns

1325

01:54:38,629 --> 01:54:36,709

all right that's a good read back and

1326
01:54:41,390 --> 01:54:38,639
we're going to do these in order one two

1327
01:54:42,950 --> 01:54:41,400
three four so we're starting at the bolt

1328
01:54:45,770 --> 01:54:42,960
on your right side towards your head

1329
01:54:47,750 --> 01:54:45,780
three turns we'll take torque turns and

1330
01:55:03,970 --> 01:54:47,760
lights

1331
01:55:08,209 --> 01:55:06,290
marshburn is working to install gimbal

1332
01:55:10,070 --> 01:55:08,219
locks that give the spacewalkers a

1333
01:55:12,290 --> 01:55:10,080
little more control of the degraded unit

1334
01:55:15,530 --> 01:55:12,300
in its move from P1 and over to the

1335
01:55:18,109 --> 01:55:15,540
express Logistics carrier number three

1336
01:55:19,609 --> 01:55:18,119
it just means that the communications

1337
01:55:37,970 --> 01:55:19,619
antenna won't make any sudden

1338
01:55:43,370 --> 01:55:41,570

Andrew I'm not 19 turns to confirm

1339

01:55:46,310 --> 01:55:43,380

whether you expect it to Spring out when

1340

01:55:56,450 --> 01:55:48,109

Kayla I guess we are expecting that it

1341

01:55:59,870 --> 01:55:57,770

yeah Kayla you can go ahead and keep

1342

01:56:01,669 --> 01:55:59,880

driving

1343

01:56:05,570 --> 01:56:01,679

okay

1344

01:56:07,189 --> 01:56:05,580

I got 2.5 turns the Torx green light on

1345

01:56:10,010 --> 01:56:07,199

hold number one

1346

01:56:11,930 --> 01:56:10,020

number two

1347

01:56:15,169 --> 01:56:11,940

copy that Tom on bolt number one and

1348

01:56:17,709 --> 01:56:15,179

then you're moving over to bolt two

1349

01:56:21,169 --> 01:56:17,719

left shoulder

1350

01:56:24,169 --> 01:56:21,179

and Drew these four bolt has sprung out

1351

01:56:25,970 --> 01:56:24,179

that was 25 turns total starting with

1352

01:56:27,770 --> 01:56:25,980

the f

1353

01:56:31,669 --> 01:56:27,780

uck good words and uh understand you're

1354

01:56:39,229 --> 01:56:35,930

and for real I got uh 2.1 turns

1355

01:56:41,209 --> 01:56:39,239

3.2 turns and forth to shoot decimal

1356

01:56:44,209 --> 01:56:41,219

three

1357

01:56:48,470 --> 01:56:44,219

one for the left knee

1358

01:56:52,490 --> 01:56:50,629

and Tom it happened on the bolt number

1359

01:56:54,410 --> 01:56:52,500

one we didn't hear the torque on that

1360

01:56:56,030 --> 01:56:54,420

but we did hear that your turns in green

1361

01:56:57,770 --> 01:56:56,040

light on bolt number one the first one

1362

01:57:01,570 --> 01:56:57,780

you did

1363

01:57:10,550 --> 01:57:01,580

it was 2.5 it was two programs

1364

01:57:10,560 --> 01:57:14,089

stand by Tom

1365

01:57:14,099 --> 01:57:27,790

ready

1366

01:57:31,910 --> 01:57:29,930

Tom we're going to have you double check

1367

01:57:38,450 --> 01:57:31,920

PGT settings and just read back what you

1368

01:57:43,070 --> 01:57:41,030

I see

1369

01:57:45,950 --> 01:57:43,080

there was that an alpha one I thought I

1370

01:57:51,589 --> 01:57:47,450

Alpha two

1371

01:57:51,599 --> 01:57:55,729

Tom we're expecting Alpha five

1372

01:57:55,739 --> 01:57:59,270

Alpha five for you Thomas

1373

01:58:04,750 --> 01:58:01,010

I miss that

1374

01:58:09,709 --> 01:58:07,070

Tom marshburn now getting his pistol

1375

01:58:11,870 --> 01:58:09,719

grip tool configured to drive four total

1376

01:58:13,729 --> 01:58:11,880

gimbal locks

1377

01:58:18,290 --> 01:58:13,739

again this helps control the motion of

1378

01:58:23,390 --> 01:58:21,169

and wondering if you think I should work

1379

01:58:25,189 --> 01:58:23,400

a socket Swap and head back to Tom or

1380

01:58:29,149 --> 01:58:25,199

head to view the long schools on the

1381

01:58:32,870 --> 01:58:31,129

copy Kayla we're checking uh one thing

1382

01:58:34,310 --> 01:58:32,880

that we needed to go back on is and

1383

01:58:36,050 --> 01:58:34,320

during the Handover we missed your

1384

01:58:38,390 --> 01:58:36,060

happen glove just confirm that those

1385

01:58:43,310 --> 01:58:38,400

were both good we assumed they were

1386

01:58:49,669 --> 01:58:45,109

okay Caitlin just give us a moment here

1387

01:58:59,330 --> 01:58:52,550

Andrew I've got 3.1 and 6.8 on the

1388

01:59:03,410 --> 01:59:01,850

copy that Tom we got 6.8 that time in a

1389

01:59:05,390 --> 01:59:03,420

green light bolt one and so we'll be on

1390

01:59:06,169 --> 01:59:05,400

to bolt two that's a good bolt on bolt

1391

01:59:09,290 --> 01:59:06,179

one

1392

01:59:10,910 --> 01:59:09,300

of the ball too Tom marshburn confirms

1393

01:59:14,990 --> 01:59:10,920

that he's finished driving the first of

1394

01:59:20,510 --> 01:59:17,629

and Caleb for you we'll just have you go

1395

01:59:22,790 --> 01:59:20,520

ahead and remove the e-rad from your go

1396

01:59:24,589 --> 01:59:22,800

back to your socket swap go back to your

1397

01:59:27,770 --> 01:59:24,599

original socket setup and then we're

1398

01:59:29,870 --> 01:59:27,780

going to have you head over to see Tom

1399

01:59:32,030 --> 01:59:29,880

when you come off of VLC we do want to

1400

01:59:35,330 --> 01:59:32,040

make sure that we get a check of your

1401

01:59:41,510 --> 01:59:37,370

that's all in work

1402

01:59:48,070 --> 01:59:41,520

very well guys uh green light 6.8

1403

01:59:53,270 --> 01:59:50,870

copy that Tom

1404

01:59:55,310 --> 01:59:53,280

Marsh current Byrne confirms that he has

1405

01:59:58,430 --> 01:59:55,320

the second of four gimbal lock bolts

1406

02:00:01,310 --> 01:59:58,440

driven meanwhile Kayla Baron worked with

1407

02:00:02,990 --> 02:00:01,320

ground ivy Drew Morgan to get her tools

1408

02:00:05,450 --> 02:00:03,000

configured and she'll start making her

1409

02:00:08,589 --> 02:00:05,460

way over to the P1 trust with Tom

1410

02:00:15,770 --> 02:00:11,149

Roger and I'm just working on my socket

1411

02:00:20,930 --> 02:00:17,750

he rides on the socket caddy with a good

1412

02:00:24,589 --> 02:00:20,940

pull test working the wobble True Green

1413

02:00:28,609 --> 02:00:24,599

Light seven and one point two turns

1414

02:00:28,619 --> 02:00:35,149

copy that Tom copy Kayla

1415

02:00:35,159 --> 02:00:44,810

1204.

1416

02:00:50,149 --> 02:00:46,910

we're good on bolt three so we're ready

1417

02:00:53,390 --> 02:00:50,159

for four right side toward your boot

1418

02:00:58,970 --> 02:00:55,729

and that bolt is not all the way in the

1419

02:01:01,790 --> 02:00:58,980

slot you're stuck about halfway

1420

02:01:03,530 --> 02:01:01,800

I've been working uh

1421

02:01:05,570 --> 02:01:03,540

working that one I'm gonna go in torque

1422

02:01:08,149 --> 02:01:05,580

it down halfway there if you're all

1423

02:01:13,550 --> 02:01:10,550

checking fixed

1424

02:01:16,430 --> 02:01:13,560

doesn't come out easily

1425

02:01:18,950 --> 02:01:16,440

doesn't come out at all

1426

02:01:20,810 --> 02:01:18,960

and also now it's not going in

1427

02:01:23,089 --> 02:01:20,820

I think it uh

1428

02:01:25,189 --> 02:01:23,099

darkest way out a little bit with the

1429

02:01:27,290 --> 02:01:25,199

other pulse

1430

02:01:30,169 --> 02:01:27,300

so I can see a slight Gap in the slot

1431

02:01:32,209 --> 02:01:30,179

between the bolt head and the septum but

1432

02:01:35,350 --> 02:01:32,219

still witch

1433

02:01:35,360 --> 02:01:45,229

copy checking

1434

02:01:47,570 --> 02:01:46,490

some we're going to hold there for a

1435

02:01:49,250 --> 02:01:47,580

moment and just talk about this and

1436

02:01:51,649 --> 02:01:49,260

decide whether we're going to try to

1437

02:02:03,830 --> 02:01:51,659

drive this one down at all

1438

02:02:07,609 --> 02:02:05,870

and guys the last we checked we were

1439

02:02:09,109 --> 02:02:07,619

about 20 minutes ahead of the timeline

1440

02:02:13,490 --> 02:02:09,119

and our limiting

1441

02:02:20,450 --> 02:02:13,500

uh consumable at that point was medox

1442

02:02:24,470 --> 02:02:22,490

and if it's through I got the wobble

1443

02:02:27,350 --> 02:02:24,480

socket back on my PGC with a good pull

1444

02:02:29,030 --> 02:02:27,360

test both of my safer handles are down

1445

02:02:31,010 --> 02:02:29,040

and I'm going to start heading back

1446

02:02:35,390 --> 02:02:31,020

towards some

1447

02:02:38,870 --> 02:02:37,310

good job

1448

02:02:41,450 --> 02:02:38,880

thank you Tom we're talking about this

1449

02:02:44,750 --> 02:02:41,460

last pulse a little bit

1450

02:03:33,530 --> 02:02:44,760

yeah Kayla absolutely great that we are

1451
02:03:37,729 --> 02:03:35,629
Tom we wanted to have you check with

1452
02:03:42,470 --> 02:03:37,739
both four if you were able to back that

1453
02:03:42,480 --> 02:03:46,310
itself

1454
02:03:55,129 --> 02:03:49,189
affirmative

1455
02:04:02,510 --> 02:03:57,770
well it is

1456
02:04:10,550 --> 02:04:04,010
it's got a little bit of motion out of

1457
02:04:10,560 --> 02:04:22,550
foreign

1458
02:04:26,450 --> 02:04:24,649
if you're just joining us for just over

1459
02:04:28,250 --> 02:04:26,460
one hour into the plan six and a half

1460
02:04:30,290 --> 02:04:28,260
hour spacewalk with NASA's astronauts

1461
02:04:32,270 --> 02:04:30,300
Kayla Baron and Tom marshburn

1462
02:04:34,250 --> 02:04:32,280
marshburn sent the first spent the first

1463
02:04:36,169 --> 02:04:34,260

portion of the hour configuring the

1464

02:04:38,390 --> 02:04:36,179

robotic arm that he took to the P1 work

1465

02:04:40,370 --> 02:04:38,400

site where the degraded Sasa lives

1466

02:04:42,050 --> 02:04:40,380

meanwhile Caleb Baron worked at the

1467

02:04:45,589 --> 02:04:42,060

express Logistics carrier number three

1468

02:04:47,390 --> 02:04:45,599

to do some prep work on the spare sassa

1469

02:04:48,530 --> 02:04:47,400

she worked diligently and got some tasks

1470

02:04:51,530 --> 02:04:48,540

ahead of time

1471

02:04:53,270 --> 02:04:51,540

marshburn is in the in process of

1472

02:05:03,470 --> 02:04:53,280

installing four gimbal locks to reduce

1473

02:05:08,990 --> 02:05:05,270

[Music]

1474

02:05:10,970 --> 02:05:09,000

the uh the nut below the bolt head is

1475

02:05:16,430 --> 02:05:10,980

oh that's

1476

02:05:20,870 --> 02:05:18,410

we copy Tom we're still talking about it

1477

02:05:23,689 --> 02:05:22,370

yeah I think all the stuff and really

1478

02:05:39,770 --> 02:05:23,699

doesn't jiggle anymore the other both

1479

02:05:46,550 --> 02:05:41,629

I believe when I was working both two

1480

02:05:52,129 --> 02:05:49,189

okay with

1481

02:05:53,149 --> 02:05:52,139

diameter yeah we copy Tom and so what

1482

02:05:55,250 --> 02:05:53,159

we're going to do is we're going to have

1483

02:05:58,069 --> 02:05:55,260

you reset your PGT to Alpha One

1484

02:05:59,930 --> 02:05:58,079

clockwise two Alpha One clockwise two

1485

02:06:05,750 --> 02:05:59,940

lower setting and then we're going to

1486

02:06:05,760 --> 02:06:23,330

okay

1487

02:06:30,169 --> 02:06:28,129

Alpha One clockwise two Alpha One

1488

02:06:36,470 --> 02:06:30,179

for one clockwise two

1489

02:06:51,770 --> 02:06:39,290

copy Kayla

1490

02:06:56,270 --> 02:06:53,390

all right

1491

02:07:03,169 --> 02:06:56,280

245 on the tour green light and two and

1492

02:07:08,149 --> 02:07:05,689

okay Tom with that we're calling those

1493

02:07:10,490 --> 02:07:08,159

four good gimbal bolts you can Stow your

1494

02:07:12,950 --> 02:07:10,500

PGT and then you can work with the arm

1495

02:07:16,250 --> 02:07:12,960

to maneuver to the P1 retrieval back off

1496

02:07:18,050 --> 02:07:16,260

position and uh before we do that I just

1497

02:07:19,310 --> 02:07:18,060

wanted to let Kayla know that once you

1498

02:07:22,310 --> 02:07:19,320

get there Kayla you can start to work

1499

02:07:26,830 --> 02:07:22,320

those electrical connectors P2 P3 and P4

1500

02:07:29,390 --> 02:07:26,840

and give us the words on the back side

1501

02:07:32,089 --> 02:07:29,400

Roger that some work now

1502

02:07:34,609 --> 02:07:32,099

I tell them to come all right thanks

1503

02:07:36,770 --> 02:07:34,619

and Matthias and Roger are ready for the

1504

02:07:40,069 --> 02:07:36,780

maneuver for the back off position my

1505

02:07:42,950 --> 02:07:41,750

how many brakes are awesome Kathy you're

1506

02:07:45,169 --> 02:07:42,960

ready for the maneuver to the P1

1507

02:07:47,990 --> 02:07:45,179

retrieval back off position uh it's

1508

02:07:49,129 --> 02:07:48,000

gonna be mostly iss4 and Port motion and

1509

02:07:50,990 --> 02:07:49,139

we'll also take out a little bit of what

1510

02:07:52,430 --> 02:07:51,000

we did on some of that GCA I'll let you

1511

02:07:54,229 --> 02:07:52,440

know when we're ready to start

1512

02:07:56,030 --> 02:07:54,239

there's a good copy for me

1513

02:07:57,830 --> 02:07:56,040

marshburn reported out that all four

1514

02:07:59,569 --> 02:07:57,840

gimbal locks have been installed to

1515

02:08:02,330 --> 02:07:59,579

reduce the motion of the degraded Sasa

1516

02:08:04,729 --> 02:08:02,340

as they both work to move it to the elc3

1517

02:08:06,589 --> 02:08:04,739

shortly Baron is still making her way

1518

02:08:09,050 --> 02:08:06,599

over to the P1 site to help marshburn

1519

02:08:10,790 --> 02:08:09,060

remove the degraded Sasa and marshburn

1520

02:08:12,229 --> 02:08:10,800

is working with the crew aboard the

1521

02:08:25,129 --> 02:08:12,239

space station to get into the right

1522

02:08:33,229 --> 02:08:27,350

starting ISS Ford motion about a meter

1523

02:08:33,239 --> 02:09:00,350

that's a good motion

1524

02:09:00,360 --> 02:09:08,450

all right here comes uh Port motion

1525

02:09:08,460 --> 02:09:18,050

a good motion

1526

02:09:18,060 --> 02:09:25,609

10 centimeters

1527

02:09:25,619 --> 02:09:32,149

there's a little bit of native motion

1528

02:09:36,950 --> 02:09:34,609

okay that's the uh position that we're

1529

02:09:38,149 --> 02:09:36,960

gonna set up for a joint ocas take us a

1530

02:09:41,750 --> 02:09:38,159

little bit and it'll be about a four and

1531

02:09:41,760 --> 02:09:47,810

okay Tom before we do that next maneuver

1532

02:09:47,820 --> 02:09:51,350

go ahead Caleb

1533

02:09:57,649 --> 02:09:54,290

um all of the all three of the nvgoes are

1534

02:10:01,010 --> 02:09:57,659

dnated levers full ass over Center and

1535

02:10:03,950 --> 02:10:01,020

for all three uh notepad notebook pins

1536

02:10:05,810 --> 02:10:03,960

and good Emi bands

1537

02:10:08,450 --> 02:10:05,820

I'm assessing now whether I need their

1538

02:10:11,149 --> 02:10:08,460

wires high or adjustable them out of the

1539

02:10:13,250 --> 02:10:11,159

way copy that Kayla it sounds like those

1540

02:10:14,870 --> 02:10:13,260

are good checks and then once you assess

1541

02:10:16,970 --> 02:10:14,880

whether or not you need to wire tie then

1542

02:10:20,930 --> 02:10:16,980

we'll have you move towards the DRT

1543

02:10:22,430 --> 02:10:20,940

handrail 3618 and Tom for you before we

1544

02:10:23,810 --> 02:10:22,440

do this next maneuver we got a little

1545

02:10:29,330 --> 02:10:23,820

check with the things we wanted to run

1546

02:10:32,569 --> 02:10:31,069

okay

1547

02:10:34,189 --> 02:10:32,579

Tom we're gonna have you check your

1548

02:10:36,530 --> 02:10:34,199

tools and tethers are clear and you're

1549

02:10:38,569 --> 02:10:36,540

in Ingress Aid is stowed pulled close to

1550

02:10:40,010 --> 02:10:38,579

your body probably keep your visor up

1551
02:10:41,810 --> 02:10:40,020
because it's going to be nighttime for a

1552
02:10:45,350 --> 02:10:41,820
couple more minutes and then check your

1553
02:10:49,970 --> 02:10:47,629
okay good call the dog feeders my tools

1554
02:10:52,910 --> 02:10:49,980
and shelters are clear

1555
02:10:55,669 --> 02:10:52,920
and Ingress Aid is full towards me

1556
02:10:58,129 --> 02:10:55,679
the Viper's in a good position

1557
02:11:00,109 --> 02:10:58,139
okay set your cooling if you need to and

1558
02:11:03,050 --> 02:11:00,119
then verify your heels are secured think

1559
02:11:08,450 --> 02:11:03,060
heels out this entire time then a glove

1560
02:11:14,629 --> 02:11:11,149
right

1561
02:11:17,030 --> 02:11:14,639
and gloves are still pristine

1562
02:11:19,790 --> 02:11:17,040
Happy on the goalie I'm good

1563
02:11:23,990 --> 02:11:19,800

fun bit of History here back in 2007

1564

02:11:27,589 --> 02:11:24,000

Expedition 16 astronaut Rick Miss Rick

1565

02:11:31,189 --> 02:11:27,599

mastracchio and Clay Anderson relocated

1566

02:11:32,750 --> 02:11:31,199

the s-band antenna sub-assembly from P6

1567

02:11:35,870 --> 02:11:32,760

to P1 where the astronauts are working

1568

02:11:39,950 --> 02:11:38,629

obviously taking you after

1569

02:11:42,950 --> 02:11:39,960

this

1570

02:11:44,810 --> 02:11:42,960

back in 2007 mastracchio and Anderson

1571

02:11:46,609 --> 02:11:44,820

reported having the same difficulty that

1572

02:12:16,069 --> 02:11:46,619

Tom marshburn had with that with that

1573

02:13:14,270 --> 02:12:34,250

foreign

1574

02:13:19,370 --> 02:13:16,430

um so I thought probably seven

1575

02:13:21,350 --> 02:13:19,380

counterclock like two sets

1576

02:13:24,229 --> 02:13:21,360

I think if I understood the procedure

1577

02:13:28,609 --> 02:13:24,239

correctly I can break torque uh now and

1578

02:13:31,790 --> 02:13:30,229

yeah Caleb those are good settings and

1579

02:13:34,069 --> 02:13:31,800

you have a go to break torque one Turn

1580

02:13:34,079 --> 02:13:36,770

okay

1581

02:13:40,010 --> 02:13:38,629

you can hear now that the astronauts Tom

1582

02:13:42,350 --> 02:13:40,020

marshburn and Kayla Baron will be

1583

02:13:44,270 --> 02:13:42,360

working together on this step marshburn

1584

02:13:45,950 --> 02:13:44,280

will tether the Sasa before it's set

1585

02:13:47,629 --> 02:13:45,960

completely free with the release of the

1586

02:13:49,430 --> 02:13:47,639

stanchion bolt that Baron is removing

1587

02:14:20,330 --> 02:13:49,440

this is the one that attaches the

1588

02:14:24,410 --> 02:14:22,490

The View you see here live on your

1589

02:14:26,089 --> 02:14:24,420

screen is Kayla Baron retrieving her

1590

02:14:27,890 --> 02:14:26,099

pistol grip tool and configuring it to

1591

02:14:29,569 --> 02:14:27,900

break torque on that santrum bolt that

1592

02:14:35,750 --> 02:14:29,579

attaches the degraded Sasa to the space

1593

02:14:40,370 --> 02:14:38,330

and you believe torque is broken one

1594

02:14:41,870 --> 02:14:40,380

turn I just want to confirm I was fully

1595

02:14:43,790 --> 02:14:41,880

Seated on the boat

1596

02:14:44,589 --> 02:14:43,800

a little hard to tell because it's in

1597

02:14:59,270 --> 02:14:44,599

the

1598

02:15:03,890 --> 02:15:00,950

copy that Taylor did you want it

1599

02:15:08,390 --> 02:15:05,990

yeah Kayla if you had experienced any

1600

02:15:09,530 --> 02:15:08,400

running torque at all we uh we expected

1601

02:15:12,950 --> 02:15:09,540

that you broke torque if you're

1602

02:15:19,129 --> 02:15:16,189

and I'm just stand by for I'm still to

1603

02:15:32,510 --> 02:15:21,770

copy that

1604

02:15:36,050 --> 02:15:34,189

all right Joe caps is complete and we

1605

02:15:38,390 --> 02:15:36,060

are ready for maneuver to GCA to publish

1606

02:15:40,550 --> 02:15:38,400

P1 retrieval position and I'm also ready

1607

02:15:42,470 --> 02:15:40,560

for the move

1608

02:15:43,850 --> 02:15:42,480

let me give us a second to set up the

1609

02:16:09,770 --> 02:15:43,860

maneuver and we'll let you know when

1610

02:16:12,950 --> 02:16:11,510

all right there'll be uh three moves

1611

02:16:15,530 --> 02:16:12,960

here we're gonna take you Nader and then

1612

02:16:17,149 --> 02:16:15,540

starboard and then forward and starting

1613

02:16:19,790 --> 02:16:17,159

with uh two meters later

1614

02:16:21,410 --> 02:16:19,800

great uh Kayla ready for the GCA all

1615

02:16:44,870 --> 02:16:21,420

right I'm ready we're like ready for GTA

1616

02:16:48,530 --> 02:16:46,849

and Tom with the night time and the

1617

02:16:51,230 --> 02:16:48,540

cameras we don't have the best clearance

1618

02:16:59,750 --> 02:16:51,240

of your head in the so just to obviously

1619

02:16:59,760 --> 02:17:16,790

it is made or less

1620

02:17:26,150 --> 02:17:19,190

here comes a little bit of a starboard

1621

02:17:36,230 --> 02:17:28,969

and then here comes a meter ISS forward

1622

02:17:40,610 --> 02:17:39,169

marshburn gave Kayla Baron the go to

1623

02:17:42,049 --> 02:17:40,620

release the stanchion bolt that she was

1624

02:17:44,509 --> 02:17:42,059

working on releasing with her pistol

1625

02:17:46,790 --> 02:17:44,519

grip tool meaning that Tom marshburn

1626

02:17:49,129 --> 02:17:46,800

confirms that he has a grasp on the

1627

02:17:52,009 --> 02:17:49,139

degraded Sasa and it's tethered

1628

02:17:53,330 --> 02:17:52,019

correctly meanwhile the astronauts

1629

02:17:54,770 --> 02:17:53,340

aboard the International Space Station

1630

02:17:56,509 --> 02:17:54,780

gave a go that they were ready to move

1631

02:18:03,250 --> 02:17:56,519

the robotic arm

1632

02:18:07,969 --> 02:18:06,469

about 30 centimeters short of published

1633

02:18:12,110 --> 02:18:07,979

all right when you get brakes on I'll

1634

02:18:18,830 --> 02:18:14,990

breaks around GCA complete and you'll go

1635

02:18:18,840 --> 02:18:22,610

because the handrails of the rfg

1636

02:18:22,620 --> 02:18:26,770

and I have two hands on it

1637

02:18:30,709 --> 02:18:29,389

I am ready if everybody's ready for

1638

02:18:32,150 --> 02:18:30,719

either

1639

02:18:34,570 --> 02:18:32,160

your final torque

1640

02:18:37,070 --> 02:18:34,580

all right Tom if you and Kayla are good

1641

02:18:39,770 --> 02:18:37,080

you have a go to release we're expecting

1642

02:18:43,549 --> 02:18:39,780

about 18 turns we want you to maintain

1643

02:19:21,950 --> 02:18:45,770

s

1644

02:19:28,129 --> 02:19:21,960

might be a little higher

1645

02:19:33,290 --> 02:19:30,469

that knocks into counter three

1646

02:19:38,450 --> 02:19:33,300

back encounter two now

1647

02:19:43,250 --> 02:19:41,270

the degraded unit is in a position known

1648

02:19:44,929 --> 02:19:43,260

as a soft dock it's connected to the

1649

02:19:47,209 --> 02:19:44,939

space station but only that stanchion

1650

02:19:56,870 --> 02:19:47,219

bolt is keeping it in place Kayla Baron

1651

02:20:00,830 --> 02:19:58,730

the next step on the procedures after

1652

02:20:02,990 --> 02:20:00,840

this is accomplished is to move it over

1653

02:20:05,330 --> 02:20:03,000

to the express Logistics carrier number

1654

02:20:06,950 --> 02:20:05,340

three and temporarily stow it using a

1655

02:20:13,610 --> 02:20:06,960

rigid tether that Kayla Baron had

1656

02:20:20,510 --> 02:20:16,030

insurance I'm looking

1657

02:20:25,790 --> 02:20:20,520

we're expecting about 18.

1658

02:20:33,110 --> 02:20:28,190

there's 18.

1659

02:20:38,929 --> 02:20:34,849

we do expect it to Spring up a little

1660

02:20:43,190 --> 02:20:41,210

uh that count could could be a little

1661

02:20:45,230 --> 02:20:43,200

after because it's kind of difficult to

1662

02:20:46,670 --> 02:20:45,240

tell if it's fully seated

1663

02:20:48,530 --> 02:20:46,680

um but I'm gonna get it back on there

1664

02:20:54,849 --> 02:20:48,540

and

1665

02:20:54,859 --> 02:21:29,870

yep go ahead to some additional turns

1666

02:21:35,809 --> 02:21:32,690

hey it is released

1667

02:21:37,429 --> 02:21:35,819

cheese removed I'm going to stir that

1668

02:21:41,270 --> 02:21:37,439

and then give me a chance to just

1669

02:21:43,910 --> 02:21:41,280

reposition myself Tom a little bit

1670

02:21:46,849 --> 02:21:43,920

it just has white back both hands all

1671

02:21:51,530 --> 02:21:48,770

Caleb that sounds good and we're just

1672

02:21:54,650 --> 02:21:51,540

gonna have you uh pull actually as close

1673

02:21:56,690 --> 02:21:54,660

as you can to the center of gravity down

1674

02:22:00,889 --> 02:21:56,700

there and light touch from Tom as he's

1675

02:22:04,250 --> 02:22:02,570

um could you please pull it away from

1676

02:22:05,750 --> 02:22:04,260

the stanchion mount it looks pretty

1677

02:22:08,570 --> 02:22:05,760

straight

1678

02:22:10,790 --> 02:22:08,580

coming a little way

1679

02:22:11,870 --> 02:22:10,800

I think I got arm motion not expansion

1680

02:22:14,809 --> 02:22:11,880

version

1681

02:22:16,070 --> 02:22:14,819

uh the gaps increasing okay I'm going to

1682

02:22:20,870 --> 02:22:16,080

continue to pull

1683

02:22:25,670 --> 02:22:23,630

it might be side loaded and the foot

1684

02:22:29,770 --> 02:22:25,680

lock it a little bit towards me yeah

1685

02:22:37,969 --> 02:22:33,770

on a free the greatest effort great news

1686

02:22:41,630 --> 02:22:40,309

the degraded South is now officially

1687

02:22:51,050 --> 02:22:41,640

free from the International Space

1688

02:22:54,230 --> 02:22:52,730

they just got the go to move it over to

1689

02:22:55,490 --> 02:22:54,240

the express Logistics carrier number

1690

02:22:57,650 --> 02:22:55,500

three

1691

02:23:00,830 --> 02:22:57,660

it will ride along the robotic arm with

1692

02:23:03,170 --> 02:23:00,840

Tom marshburn to the work site

1693

02:23:05,690 --> 02:23:03,180

[Music]

1694

02:23:07,910 --> 02:23:05,700

yeah Corridor is clear

1695

02:23:11,150 --> 02:23:07,920

copy that no wire tied needed and then

1696

02:23:13,730 --> 02:23:11,160

we'll meet you out at elc3

1697

02:23:15,290 --> 02:23:13,740

are you heading that way now

1698

02:23:18,349 --> 02:23:15,300

I'll tell you to look at you real quick

1699

02:23:23,950 --> 02:23:18,359

Kayla since we'll see each other for

1700

02:23:23,960 --> 02:23:28,969

if each other really looks good thanks

1701
02:23:34,790 --> 02:23:30,469
and now for it I'll see you out there

1702
02:23:34,800 --> 02:23:40,250
enjoy the ride

1703
02:23:43,910 --> 02:23:41,510
all right time you ready for motion

1704
02:23:45,349 --> 02:23:43,920
great promotion I'll start in GCA it's

1705
02:23:47,090 --> 02:23:45,359
going to be about a meter and a half aft

1706
02:23:48,410 --> 02:23:47,100
little port and then two meters you have

1707
02:23:58,370 --> 02:23:48,420
to cut it back to where you started from

1708
02:23:58,380 --> 02:24:12,950
good motion

1709
02:24:12,960 --> 02:24:19,550
10 years ago

1710
02:24:26,030 --> 02:24:21,050
I'm going to take you about 15

1711
02:24:26,040 --> 02:24:32,570
and then about two meters unit

1712
02:24:32,580 --> 02:24:59,290
and I'm seeing good motion all around

1713
02:25:03,710 --> 02:25:01,429

you're getting now the helmet camera

1714

02:25:05,030 --> 02:25:03,720

views of NASA astronaut Kayla Baron as

1715

02:25:13,270 --> 02:25:05,040

she translates back to the express

1716

02:25:17,870 --> 02:25:15,469

astronaut Tom marshburn is taking the

1717

02:25:19,550 --> 02:25:17,880

express route over to the work site he's

1718

02:25:21,349 --> 02:25:19,560

taking the robotic arm while carrying

1719

02:25:29,150 --> 02:25:21,359

the degraded Sasa that the two of them

1720

02:25:32,570 --> 02:25:30,950

and guys the sun will be coming up and

1721

02:25:42,349 --> 02:25:32,580

we're about 50 minutes ahead on the

1722

02:25:45,710 --> 02:25:44,210

and Todd this is going to be about a

1723

02:25:47,570 --> 02:25:45,720

seven minute long joke ass it's going to

1724

02:25:49,610 --> 02:25:47,580

be coarse motion

1725

02:25:51,710 --> 02:25:49,620

copy

1726
02:25:55,610 --> 02:25:51,720
mostly important motion to take you over

1727
02:25:55,620 --> 02:27:26,570
nothing else

1728
02:27:30,590 --> 02:27:28,969
both astronauts are making their way out

1729
02:27:33,710 --> 02:27:30,600
to the next workstation the express

1730
02:27:36,650 --> 02:27:33,720
Logistics carrier 3.

1731
02:27:38,870 --> 02:27:36,660
their next task is to temporarily Stow

1732
02:27:41,150 --> 02:27:38,880
the degraded Sasa they're going to put

1733
02:27:42,950 --> 02:27:41,160
it on a rigid tether that Kayla Baron

1734
02:27:44,750 --> 02:27:42,960
had installed earlier this task is

1735
02:27:47,210 --> 02:27:44,760
expected to take about 25 minutes

1736
02:28:07,730 --> 02:27:47,220
however our two spacewalking astronauts

1737
02:28:44,450 --> 02:28:09,230
a third of the way through the booth

1738
02:28:47,570 --> 02:28:45,370

happy

1739

02:28:49,010 --> 02:28:47,580

they reported that they're a third of

1740

02:28:50,750 --> 02:28:49,020

the way over to the work site and as

1741

02:28:52,670 --> 02:28:50,760

they may make their way over I'm going

1742

02:28:54,530 --> 02:28:52,680

to take a question from Twitter we have

1743

02:28:56,210 --> 02:28:54,540

a question from shazi who asks are they

1744

02:28:58,550 --> 02:28:56,220

always hooked connected to the ISS

1745

02:29:00,830 --> 02:28:58,560

during spacewalk

1746

02:29:03,110 --> 02:29:00,840

that's a great question and the answer

1747

02:29:05,510 --> 02:29:03,120

is yes they are always Tethered to the

1748

02:29:07,730 --> 02:29:05,520

space station you may often hear the

1749

02:29:09,290 --> 02:29:07,740

Capcom or the ground IV working with the

1750

02:29:11,809 --> 02:29:09,300

astronauts working on Tether

1751
02:29:13,429 --> 02:29:11,819
configurations for instance earlier Tom

1752
02:29:15,050 --> 02:29:13,439
marshburn had to get his tethers from

1753
02:29:16,790 --> 02:29:15,060
the space station and onto the robotic

1754
02:29:18,710 --> 02:29:16,800
arm

1755
02:29:21,349 --> 02:29:18,720
like Leo event that they become

1756
02:29:23,270 --> 02:29:21,359
untethered marshburn and baron both have

1757
02:29:24,710 --> 02:29:23,280
safer units on

1758
02:29:27,290 --> 02:29:24,720
safer is a shorter way of saying

1759
02:29:29,210 --> 02:29:27,300
simplified aid for Eva rescue if you're

1760
02:29:31,429 --> 02:29:29,220
familiar with a jet pack the safers are

1761
02:29:33,710 --> 02:29:31,439
not too far off

1762
02:29:35,870 --> 02:29:33,720
that weren't worn during space walks as

1763
02:29:37,130 --> 02:29:35,880

a precaution only and they're only used

1764

02:29:39,050 --> 02:29:37,140

if an astronaut were to become

1765

02:29:41,210 --> 02:29:39,060

untethered from the space station

1766

02:29:43,250 --> 02:29:41,220

in this unlikely situation the astronaut

1767

02:29:44,510 --> 02:29:43,260

would use their their safer to propel

1768

02:29:52,250 --> 02:29:44,520

themselves back to the space station

1769

02:29:52,260 --> 02:29:59,690

Ed

1770

02:29:59,700 --> 02:30:04,429

the playing field in the line's gone

1771

02:30:11,270 --> 02:30:07,010

again about the clam Showtime I can

1772

02:30:11,280 --> 02:31:03,290

it's worth still there

1773

02:31:03,300 --> 02:31:20,349

coming in over your right shoulder

1774

02:31:27,230 --> 02:31:23,090

hey Kayla we've got a photo request for

1775

02:31:31,429 --> 02:31:29,030

at a time that you think makes the most

1776

02:31:34,910 --> 02:31:31,439

sense we'd like you to get a photo of

1777

02:31:36,710 --> 02:31:34,920

Bolt 4 gimbal bolt 4 that was uh

1778

02:31:38,870 --> 02:31:36,720

not in the exact configuration to be

1779

02:31:40,969 --> 02:31:38,880

expected and if you wouldn't mind at any

1780

02:31:44,210 --> 02:31:40,979

point whether that's out as Tom's flying

1781

02:31:47,150 --> 02:31:44,220

in or while he's working his Mass bolts

1782

02:31:50,330 --> 02:31:47,160

anytime not absolutely required but

1783

02:31:50,340 --> 02:31:54,230

okay

1784

02:31:59,570 --> 02:31:56,030

you just heard the voice of NASA

1785

02:32:04,849 --> 02:32:01,910

it will be her first spacewalk while Tom

1786

02:32:07,010 --> 02:32:04,859

marshbarn is on his fourth or sorry his

1787

02:32:09,190 --> 02:32:07,020

fifth marshburn's first three spacewalks

1788

02:32:12,710 --> 02:32:09,200

took place over the course of the 15-day

1789

02:32:14,929 --> 02:32:12,720

sts-127 Mission back in 2009 the mission

1790

02:32:16,969 --> 02:32:14,939

saw the delivery of the Japanese built

1791

02:32:19,849 --> 02:32:16,979

exposed facility and the experiment

1792

02:32:20,929 --> 02:32:19,859

Logistics module exposed section to the

1793

02:32:22,730 --> 02:32:20,939

space station

1794

02:32:25,070 --> 02:32:22,740

the fourth spacewalk of his career

1795

02:32:26,690 --> 02:32:25,080

occurred in 2013 when marshburn worked

1796

02:32:34,490 --> 02:32:26,700

with Chris Cassidy to mitigate an

1797

02:32:38,150 --> 02:32:36,290

you're in position hold we're setting up

1798

02:32:39,889 --> 02:32:38,160

here and we'll be ready to maneuver to

1799

02:32:41,150 --> 02:32:39,899

GCA to published for the Sasa tempesto

1800

02:32:43,070 --> 02:32:41,160

position

1801
02:32:44,929 --> 02:32:43,080
you want me to hold it up to you for a

1802
02:32:49,250 --> 02:32:44,939
picture or just wait till later

1803
02:32:51,950 --> 02:32:49,260
um is it currently tomorrow my first

1804
02:32:59,150 --> 02:32:51,960
yeah let me let me give it a shot

1805
02:32:59,160 --> 02:33:01,849
yeah

1806
02:33:05,090 --> 02:33:03,590
and Tom we're loaded up so just let us

1807
02:33:10,429 --> 02:33:05,100
know when you're ready

1808
02:33:12,590 --> 02:33:10,439
okay uh ready for the GCA the published

1809
02:33:15,889 --> 02:33:12,600
starting GTA will be about two and a

1810
02:33:24,590 --> 02:33:18,349
I'm sure if I got it there I'm gonna get

1811
02:33:24,600 --> 02:33:32,809
good question

1812
02:33:35,929 --> 02:33:34,370
and Kayla I'll just confirm you're

1813
02:33:37,610 --> 02:33:35,939

clearing the High game antenna from the

1814

02:33:42,770 --> 02:33:37,620

dlc3

1815

02:33:55,429 --> 02:33:45,349

God attended uh forward

1816

02:33:55,439 --> 02:34:04,570

stop motion

1817

02:34:09,590 --> 02:34:07,490

I think we're good

1818

02:34:12,110 --> 02:34:09,600

I think we can get it on it's okay

1819

02:34:14,330 --> 02:34:12,120

comfortable all right in GTA

1820

02:34:16,070 --> 02:34:14,340

be GCA complete

1821

02:34:17,270 --> 02:34:16,080

and uh I can hold it up so you can get

1822

02:34:20,750 --> 02:34:17,280

that picture right now if you'd like

1823

02:34:23,210 --> 02:34:20,760

okay all right before we pop it in again

1824

02:34:25,130 --> 02:34:23,220

I can turn the high gain around to you

1825

02:34:28,309 --> 02:34:25,140

for a picture if you'd like now later

1826

02:34:34,490 --> 02:34:30,410

a little closer for you than that last

1827

02:34:38,090 --> 02:34:36,530

tell me when you're good watch the uh I

1828

02:34:39,170 --> 02:34:38,100

gave them 10 on the spare over here

1829

02:34:41,929 --> 02:34:39,180

you're a little close

1830

02:34:46,190 --> 02:34:44,090

and um

1831

02:34:48,230 --> 02:34:46,200

much in the way and I don't really want

1832

02:34:51,349 --> 02:34:48,240

to move it too much all right we can

1833

02:34:52,670 --> 02:34:51,359

just do it later oh am I okay

1834

02:34:56,809 --> 02:34:52,680

we'll rotate it that way if you like

1835

02:35:01,429 --> 02:34:58,030

all right

1836

02:35:03,770 --> 02:35:01,439

oh yeah I think I got several pictures

1837

02:35:05,809 --> 02:35:03,780

of it there it's the one closest to the

1838

02:35:10,849 --> 02:35:05,819

High Gain antenna

1839

02:35:10,859 --> 02:35:17,809

I got photos

1840

02:35:33,830 --> 02:35:21,670

uh please keep control for now

1841

02:35:38,450 --> 02:35:36,349

so let's see they'll lift this end up

1842

02:35:40,429 --> 02:35:38,460

yeah

1843

02:35:43,490 --> 02:35:40,439

um Tom if you could just

1844

02:35:47,270 --> 02:35:43,500

rotate it so that

1845

02:35:47,280 --> 02:35:52,429

there you go

1846

02:35:59,270 --> 02:35:55,010

and we're almost in there to see the

1847

02:36:07,309 --> 02:36:01,370

and if you could lift your end up

1848

02:36:13,429 --> 02:36:10,910

um but further urine needs to go

1849

02:36:18,230 --> 02:36:13,439

uh towards

1850

02:36:18,240 --> 02:36:21,410

looking pretty good

1851

02:36:25,250 --> 02:36:23,270

um the Jaws aren't fully the petals

1852

02:36:27,830 --> 02:36:25,260

aren't fully popped out there they go

1853

02:36:31,370 --> 02:36:27,840

I'll lock them now

1854

02:36:34,730 --> 02:36:31,380

and let me put my my rep on it all right

1855

02:36:36,650 --> 02:36:34,740

I still have the hand on it that's here

1856

02:36:39,830 --> 02:36:36,660

all right I've got an independent rut

1857

02:36:43,370 --> 02:36:39,840

it's a large small rut from the handrail

1858

02:36:45,110 --> 02:36:43,380

of the degraded FAFSA to the elc3 grid

1859

02:36:47,570 --> 02:36:45,120

and paddles are

1860

02:36:49,670 --> 02:36:47,580

uh Joshua settled out and locked so you

1861

02:36:50,750 --> 02:36:49,680

have to go to remove your

1862

02:36:55,790 --> 02:36:50,760

um

1863

02:36:55,800 --> 02:37:03,950

and

1864

02:37:08,690 --> 02:37:06,770

I'm gonna have to go um

1865

02:37:10,550 --> 02:37:08,700

let's see uh let's see if raspberry I'm

1866

02:37:14,030 --> 02:37:10,560

gonna need you to head up

1867

02:37:17,990 --> 02:37:16,070

okay good clearance

1868

02:37:21,950 --> 02:37:18,000

um the sofa is just above your helmet

1869

02:37:24,469 --> 02:37:21,960

now you may need to lean back everybody

1870

02:37:27,710 --> 02:37:24,479

's coming off and you're in a body frame

1871

02:37:29,990 --> 02:37:27,720

now you want 10 centimeters head up body

1872

02:37:32,929 --> 02:37:30,000

frame that's a firm project clearance

1873

02:37:40,010 --> 02:37:32,939

and centimeter heads up

1874

02:37:40,020 --> 02:37:43,309

and stop Mercer

1875

02:37:48,050 --> 02:37:46,309

breaks on

1876

02:37:50,630 --> 02:37:48,060

you're hearing the voices of Tom

1877

02:37:53,750 --> 02:37:50,640

marshburn and Kayla Baron and as Tom

1878

02:37:55,550 --> 02:37:53,760

communicates to The Operators of the

1879

02:37:57,170 --> 02:37:55,560

robotic arm Matthias Maurer and his

1880

02:37:59,870 --> 02:37:57,180

backup rajatari

1881

02:38:02,210 --> 02:37:59,880

he's given commands so he can hand off

1882

02:38:03,889 --> 02:38:02,220

the degraded Sasa to Kayla Baron who

1883

02:38:09,110 --> 02:38:03,899

will work to Stow the Sasa on the

1884

02:38:20,270 --> 02:38:11,270

site

1885

02:38:24,230 --> 02:38:22,250

in a brief but expected Handover period

1886

02:38:31,670 --> 02:38:24,240

between satellites right now getting a

1887

02:38:31,680 --> 02:38:45,889

uh we give you 10 centimeters value down

1888

02:38:55,250 --> 02:38:47,450

okay next we're going to give you a

1889

02:38:59,150 --> 02:38:57,230

there has been a lot of back and forth

1890

02:39:00,530 --> 02:38:59,160

between the work sites uh Kayla Baron

1891

02:39:02,210 --> 02:39:00,540

first starting off

1892

02:39:03,950 --> 02:39:02,220

um in her original position coming out

1893

02:39:06,349 --> 02:39:03,960

of the quest airlock heading over to the

1894

02:39:07,969 --> 02:39:06,359

express Logistics carrier three she then

1895

02:39:10,370 --> 02:39:07,979

went back to the P1 trust where Tom

1896

02:39:12,950 --> 02:39:10,380

marshburn was to help remove the

1897

02:39:14,690 --> 02:39:12,960

degraded Sasa they've both now gone back

1898

02:39:16,309 --> 02:39:14,700

to the express Logistics carrier where

1899

02:39:18,290 --> 02:39:16,319

they're stowing the degraded Sasa

1900

02:39:19,969 --> 02:39:18,300

fortunately for their next step they're

1901

02:39:22,670 --> 02:39:19,979

going to stay here at the express

1902

02:39:25,010 --> 02:39:22,680

Logistics carrier and retrieve the spare

1903

02:39:27,410 --> 02:39:25,020

if you remember earlier Kayla Baron did

1904

02:39:39,710 --> 02:39:27,420

a lot of tasks to get ahead on this

1905

02:39:42,469 --> 02:39:41,030

great that's the published position

1906

02:39:45,590 --> 02:39:42,479

how's that look

1907

02:39:47,570 --> 02:39:45,600

I'm going to need uh

1908

02:39:50,349 --> 02:39:47,580

looking

1909

02:39:53,150 --> 02:39:50,359

another uh since the centimeters

1910

02:39:57,230 --> 02:39:53,160

actually let's stick with that

1911

02:40:00,410 --> 02:39:57,240

body forward uh 20 centimeters

1912

02:40:05,210 --> 02:40:00,420

second Clerks

1913

02:40:05,220 --> 02:40:11,630

motion

1914

02:40:15,889 --> 02:40:14,150

all right there's uh 20 centimeters

1915

02:40:19,190 --> 02:40:15,899

um it looks good

1916

02:40:22,849 --> 02:40:19,200

and then GTA complete

1917

02:40:30,410 --> 02:40:25,309

Drew I'm here at the uh site I believe I

1918

02:40:33,769 --> 02:40:32,510

you got good words Tom I just wanted to

1919

02:40:35,570 --> 02:40:33,779

give you guys a quick update first of

1920

02:40:37,130 --> 02:40:35,580

all tremendous choreography right up to

1921

02:40:39,410 --> 02:40:37,140

through this point

1922

02:40:41,570 --> 02:40:39,420

um you guys right now are about an hour

1923

02:40:43,370 --> 02:40:41,580

ahead of the timeline The Limited

1924

02:40:46,010 --> 02:40:43,380

consumables still medox about seven

1925

02:40:47,990 --> 02:40:46,020

hours so plenty of time we would take

1926

02:40:50,030 --> 02:40:48,000

like to get a glove and half check from

1927

02:40:57,830 --> 02:40:50,040

both of you and then yes we're going to

1928

02:41:02,330 --> 02:41:00,230

easy one half is dry gloves remain for

1929

02:41:04,490 --> 02:41:02,340

staying unchanged from uh

1930

02:41:08,349 --> 02:41:04,500

dress

1931

02:41:12,590 --> 02:41:08,359

and my hop is dry

1932

02:41:14,030 --> 02:41:12,600

my gloves look good I do have

1933

02:41:17,750 --> 02:41:14,040

some

1934

02:41:19,969 --> 02:41:17,760

black smudges on my fingertips

1935

02:41:46,790 --> 02:41:19,979

I'm trying to hold it up to my camera

1936

02:41:46,800 --> 02:42:00,969

we're checking Kayla

1937

02:42:10,849 --> 02:42:03,290

we're going to continue Kayla we see

1938

02:42:10,859 --> 02:42:14,929

it did

1939

02:42:18,889 --> 02:42:17,150

we're now approaching the two hour mark

1940

02:42:21,410 --> 02:42:18,899

out of our planned six and a half hour

1941

02:42:23,210 --> 02:42:21,420

spacewalk NASA astronauts Tom marshburn

1942

02:42:24,769 --> 02:42:23,220

and Kayla Baron working diligently on

1943

02:42:26,809 --> 02:42:24,779

their task of replacing and degraded

1944

02:42:42,110 --> 02:42:26,819

Communications antenna system they're

1945

02:42:52,910 --> 02:42:44,450

the Sasa or s-band and Tennis

1946

02:42:58,790 --> 02:42:55,969

uh no the scarf is not

1947

02:43:00,469 --> 02:42:58,800

the other points over on your side

1948

02:43:03,950 --> 02:43:00,479

it's like they're rotated from what we

1949

02:43:11,630 --> 02:43:06,410

okay do you want to pass the yeah

1950

02:43:17,030 --> 02:43:13,610

I just can't I gotta be careful because

1951

02:43:29,050 --> 02:43:21,110

might need a GTA to like get to you

1952

02:43:37,849 --> 02:43:34,090

might have a red on it I think

1953

02:43:39,290 --> 02:43:37,859

yeah if you remove your room I should

1954

02:43:40,429 --> 02:43:39,300

probably I would probably be able to get

1955

02:43:48,429 --> 02:43:40,439

it home

1956

02:43:52,849 --> 02:43:51,170

this antenna is used to transmit low

1957

02:43:54,710 --> 02:43:52,859

rate voice and data between the space

1958

02:43:56,510 --> 02:43:54,720

station with the flight controllers on

1959

02:43:59,809 --> 02:43:56,520

the ground here in Houston using s-band

1960

02:44:05,330 --> 02:44:02,450

through the report this threat appears

1961

02:44:08,050 --> 02:44:05,340

to be locked out Tom is that intentional

1962

02:44:12,170 --> 02:44:08,060

it was

1963

02:44:16,730 --> 02:44:14,630

they want to consider unlocking it once

1964

02:44:18,110 --> 02:44:16,740

I get this on here

1965

02:44:19,849 --> 02:44:18,120

um

1966

02:44:23,150 --> 02:44:19,859

I worry

1967

02:44:25,130 --> 02:44:23,160

is that it could snarl

1968

02:44:28,250 --> 02:44:25,140

yeah I'm going to send it out here keep

1969

02:44:31,309 --> 02:44:28,260

it straight and um did you remove it

1970

02:44:41,690 --> 02:44:34,190

okay okay yeah I have to get over there

1971

02:44:46,250 --> 02:44:44,690

all right camera I'm gonna need to use

1972

02:44:48,590 --> 02:44:46,260

exams probably

1973

02:44:55,330 --> 02:44:48,600

I can always uh GTA again to get in

1974

02:44:59,510 --> 02:44:57,769

Baron and marshburn now communicating

1975

02:45:01,670 --> 02:44:59,520

back and forth working on the best way

1976

02:45:05,570 --> 02:45:01,680

to Stow the degraded Sasa to the express

1977

02:45:09,830 --> 02:45:07,849

this degraded salsa was on the P1 trust

1978

02:45:11,870 --> 02:45:09,840

and it got moved here to the Space

1979

02:45:15,650 --> 02:45:11,880

Station's Express Logistics carrier

1980

02:45:17,030 --> 02:45:15,660

right well then I tried a GTA in there I

1981

02:45:19,610 --> 02:45:17,040

can get it Tom I'm just gonna need to

1982

02:45:20,450 --> 02:45:19,620

put a brt down I think okay

1983

02:45:22,910 --> 02:45:20,460

um

1984

02:45:25,429 --> 02:45:22,920

just because I need two hands in order

1985

02:45:28,610 --> 02:45:25,439

to promote each other from moving and I

1986

02:45:36,290 --> 02:45:28,620

don't want to run into slogan antenna

1987

02:45:52,790 --> 02:45:38,389

and if you could turn this other bus

1988

02:45:58,730 --> 02:45:55,130

the scarf is now

1989

02:46:02,389 --> 02:45:58,740

feathered and are you able to reach a

1990

02:46:04,190 --> 02:46:02,399

color point on your side I am no I'm not

1991

02:46:06,230 --> 02:46:04,200

uh

1992

02:46:07,790 --> 02:46:06,240

the the tether point that was in the

1993

02:46:09,889 --> 02:46:07,800

pick the picture

1994

02:46:11,450 --> 02:46:09,899

I can make absolutely sure that it's not

1995

02:46:13,130 --> 02:46:11,460

another

1996

02:46:15,170 --> 02:46:13,140

if we could confirm

1997

02:46:19,570 --> 02:46:15,180

there's only two tether points for the

1998

02:46:24,050 --> 02:46:22,250

my vantage point that one right in front

1999

02:46:25,790 --> 02:46:24,060

of you looks like it's on the shirt I

2000

02:46:28,070 --> 02:46:25,800

think I took it too

2001

02:46:32,870 --> 02:46:28,080

this connection point though was uh

2002

02:46:32,880 --> 02:46:37,730

let me go back over to the uh

2003

02:46:44,269 --> 02:46:40,550

Tom Chef what's here Tom we think that

2004

02:46:46,849 --> 02:46:44,279

there are two tether points on the scarf

2005

02:47:03,410 --> 02:46:46,859

Justin okay then we have both the shirt

2006

02:47:07,550 --> 02:47:05,690

Tom if you could just stand by for one

2007

02:47:09,830 --> 02:47:07,560

second probably

2008

02:47:12,290 --> 02:47:09,840

um we're working against you because of

2009

02:47:14,690 --> 02:47:12,300

the way the tether is now routed

2010

02:47:18,530 --> 02:47:14,700

we're just gonna have to slide the scarf

2011

02:47:20,269 --> 02:47:18,540

off the end of the high end antenna

2012

02:47:22,130 --> 02:47:20,279

the shirt and scarf you hear them

2013

02:47:23,630 --> 02:47:22,140

referring to is basically a thermal

2014

02:47:25,610 --> 02:47:23,640

blanket covering the bulk of the

2015

02:47:28,790 --> 02:47:25,620

communication system and its skinnier

2016

02:47:32,510 --> 02:47:30,830

you need to release the velcro on your

2017

02:47:33,710 --> 02:47:32,520

side and then we'll just slide it off

2018

02:47:37,670 --> 02:47:33,720

forward

2019

02:47:37,680 --> 02:47:45,590

okay

2020

02:47:45,600 --> 02:47:50,990

here we go

2021

02:47:51,000 --> 02:47:55,910

players home

2022

02:47:55,920 --> 02:48:00,050

there we go

2023

02:48:00,060 --> 02:48:08,510

all right

2024

02:48:13,610 --> 02:48:12,050

get all the shirts and um I'm working a

2025

02:48:14,929 --> 02:48:13,620

little too far away from this assassin

2026

02:48:19,250 --> 02:48:14,939

I'm going to ask another

2027

02:48:23,389 --> 02:48:19,260

EPA I can take the calm oh my God

2028

02:48:24,530 --> 02:48:23,399

yeah Matthias Roger uh I mean a PCA to

2029

02:48:26,510 --> 02:48:24,540

get a little closer

2030

02:48:30,170 --> 02:48:26,520

where do you want to go all right I want

2031

02:48:31,010 --> 02:48:30,180

to go body up 10 20 centimeters and fish

2032

02:48:33,349 --> 02:48:31,020

down

2033

02:48:35,050 --> 02:48:33,359

about 30 degrees

2034

02:48:37,730 --> 02:48:35,060

forward 30 degrees

2035

02:48:41,090 --> 02:48:37,740

10 centimeters and then pitch for 30

2036

02:48:51,950 --> 02:48:43,309

here comes the body up motion

2037

02:48:56,870 --> 02:48:54,349

oh yeah here comes uh pitch report can't

2038

02:48:59,030 --> 02:48:56,880

stand by anyway uh give me another 10

2039

02:49:03,110 --> 02:48:59,040

centimeters uh

2040

02:49:06,550 --> 02:49:04,730

any good motion

2041

02:49:10,490 --> 02:49:06,560

in stop motion

2042

02:49:15,110 --> 02:49:10,500

and then here comes the pitch forward

2043

02:49:33,230 --> 02:49:18,410

so uh hold off on the Pitchfork and ngta

2044

02:49:33,240 --> 02:49:38,870

all right

2045

02:49:46,969 --> 02:49:40,969

I'm gonna pull the mli away from you as

2046

02:49:46,979 --> 02:49:52,910

I feel like you're all Queer

2047

02:49:56,809 --> 02:49:55,370

I can hold mli away here if you want to

2048

02:49:59,269 --> 02:49:56,819

go get the

2049

02:50:02,510 --> 02:49:59,279

large hook

2050

02:50:04,250 --> 02:50:02,520

I just came by one huh

2051

02:50:06,110 --> 02:50:04,260

I think there's still some velcro

2052

02:50:17,690 --> 02:50:06,120

attached on my side that I'd like to

2053

02:50:22,370 --> 02:50:20,389

and I can rip through it

2054

02:50:48,590 --> 02:50:22,380

do you want me to hold it out of the way

2055

02:50:53,570 --> 02:50:51,469

I'm ready to the whole thing

2056

02:50:54,889 --> 02:50:53,580

and I'm just going to gather it up but

2057

02:50:59,690 --> 02:50:54,899

out of your way once you get that last

2058

02:51:05,630 --> 02:51:01,969

I can't understand how it's routed on

2059

02:51:07,370 --> 02:51:05,640

this side so I can get it out to you

2060

02:51:09,349 --> 02:51:07,380

and I think that was the last little

2061

02:51:11,870 --> 02:51:09,359

piece there looks like it

2062

02:51:13,790 --> 02:51:11,880

I've got a good hand on it

2063

02:51:15,290 --> 02:51:13,800

before we suck in your workspace if you

2064

02:51:19,370 --> 02:51:15,300

want to move that over and I am ready to

2065

02:51:28,309 --> 02:51:22,429

and one second to reconfigure things a

2066

02:51:28,319 --> 02:51:33,889

look like a faithful

2067

02:51:38,870 --> 02:51:35,809

I'm grateful we're not trying to put

2068

02:51:45,290 --> 02:51:40,750

a lot of velcro

2069

02:51:49,910 --> 02:51:47,269

Baron and marshburn had worked to

2070

02:51:51,349 --> 02:51:49,920

temporarily store the failed Sasa

2071

02:51:53,210 --> 02:51:51,359

um right at their current work site

2072

02:51:57,110 --> 02:51:53,220

they'll they'll come back once they've

2073

02:52:00,410 --> 02:51:57,120

installed the new unit to do a more

2074

02:52:10,309 --> 02:52:00,420

temperate to do a more permanent Stow of

2075

02:52:14,750 --> 02:52:12,349

they're working on their first task to

2076

02:52:16,610 --> 02:52:14,760

retrieve the spare sassa that will be

2077

02:52:18,530 --> 02:52:16,620

removed and taken over to the P1 trust

2078

02:52:29,150 --> 02:52:18,540

the first step of that is removing some

2079

02:52:34,250 --> 02:52:31,429

I'm just going to take a second to put

2080

02:52:36,889 --> 02:52:34,260

down my VRT sounds good so I have two

2081

02:52:40,309 --> 02:52:36,899

hands when I trying to pack

2082

02:52:42,290 --> 02:52:40,319

yeah get yourself all set I'm gonna

2083

02:52:43,490 --> 02:52:42,300

if you're good and I let go of this I'm

2084

02:52:45,889 --> 02:52:43,500

gonna

2085

02:52:49,550 --> 02:52:45,899

let's see ask for another TCA to get the

2086

02:52:49,560 --> 02:52:53,389

you should be ready

2087

02:52:58,190 --> 02:52:55,790

Andrew could you confirm uh

2088

02:52:59,870 --> 02:52:58,200

what scale of stuff in the mli I can

2089

02:53:02,870 --> 02:52:59,880

start setting up to release The Lunchbox

2090

02:53:06,110 --> 02:53:04,429

yeah Tom we want you to get in a good

2091

02:53:08,330 --> 02:53:06,120

arm position for that and then we'll

2092

02:53:11,090 --> 02:53:08,340

configure your PGT with the e-rad

2093

02:53:14,630 --> 02:53:11,100

whenever you're ready

2094

02:53:14,640 --> 02:53:19,730

I'm working the large hook now Tom okay

2095

02:53:23,990 --> 02:53:22,070

marshburn just communicated with ground

2096

02:53:26,510 --> 02:53:24,000

IV Drew Morgan that he's ready to

2097

02:53:30,290 --> 02:53:26,520

configure his e-rad or enhanced right

2098

02:53:32,389 --> 02:53:30,300

angle drive this is a tool that is used

2099

02:53:37,250 --> 02:53:32,399

because the bolts are not necessarily in

2100

02:53:37,260 --> 02:53:41,950

go to release your tether stay at work

2101
02:53:52,910 --> 02:53:44,389
he has two launch bolts that he'll be

2102
02:53:52,920 --> 02:53:55,849
Roger

2103
02:54:00,469 --> 02:53:57,590
it is so I can take account for a moment

2104
02:54:01,910 --> 02:54:00,479
on dinner CPA if you ever go to take the

2105
02:54:05,690 --> 02:54:01,920
calm

2106
02:54:08,630 --> 02:54:05,700
and this is still locked out

2107
02:54:13,370 --> 02:54:08,640
Roger

2108
02:54:15,469 --> 02:54:13,380
ready for a GTA body down

2109
02:54:16,969 --> 02:54:15,479
tapping your body down uh do you want to

2110
02:54:19,730 --> 02:54:16,979
go back to where you were

2111
02:54:22,070 --> 02:54:19,740
the good copy and uh safer if I really

2112
02:54:24,410 --> 02:54:22,080
need body down 20 centimeters all right

2113
02:54:26,929 --> 02:54:24,420

20 centimeters body down starting motion

2114

02:54:30,469 --> 02:54:26,939

good copy

2115

02:54:30,479 --> 02:54:35,090

stop motion happy motion

2116

02:54:39,170 --> 02:54:36,950

did you see a complete breaks around

2117

02:54:42,530 --> 02:54:39,180

scorpion

2118

02:54:42,540 --> 02:54:47,830

here

2119

02:54:51,650 --> 02:54:50,030

copied Tom and understand that you're

2120

02:54:53,389 --> 02:54:51,660

now in a good position

2121

02:54:54,710 --> 02:54:53,399

you can go ahead and configure your PGT

2122

02:54:56,750 --> 02:54:54,720

I'll give you settings when you're all

2123

02:54:58,730 --> 02:54:56,760

set up

2124

02:55:01,070 --> 02:54:58,740

okay copy

2125

02:55:11,290 --> 02:55:01,080

I'm getting out my urad

2126
02:55:16,610 --> 02:55:14,330
ground IV Drew Morgan getting ready to

2127
02:55:18,230 --> 02:55:16,620
give Tom marshburn some heads up on tool

2128
02:55:20,630 --> 02:55:18,240
configuration giving him the settings

2129
02:55:23,030 --> 02:55:20,640
for his pistol grip tool to get ready to

2130
02:55:25,550 --> 02:55:23,040
release two launch bolts

2131
02:55:27,830 --> 02:55:25,560
um I'm grateful we put the adjustable on

2132
02:55:30,469 --> 02:55:27,840
the bottom of the bag

2133
02:55:50,450 --> 02:55:30,479
definitely helping me out and I'm just

2134
02:55:54,769 --> 02:55:52,849
as astronaut Kayla bear and worked

2135
02:55:56,929 --> 02:55:54,779
slightly ahead of time when she was at

2136
02:55:59,269 --> 02:55:56,939
the express Logistics carrier the first

2137
02:56:01,550 --> 02:55:59,279
time she did some of the tasks needed to

2138
02:56:03,290 --> 02:56:01,560

retrieve the spare sassa this is a task

2139

02:56:49,849 --> 02:56:03,300

they're both working on right now but

2140

02:56:56,210 --> 02:56:53,389

really Secret's problem is on my uh

2141

02:56:57,889 --> 02:56:56,220

good cinema right adjustable with your

2142

02:57:39,590 --> 02:56:57,899

full test

2143

02:57:44,990 --> 02:57:43,250

the s-band antenna sub assembly or sassa

2144

02:57:46,790 --> 02:57:45,000

went down last September with a failed

2145

02:57:48,830 --> 02:57:46,800

return link this means that mission

2146

02:57:50,870 --> 02:57:48,840

control was able to send data up to the

2147

02:57:52,490 --> 02:57:50,880

space station but the antenna lost its

2148

02:57:54,050 --> 02:57:52,500

ability to send signals back to Earth

2149

02:57:59,269 --> 02:57:54,060

through NASA's tracking and data

2150

02:58:03,349 --> 02:58:01,370

because the space station has so many

2151
02:58:04,370 --> 02:58:03,359
built-in redundancies we are still able

2152
02:58:06,050 --> 02:58:04,380
to communicate with the International

2153
02:58:07,849 --> 02:58:06,060
Space Station from the ground even

2154
02:58:10,070 --> 02:58:07,859
without the Sasa

2155
02:58:11,690 --> 02:58:10,080
the station also has high rate Ku band

2156
02:58:13,010 --> 02:58:11,700
Uplink and downlink capability that

2157
02:58:14,870 --> 02:58:13,020
relays video

2158
02:58:26,150 --> 02:58:14,880
and the station has other low rate s fan

2159
02:58:30,590 --> 02:58:28,309
this is the first spacewalk to replace

2160
02:58:33,410 --> 02:58:30,600
the Sasa since Joe Tanner and Heidi

2161
02:58:35,750 --> 02:58:33,420
stefanov Shin Piper replaced assassa on

2162
02:58:53,090 --> 02:58:35,760
the S1 truss during the sts-115 mission

2163
02:59:01,309 --> 02:58:55,010

copy time we're going to configure your

2164

02:59:05,690 --> 02:59:03,469

as Tom marshburn gets his tools set up

2165

02:59:07,790 --> 02:59:05,700

you can see views of the earth peeking

2166

02:59:11,889 --> 02:59:07,800

through the the right side of your

2167

02:59:14,870 --> 02:59:11,899

screen the International Space Station

2168

02:59:16,429 --> 02:59:14,880

just is crossing over the ocean at the

2169

02:59:19,790 --> 02:59:16,439

moment

2170

02:59:22,550 --> 02:59:19,800

right off the coast of Brazil

2171

02:59:24,050 --> 02:59:22,560

the shirt and scarf sewed in the museum

2172

02:59:26,809 --> 02:59:24,060

are you bad

2173

02:59:29,630 --> 02:59:26,819

that uh adjustable across the bottom was

2174

02:59:35,990 --> 02:59:29,640

a game changer so excellent suggestion

2175

02:59:40,969 --> 02:59:38,630

very nice work Kayla I know how tough

2176
02:59:42,170 --> 02:59:40,979
this can be sometimes and at the end of

2177
02:59:44,510 --> 02:59:42,180
the day we are going to be able to

2178
02:59:46,309 --> 02:59:44,520
bundle crew lock bag and the medium Oreo

2179
02:59:48,230 --> 02:59:46,319
bag if you prefer so just keep that in

2180
02:59:50,330 --> 02:59:48,240
mind in the event that when you go back

2181
02:59:51,349 --> 02:59:50,340
to Resto the mud ball stack is there but

2182
02:59:53,389 --> 02:59:51,359
it looks like you're gonna have plenty

2183
02:59:55,010 --> 02:59:53,399
of room

2184
02:59:57,410 --> 02:59:55,020
yeah it's looking pretty good I would

2185
03:00:03,050 --> 02:59:57,420
say it's taking up about the bottom half

2186
03:00:03,060 --> 03:00:07,550
Andrew say again uh

2187
03:00:24,710 --> 03:00:10,790
getting something Bravo

2188
03:00:28,550 --> 03:00:26,570

another four five o'clockwise two

2189

03:00:30,710 --> 03:00:28,560

verified

2190

03:00:31,969 --> 03:00:30,720

okay those are good settings you're

2191

03:00:34,490 --> 03:00:31,979

going to work the forward and the AFT

2192

03:00:38,870 --> 03:00:34,500

bolts if you're counting at the PGT

2193

03:00:38,880 --> 03:00:44,389

the 19 turns at the PGT

2194

03:00:51,730 --> 03:00:45,889

good read back just let us know what

2195

03:00:56,990 --> 03:00:53,809

on my side

2196

03:00:57,000 --> 03:00:59,650

inside

2197

03:00:59,660 --> 03:01:04,010

copy that

2198

03:01:04,020 --> 03:01:12,910

all right

2199

03:01:20,389 --> 03:01:15,469

NASA astronaut Tom marshburn now working

2200

03:01:24,469 --> 03:01:22,309

this is an activity he was originally

2201
03:01:26,570 --> 03:01:24,479
going to do with Kayla Baron however she

2202
03:01:29,150 --> 03:01:26,580
was able to get the launch bolts off

2203
03:01:46,809 --> 03:01:29,160
earlier in the spacewalk she's getting

2204
03:01:55,849 --> 03:01:49,370
removing these Mass bolts will release

2205
03:01:59,929 --> 03:01:57,710
I don't expect uh

2206
03:02:01,610 --> 03:01:59,939
the fork

2207
03:02:03,410 --> 03:02:01,620
yep but we're going to pop out we expect

2208
03:02:06,170 --> 03:02:03,420
it to Spring out Kayla's all took a

2209
03:02:09,110 --> 03:02:06,180
little more than 20 turns

2210
03:02:15,670 --> 03:02:09,120
okay it's not freaky but it did come up

2211
03:02:20,630 --> 03:02:18,349
on getting in a good position

2212
03:02:22,790 --> 03:02:20,640
for the

2213
03:02:25,309 --> 03:02:22,800

um bathtub

2214

03:02:28,210 --> 03:02:25,319

I've got

2215

03:02:35,269 --> 03:02:31,849

counterclockwise two steps

2216

03:02:40,190 --> 03:02:35,279

I'll stand by for go to drive mode

2217

03:02:44,389 --> 03:02:42,710

it's advantageous that Kayla Baron got

2218

03:02:46,250 --> 03:02:44,399

to work on releasing her launch bolts

2219

03:02:48,410 --> 03:02:46,260

ahead of time as it turns out it took

2220

03:02:51,050 --> 03:02:48,420

one more turn than expected on the

2221

03:02:52,670 --> 03:02:51,060

pistol grip tool the ground IV dream

2222

03:02:58,410 --> 03:02:52,680

Morgan was able to communicate that with

2223

03:03:03,590 --> 03:03:01,429

[Music]

2224

03:03:06,110 --> 03:03:03,600

and through the uh

2225

03:03:10,250 --> 03:03:06,120

Vander falls on the Zenith side

2226

03:03:22,510 --> 03:03:10,260

is out in Spring and it was 44 turns

2227

03:03:37,130 --> 03:03:24,889

marshburn is now halfway done releasing

2228

03:03:37,140 --> 03:03:42,950

copy that

2229

03:03:48,710 --> 03:03:46,330

through the forward zenith

2230

03:03:52,610 --> 03:03:48,720

asphalt is released

2231

03:03:52,620 --> 03:03:56,809

copying nine turns on the zenith

2232

03:04:02,389 --> 03:03:58,730

Baron confirming that she is halfway

2233

03:04:04,969 --> 03:04:02,399

done undoing the two Mass bolts that she

2234

03:04:06,290 --> 03:04:04,979

has while Tom marshburn has released one

2235

03:04:24,670 --> 03:04:06,300

of the two launch bolts that he's

2236

03:04:32,450 --> 03:04:26,630

Caleb can I just go ahead and get a

2237

03:04:37,610 --> 03:04:34,730

um I can tell you now my half is dry I'm

2238

03:04:39,230 --> 03:04:37,620

gonna wait on gloves and paper until

2239

03:04:42,250 --> 03:04:39,240

after the bolt because I'm already in a

2240

03:04:45,349 --> 03:04:42,260

good position with my hands full

2241

03:04:48,230 --> 03:04:45,359

that works

2242

03:04:53,450 --> 03:04:48,240

and uh all right

2243

03:04:56,030 --> 03:04:53,460

Andrew I was waiting for turns

2244

03:05:00,590 --> 03:04:56,040

popped out

2245

03:05:06,950 --> 03:05:03,290

okay copy that Tom and so now you can

2246

03:05:11,929 --> 03:05:06,960

Stow the e-rad reconfigure your PGT just

2247

03:05:16,910 --> 03:05:14,469

happy

2248

03:05:17,929 --> 03:05:16,920

and then ultimately you'll put that PGT

2249

03:05:20,030 --> 03:05:17,939

away and then we'll go through your

2250

03:05:23,929 --> 03:05:20,040

checklist before we have you get in

2251
03:05:26,210 --> 03:05:23,939
position to grasp the spare sassa

2252
03:05:28,670 --> 03:05:26,220
okay

2253
03:05:30,590 --> 03:05:28,680
Tom marshburn confirming that he has

2254
03:05:34,370 --> 03:05:30,600
finished releasing the two launch bolts

2255
03:05:36,650 --> 03:05:34,380
that he was working on on the spare Sasa

2256
03:05:39,170 --> 03:05:36,660
he got direction from his ground IV Drew

2257
03:05:41,570 --> 03:05:39,180
Morgan who gave him the direction to

2258
03:05:50,389 --> 03:05:41,580
configure his tools and ultimately Stow

2259
03:05:56,330 --> 03:05:53,450
with these steps complete we're almost

2260
03:06:00,469 --> 03:05:56,340
ready to remove the spare sassa and move

2261
03:06:00,479 --> 03:06:07,190
go ahead

2262
03:06:15,590 --> 03:06:10,670
rfg is mounted too on the opposite side

2263
03:06:17,750 --> 03:06:15,600

of the rfg there's an mli a piece of Moi

2264

03:06:23,349 --> 03:06:17,760

is that supposed to be there was that

2265

03:06:29,990 --> 03:06:25,250

Kayla that's expected to be there

2266

03:06:34,370 --> 03:06:31,370

confirming

2267

03:06:35,929 --> 03:06:34,380

um one area of the velcro got removed I

2268

03:06:37,250 --> 03:06:35,939

pulled it off inadvertently I think it

2269

03:06:39,410 --> 03:06:37,260

was part of the other mli but it's

2270

03:07:59,990 --> 03:06:39,420

reinstalled

2271

03:08:05,269 --> 03:08:02,210

and who I can report a good glove check

2272

03:08:08,269 --> 03:08:05,279

no Delta and it's good super handle

2273

03:08:11,990 --> 03:08:08,279

handle checks both sides

2274

03:08:20,269 --> 03:08:13,670

your ad is back on the psych Academy

2275

03:08:20,279 --> 03:08:44,990

copy that time

2276

03:08:51,410 --> 03:08:48,170

and we're six inches back on the

2277

03:08:54,530 --> 03:08:51,420

you can see the good Soul tip

2278

03:08:56,330 --> 03:08:54,540

okay copy Tom and get that socket caddy

2279

03:08:59,030 --> 03:08:56,340

stowed in the PGT stowed and then we'll

2280

03:09:02,090 --> 03:08:59,040

go through your uh pre-sassa grasp

2281

03:09:02,100 --> 03:09:06,920

nothing

2282

03:09:06,930 --> 03:09:13,190

[Applause]

2283

03:09:16,490 --> 03:09:14,929

you need to clean up my crew lock bag

2284

03:09:18,110 --> 03:09:16,500

just a second

2285

03:10:48,349 --> 03:09:18,120

the trip home

2286

03:10:48,359 --> 03:11:02,870

foreign

2287

03:11:06,830 --> 03:11:04,550

looks like you got everything put away

2288

03:11:13,250 --> 03:11:08,990

I say firm

2289

03:11:16,910 --> 03:11:13,260

okay well first thing we're gonna need a

2290

03:11:24,710 --> 03:11:19,790

to get there firmly onto the

2291

03:11:27,889 --> 03:11:26,269

next time I think we'll have you go

2292

03:11:30,830 --> 03:11:27,899

ahead with that little GCA and then

2293

03:11:30,840 --> 03:11:34,849

okay copy that

2294

03:11:41,030 --> 03:11:37,370

I want to be able to help lift up so uh

2295

03:11:43,490 --> 03:11:41,040

Matthias Roger I'll take his body up

2296

03:11:47,450 --> 03:11:43,500

in centimeters 20 centimeters 20

2297

03:11:47,460 --> 03:11:53,330

pressure off

2298

03:11:53,340 --> 03:12:00,229

starting motion body up

2299

03:12:05,269 --> 03:12:03,170

you need to stop motion

2300

03:12:08,150 --> 03:12:05,279

explosion stops you ready for breaks and

2301

03:12:12,410 --> 03:12:08,160

body left uh 47 meters left 20

2302

03:12:18,349 --> 03:12:14,389

motion

2303

03:12:18,359 --> 03:12:21,769

traffic out

2304

03:12:31,750 --> 03:12:23,710

all right stop motion

2305

03:12:38,150 --> 03:12:36,410

before you get maximum uh Leverage

2306

03:12:39,769 --> 03:12:38,160

for those of you just tuning in we're

2307

03:12:42,110 --> 03:12:39,779

just about two and a half hours into the

2308

03:12:46,429 --> 03:12:42,120

space talk with NASA astronauts Tom

2309

03:12:50,929 --> 03:12:49,190

Mr visor as you need to Sunset will be

2310

03:12:52,969 --> 03:12:50,939

coming here it's Kayla Baron's first

2311

03:12:54,769 --> 03:12:52,979

spacewalk of her career and the duo is

2312

03:12:57,650 --> 03:12:54,779

working to replace a faulty s-band

2313

03:12:59,450 --> 03:12:57,660

antenna sub assembly or sassa with a

2314

03:13:02,450 --> 03:12:59,460

spare already aboard the station

2315

03:13:04,910 --> 03:13:02,460

clear

2316

03:13:07,010 --> 03:13:04,920

and then if you just if your heaters are

2317

03:13:09,530 --> 03:13:07,020

set and your cooling is good

2318

03:13:12,050 --> 03:13:09,540

then you can go ahead and ret to the uh

2319

03:13:15,010 --> 03:13:12,060

to the handrail there

2320

03:13:20,389 --> 03:13:18,950

5 15 a.m Central Time 6 15 a.m Eastern

2321

03:13:22,809 --> 03:13:20,399

is the official start time of this

2322

03:13:25,250 --> 03:13:22,819

spacewalk marking the beginning of the

2323

03:13:27,769 --> 03:13:25,260

245th spacewalk in support of space

2324

03:13:30,229 --> 03:13:27,779

station assembly and maintenance

2325

03:13:33,469 --> 03:13:30,239

bill in Bravo too

2326

03:13:34,910 --> 03:13:33,479

and our clockwise too

2327

03:13:41,929 --> 03:13:34,920

good settings

2328

03:13:41,939 --> 03:13:46,309

a little bit further

2329

03:13:50,150 --> 03:13:48,590

the Sasso went down last September with

2330

03:13:52,849 --> 03:13:50,160

a failed return link meaning that

2331

03:13:54,889 --> 03:13:52,859

mission control can send data up but the

2332

03:13:56,510 --> 03:13:54,899

antenna lost its ability to send signals

2333

03:13:58,309 --> 03:13:56,520

back to Earth through NASA's tracking

2334

03:13:59,690 --> 03:13:58,319

and data realized satellite system or

2335

03:14:01,790 --> 03:13:59,700

tedris

2336

03:14:02,990 --> 03:14:01,800

fortunately due to some redundancies on

2337

03:14:04,429 --> 03:14:03,000

the station we're still able to

2338

03:14:05,990 --> 03:14:04,439

communicate with the International Space

2339

03:14:07,550 --> 03:14:06,000

Station on the grounds even without the

2340

03:14:12,410 --> 03:14:07,560

Sasa

2341

03:14:12,420 --> 03:14:22,750

copy checking

2342

03:14:26,570 --> 03:14:24,950

we found out about this faulty system

2343

03:14:28,130 --> 03:14:26,580

back in mid-september and it was

2344

03:14:29,750 --> 03:14:28,140

actually really advantageous for us

2345

03:14:31,190 --> 03:14:29,760

because it met Kayla Baron and Tom

2346

03:14:33,410 --> 03:14:31,200

erstrand hadn't launched to the space

2347

03:14:35,450 --> 03:14:33,420

station yet they had time to train in

2348

03:14:37,309 --> 03:14:35,460

NASA's neutral buoyancy laboratory here

2349

03:14:38,809 --> 03:14:37,319

and NASA's Johnson Space Center in

2350

03:14:40,250 --> 03:14:38,819

Houston it's a large pool that

2351

03:14:41,750 --> 03:14:40,260

astronauts use to train for their

2352

03:14:45,290 --> 03:14:41,760

spacewalks on the ground

2353

03:14:59,950 --> 03:14:45,300

current setting is uh Bravo 7. negative

2354

03:15:05,210 --> 03:15:01,969

all right Kayla we're going to reset

2355

03:15:13,550 --> 03:15:05,220

your PGT uh to Bravo 7 counterclockwise

2356

03:15:20,769 --> 03:15:15,650

change my body position a little bit to

2357

03:15:25,969 --> 03:15:24,050

Kayla our apologies we are going to

2358

03:15:27,469 --> 03:15:25,979

attempt one more time at Bravo too I

2359

03:15:29,870 --> 03:15:27,479

apologize for that and we want to make

2360

03:15:32,330 --> 03:15:29,880

sure that your hand location there that

2361

03:15:37,910 --> 03:15:32,340

you're hanging onto a Fram handrail and

2362

03:15:37,920 --> 03:15:43,729

uh I was

2363

03:15:49,010 --> 03:15:47,210

left hand on my brt while driving

2364

03:15:51,729 --> 03:15:49,020

okay copy that sounds like a good

2365

03:15:53,870 --> 03:15:51,739

configuration and we'll do Bravo 2

2366

03:16:04,370 --> 03:15:53,880

counterclockwise two and we have a

2367

03:16:09,769 --> 03:16:06,710

furniture

2368

03:16:12,469 --> 03:16:09,779

and it forced out but it also slid off

2369

03:16:14,389 --> 03:16:12,479

the bolt head so I'll try again

2370

03:16:21,190 --> 03:16:14,399

come down and just make an adjustment

2371

03:16:26,450 --> 03:16:23,870

well now we are going to reset to Bravo

2372

03:16:28,969 --> 03:16:26,460

7 counterclockwise too and we're gonna

2373

03:16:32,690 --> 03:16:28,979

try one Turn Only and we have a Handover

2374

03:16:37,309 --> 03:16:35,269

on her I'm in Bravo seven

2375

03:16:39,530 --> 03:16:37,319

counterclockwise too and understand one

2376

03:16:40,910 --> 03:16:39,540

turn only at the settings

2377

03:17:08,690 --> 03:16:40,920

good read back we'll catch you on the

2378

03:17:13,969 --> 03:17:10,130

just want to make sure I'm in a good

2379

03:17:13,979 --> 03:17:30,290

yes

2380

03:17:35,210 --> 03:17:33,530

the spacewalkers here so far are about

2381

03:17:37,370 --> 03:17:35,220

an hour ahead of schedule

2382

03:17:40,130 --> 03:17:37,380

so far they've completed tasks like

2383

03:17:41,990 --> 03:17:40,140

getting the degraded Sasa removing it

2384

03:17:43,610 --> 03:17:42,000

from the P1 truss and moving it over to

2385

03:17:46,010 --> 03:17:43,620

the express Logistics carrier number

2386

03:17:48,229 --> 03:17:46,020

three they've temporarily stowed it

2387

03:17:50,150 --> 03:17:48,239

using a rigid tether that Taylor Kayla

2388

03:17:51,290 --> 03:17:50,160

Baron had installed earlier during the

2389

03:17:53,510 --> 03:17:51,300

spacewalk

2390

03:17:56,090 --> 03:17:53,520

they're both now back at the express

2391

03:18:04,130 --> 03:17:56,100

Logistics carrier three

2392

03:18:15,530 --> 03:18:05,870

okay guys we're back with you after the

2393

03:18:22,969 --> 03:18:17,510

some movement there yeah

2394

03:18:29,210 --> 03:18:25,070

until I had to reposition but uh looks

2395

03:18:33,170 --> 03:18:31,610

okay Caleb we're back with you and we're

2396

03:18:37,910 --> 03:18:33,180

going to reset now to Bravo 2

2397

03:18:37,920 --> 03:18:42,889

another two counterclockwise two is set

2398

03:18:48,050 --> 03:18:45,650

fortunately when the Sasso went down

2399

03:18:49,849 --> 03:18:48,060

back in September a spare was already

2400

03:18:52,969 --> 03:18:49,859

aboard the International Space Station

2401
03:18:57,889 --> 03:18:52,979
on the express Logistics carrier a new

2402
03:18:57,899 --> 03:19:06,050
time first

2403
03:19:16,070 --> 03:19:09,469
and it popped out around

2404
03:19:16,080 --> 03:19:20,090
he's out

2405
03:19:25,070 --> 03:19:22,729
good job

2406
03:19:26,389 --> 03:19:25,080
thank you and if you want I can check

2407
03:19:27,349 --> 03:19:26,399
your safer handles I can just take a

2408
03:19:29,630 --> 03:19:27,359
look

2409
03:19:32,210 --> 03:19:29,640
um I did feel them a couple of minutes

2410
03:19:35,389 --> 03:19:32,220
ago okay so let's see if you can see

2411
03:19:36,530 --> 03:19:35,399
them I uh if you grab something pull

2412
03:19:38,150 --> 03:19:36,540
your head down a little bit I'll

2413
03:19:41,030 --> 03:19:38,160

probably be able to see her

2414

03:19:44,090 --> 03:19:41,040

but if you're confident you got them

2415

03:19:46,309 --> 03:19:44,100

or maybe just uh roll one way okay your

2416

03:19:49,610 --> 03:19:46,319

left is down

2417

03:19:51,530 --> 03:19:49,620

if you roll to your left

2418

03:19:52,729 --> 03:19:51,540

brt here's

2419

03:19:55,670 --> 03:19:52,739

here

2420

03:19:55,680 --> 03:20:01,610

are you ready for the maneuver

2421

03:20:08,710 --> 03:20:03,889

another pressure ppg a little closer to

2422

03:20:12,830 --> 03:20:10,790

they're good

2423

03:20:19,929 --> 03:20:12,840

and Tom and Kayla we have one check for

2424

03:20:25,150 --> 03:20:22,670

if you would uh Kayla if you're able to

2425

03:20:28,370 --> 03:20:25,160

see the rft box then just check the

2426

03:20:32,929 --> 03:20:28,380

nzgs on the what was on Kayla's left

2427

03:20:35,269 --> 03:20:32,939

side of the ndgl the end the rfg Box the

2428

03:20:37,910 --> 03:20:35,279

ncgl is located there if they look like

2429

03:20:40,670 --> 03:20:37,920

they're mated or still

2430

03:20:42,590 --> 03:20:40,680

there are

2431

03:20:44,150 --> 03:20:42,600

they are made at full forward over

2432

03:20:47,690 --> 03:20:44,160

Center

2433

03:20:47,700 --> 03:20:54,849

all right those are good checks

2434

03:21:01,309 --> 03:20:58,550

injury if uh that's an excellent

2435

03:21:03,530 --> 03:21:01,319

necklace are ready for the maneuver

2436

03:21:06,229 --> 03:21:03,540

your go for the maneuver we uh you on

2437

03:21:11,990 --> 03:21:06,239

the Comm and for Kayla we're gonna have

2438

03:21:17,450 --> 03:21:14,630

put your head that way now hey uh

2439

03:21:19,429 --> 03:21:17,460

Matthias are ready for the maneuver

2440

03:21:21,170 --> 03:21:19,439

sounds good time we're gonna undo what

2441

03:21:23,990 --> 03:21:21,180

we did here uh with some of the GTA

2442

03:21:25,370 --> 03:21:24,000

first uh so we're taking right down and

2443

03:21:27,170 --> 03:21:25,380

then aft and then we'll set up for the

2444

03:21:29,330 --> 03:21:27,180

manual back off maneuver so taking you

2445

03:21:31,550 --> 03:21:29,340

20 centimeters body right first

2446

03:21:35,830 --> 03:21:31,560

oh okay

2447

03:21:39,769 --> 03:21:38,330

spacewalking astronauts Kayla Baron and

2448

03:21:41,750 --> 03:21:39,779

Tom marshburn have just finished

2449

03:21:47,530 --> 03:21:41,760

retrieving the spare sassa from the

2450

03:21:57,889 --> 03:21:49,729

Baron will now make her way back to the

2451
03:22:06,469 --> 03:22:01,190
okay and then uh 20 centimeters body

2452
03:22:06,479 --> 03:22:10,849
structure

2453
03:22:13,969 --> 03:22:12,590
all right we're gonna set up that we're

2454
03:22:15,050 --> 03:22:13,979
going to change it back to the ice X

2455
03:22:16,809 --> 03:22:15,060
frame and then we'll get to the next

2456
03:22:33,130 --> 03:22:16,819
maneuver going

2457
03:22:37,429 --> 03:22:35,690
NASA astronaut Tom marshburn will be the

2458
03:22:40,729 --> 03:22:37,439
one that will take the spare Sasa over

2459
03:22:42,050 --> 03:22:40,739
to the P1 truss fortunately he's got a

2460
03:22:44,690 --> 03:22:42,060
ride with him he's going to be taking

2461
03:22:46,910 --> 03:22:44,700
the robotic arm under the direction of

2462
03:22:59,170 --> 03:22:46,920
NASA astronaut Matthias Maurer and his

2463
03:23:04,910 --> 03:23:02,450

over the next few steps they're going to

2464

03:23:06,530 --> 03:23:04,920

install the spare sassa onto the P1 this

2465

03:23:08,570 --> 03:23:06,540

is the same location where they took

2466

03:23:32,630 --> 03:23:08,580

away the degraded Sasa and now they're

2467

03:23:36,769 --> 03:23:34,969

everything from here on out will pretty

2468

03:23:38,990 --> 03:23:36,779

much be the steps of removing the

2469

03:23:40,910 --> 03:23:39,000

degraded sass of in Reverse this

2470

03:23:49,910 --> 03:23:40,920

involves NASA astronaut Kayla Baron

2471

03:23:55,670 --> 03:23:52,490

she'll have three cables to attach to

2472

03:23:57,349 --> 03:23:55,680

the spare one that does data one

2473

03:24:01,429 --> 03:23:57,359

connecting heater power and the other

2474

03:24:01,439 --> 03:24:07,010

trust right now

2475

03:24:10,969 --> 03:24:08,630

here we go

2476
03:24:13,190 --> 03:24:10,979
on your screen now are live views of Tom

2477
03:24:14,929 --> 03:24:13,200
marshburn moving on the robotic arm of

2478
03:24:31,690 --> 03:24:14,939
the International Space Station carrying

2479
03:24:36,950 --> 03:24:34,550
as Caleb Barron moves to the P1 work

2480
03:24:39,170 --> 03:24:36,960
site and Tom marshburn hitches a ride

2481
03:24:40,670 --> 03:24:39,180
over there on the robotic arm the

2482
03:25:11,630 --> 03:24:40,680
International Space Station is flying

2483
03:25:11,640 --> 03:25:18,070
IA scales act almost this afternoon

2484
03:25:22,309 --> 03:25:20,150
about seven minutes long it's going to

2485
03:25:24,830 --> 03:25:22,319
take you back mostly starboard back to a

2486
03:26:06,710 --> 03:25:24,840
place you've been before

2487
03:26:10,670 --> 03:26:08,929
as the astronauts make their way over to

2488
03:26:12,950 --> 03:26:10,680

the work site we can take some questions

2489

03:26:15,590 --> 03:26:12,960

we solicited some questions on our

2490

03:26:17,570 --> 03:26:15,600

Instagram at NASA Johnson and we can go

2491

03:26:19,729 --> 03:26:17,580

through a couple of those the first one

2492

03:26:21,170 --> 03:26:19,739

comes from Adam who asked what trusses

2493

03:26:23,210 --> 03:26:21,180

the antenna on

2494

03:26:25,190 --> 03:26:23,220

well the truss is going to be installed

2495

03:26:28,010 --> 03:26:25,200

on the P1 Truss

2496

03:26:29,750 --> 03:26:28,020

this is where the degraded unit is and

2497

03:26:30,889 --> 03:26:29,760

where the spare is going to be installed

2498

03:26:33,530 --> 03:26:30,899

shortly

2499

03:26:35,929 --> 03:26:33,540

the spare was kept on the express

2500

03:26:37,969 --> 03:26:35,939

Logistics carrier 3 which is located on

2501
03:26:51,229 --> 03:26:37,979
the P3 truss of the International Space

2502
03:26:55,670 --> 03:26:53,510
another Instagram user asks does one

2503
03:26:57,710 --> 03:26:55,680
feel the cold from the outside and the

2504
03:26:59,450 --> 03:26:57,720
heat from the Sun this is referring to

2505
03:27:01,190 --> 03:26:59,460
when we're in an orbital night time and

2506
03:27:03,769 --> 03:27:01,200
day time there's fluctuations in

2507
03:27:05,389 --> 03:27:03,779
temperature it's true that they can feel

2508
03:27:07,790 --> 03:27:05,399
the difference and they'll take

2509
03:27:09,349 --> 03:27:07,800
precautions like lowering and Rising

2510
03:27:11,570 --> 03:27:09,359
their visor as you may have heard ground

2511
03:27:13,849 --> 03:27:11,580
IV Drew Morgan talking about or advising

2512
03:27:15,950 --> 03:27:13,859
them to do they also have mechanisms

2513
03:27:17,269 --> 03:27:15,960

built into their spacesuits they were

2514

03:27:19,370 --> 03:27:17,279

garments underneath to help with

2515

03:27:20,929 --> 03:27:19,380

temperature regulation and the spoon the

2516

03:27:29,990 --> 03:27:20,939

suits themselves are designed to keep

2517

03:27:30,000 --> 03:27:51,469

again Tom doing good

2518

03:27:57,769 --> 03:27:54,710

another Instagram user asks what is on

2519

03:27:59,450 --> 03:27:57,779

your pre-spacewalk playlist and while

2520

03:28:01,250 --> 03:27:59,460

unfortunately our spacewalkers Tom

2521

03:28:02,510 --> 03:28:01,260

marshburn and Kayla Baron have include

2522

03:28:04,849 --> 03:28:02,520

us into what they were listening to

2523

03:28:07,130 --> 03:28:04,859

beforehand we do know that on their

2524

03:28:09,410 --> 03:28:07,140

launch day they listen to bands such as

2525

03:28:35,929 --> 03:28:09,420

Guns and Roses Eminem Nicki Minaj

2526

03:28:40,610 --> 03:28:38,090

we've got another question from

2527

03:28:42,830 --> 03:28:40,620

Instagram user Fiona Daly who wants to

2528

03:28:44,690 --> 03:28:42,840

know how long is the spacewalk well the

2529

03:28:47,510 --> 03:28:44,700

spacewalk is planned for six and a half

2530

03:28:51,530 --> 03:28:47,520

hours however the astronauts are

2531

03:29:10,429 --> 03:28:53,210

they're accomplishing everything in

2532

03:29:14,990 --> 03:29:12,889

another user asked how much time does it

2533

03:29:17,030 --> 03:29:15,000

take to prepare for a spacewalk we

2534

03:29:19,910 --> 03:29:17,040

talked about the advantage that Tom

2535

03:29:22,490 --> 03:29:19,920

marshburn and Kayla Baron had

2536

03:29:24,349 --> 03:29:22,500

to find out that the degraded unit had

2537

03:29:25,790 --> 03:29:24,359

happened before they left the ground so

2538

03:29:31,070 --> 03:29:25,800

they could train into the neutral

2539

03:29:38,330 --> 03:29:33,650

and I got my

2540

03:29:43,910 --> 03:29:40,550

um however the crew did get to prep

2541

03:29:49,729 --> 03:29:47,090

all five astronauts of the Usos side

2542

03:29:51,650 --> 03:29:49,739

marshburn Baron vandehei Chari and

2543

03:29:53,330 --> 03:29:51,660

Maurer have been studying the steps of

2544

03:29:55,130 --> 03:29:53,340

the spacewalk along with the tool

2545

03:29:56,870 --> 03:29:55,140

configurations and any precautions they

2546

03:30:05,090 --> 03:29:56,880

should be aware of

2547

03:30:08,269 --> 03:30:06,769

Baron and marshburn specifically are

2548

03:30:09,710 --> 03:30:08,279

spacewalkers today prepared the

2549

03:30:11,809 --> 03:30:09,720

equipment lock and the days leading up

2550

03:30:13,070 --> 03:30:11,819

to today's spacewalk doing tasks like

2551

03:30:14,750 --> 03:30:13,080

getting their checklists and drinking

2552

03:30:17,210 --> 03:30:14,760

water ready and inspecting each of their

2553

03:30:19,250 --> 03:30:17,220

tools this is all Port part of some

2554

03:30:21,530 --> 03:30:19,260

preparations they did before the

2555

03:30:23,150 --> 03:30:21,540

spacewalk it also included some onboard

2556

03:30:24,650 --> 03:30:23,160

verification fit checks where they tried

2557

03:30:25,790 --> 03:30:24,660

on their spacesuits and made sure that

2558

03:30:40,269 --> 03:30:25,800

they're comfortable and easy to move

2559

03:30:44,330 --> 03:30:42,410

hey guys just wanted to check back in

2560

03:30:49,250 --> 03:30:44,340

with you we're less than a minute away

2561

03:30:49,260 --> 03:31:17,269

thank you thanks Roger

2562

03:31:21,469 --> 03:31:19,550

on Instagram user wants to know how the

2563

03:31:23,210 --> 03:31:21,479

Spaceball was practiced on Earth we

2564

03:31:25,610 --> 03:31:23,220

briefly mentioned the neutral buoyancy

2565

03:31:27,349 --> 03:31:25,620

laboratory inside this giant pool is a

2566

03:31:30,170 --> 03:31:27,359

giant mock-up of the International Space

2567

03:31:33,229 --> 03:31:30,180

Station to scale the astronauts have a

2568

03:31:35,210 --> 03:31:33,239

chance to go fully suited underwater in

2569

03:31:37,370 --> 03:31:35,220

an environment that simulates the

2570

03:31:39,530 --> 03:31:37,380

environment of space

2571

03:31:52,130 --> 03:31:39,540

seriously coming in in my peripheral

2572

03:31:56,630 --> 03:31:54,229

during this Handover period we've got

2573

03:31:58,610 --> 03:31:56,640

another question from Astro yesha who

2574

03:32:00,710 --> 03:31:58,620

wants to know

2575

03:32:04,670 --> 03:32:00,720

what the rest of the crew is doing

2576
03:32:06,410 --> 03:32:04,680
during the Eva that's a great question

2577
03:32:08,389 --> 03:32:06,420
we've got Matthias Maurer from the

2578
03:32:10,370 --> 03:32:08,399
European Space Agency

2579
03:32:13,010 --> 03:32:10,380
he's inside the International Space

2580
03:32:14,510 --> 03:32:13,020
Station controlling the robotic arm that

2581
03:32:17,150 --> 03:32:14,520
Tom marshburn has been taking to and

2582
03:32:19,370 --> 03:32:17,160
from his work sites Raj Atari is

2583
03:32:25,070 --> 03:32:19,380
alongside him kind of serving us as

2584
03:32:29,510 --> 03:32:26,389
and we're back with you after the

2585
03:32:32,929 --> 03:32:31,969
yeah this album stay with left shoulder

2586
03:32:35,570 --> 03:32:32,939
and

2587
03:32:36,889 --> 03:32:35,580
for the next uh DC Universe

2588
03:32:38,990 --> 03:32:36,899

all right Tom we're ready for the

2589

03:32:43,269 --> 03:32:39,000

Newberg to TCA to college P1 Sasa

2590

03:32:49,250 --> 03:32:47,450

all right uh start GTA

2591

03:32:50,570 --> 03:32:49,260

okay let's load we'll load the values

2592

03:32:51,889 --> 03:32:50,580

and let you know before we start motion

2593

03:32:54,170 --> 03:32:51,899

you're basically going to go about two

2594

03:32:55,550 --> 03:32:54,180

meters Nader just a little starboard and

2595

03:33:05,710 --> 03:32:55,560

then about two meters forward in that

2596

03:33:05,720 --> 03:33:10,190

early call

2597

03:33:13,809 --> 03:33:11,929

all right and here comes uh two meters

2598

03:33:17,269 --> 03:33:13,819

NATO ruption all right

2599

03:33:19,130 --> 03:33:17,279

we're focused

2600

03:33:21,349 --> 03:33:19,140

and with the Knight and the camera views

2601
03:33:22,910 --> 03:33:21,359
we can't really clear your head very

2602
03:33:28,490 --> 03:33:22,920
well so just kind of keep an eye on that

2603
03:33:35,210 --> 03:33:31,670
in good motion P1 truss where they will

2604
03:33:35,220 --> 03:33:56,630
a year to go

2605
03:33:56,640 --> 03:34:06,290
downstairs

2606
03:34:17,210 --> 03:34:07,969
all right maybe a little bit of

2607
03:34:17,220 --> 03:34:31,729
is that ready to go

2608
03:34:38,269 --> 03:34:33,590
okay and then about two meters uh ISS

2609
03:34:38,279 --> 03:34:57,229
good motion for him

2610
03:35:01,490 --> 03:34:59,450
87 years to go Kayla just let us know if

2611
03:35:05,210 --> 03:35:01,500
the Oru gets too close

2612
03:35:09,830 --> 03:35:07,610
in order to still install the spare Sasa

2613
03:35:11,750 --> 03:35:09,840

at the P1 truss the number of tasks that

2614

03:35:13,910 --> 03:35:11,760

they'll have to do Kayla Baron will work

2615

03:35:18,070 --> 03:35:13,920

to mate the cables for data heated power

2616

03:35:23,570 --> 03:35:20,630

Tom marshburn will work to loosen the

2617

03:35:27,469 --> 03:35:25,670

if you recall earlier in an Eva he had

2618

03:35:30,530 --> 03:35:27,479

installed these to keep

2619

03:35:32,330 --> 03:35:30,540

the Sasa in the locked position

2620

03:35:40,070 --> 03:35:32,340

continue to publish it seems like we're

2621

03:35:46,130 --> 03:35:42,469

you're already there fellas by loosening

2622

03:35:48,290 --> 03:35:46,140

the gimbals the satellite the

2623

03:35:50,450 --> 03:35:48,300

the sassa unit will have the ability to

2624

03:35:54,110 --> 03:35:50,460

track satellites again

2625

03:35:57,410 --> 03:35:56,330

there's the college position how does

2626

03:36:00,530 --> 03:35:57,420

that look

2627

03:36:02,510 --> 03:36:00,540

s good for me yeah me too it's GPA did

2628

03:36:05,990 --> 03:36:02,520

you see any completes brakes are on and

2629

03:36:07,010 --> 03:36:06,000

your gopher P1 is that to install

2630

03:36:08,750 --> 03:36:07,020

all right

2631

03:36:13,010 --> 03:36:08,760

um we need to go

2632

03:36:19,910 --> 03:36:14,990

app

2633

03:36:23,990 --> 03:36:21,530

I've got light touch if you want to just

2634

03:36:29,090 --> 03:36:27,889

okay the uh if you could rock it uh

2635

03:36:35,990 --> 03:36:29,100

starboard

2636

03:36:39,410 --> 03:36:37,849

Baron and marshburn now working together

2637

03:36:41,510 --> 03:36:39,420

to get into the right position to

2638

03:36:43,729 --> 03:36:41,520

install the spare Sasa this activity

2639

03:36:47,389 --> 03:36:43,739

total is supposed to take about 45

2640

03:36:51,830 --> 03:36:49,910

all right the felt it pop in there yep

2641

03:36:53,990 --> 03:36:51,840

it looks great flush with the plate

2642

03:36:56,330 --> 03:36:54,000

great I'm getting a little slight dark

2643

03:37:01,070 --> 03:36:56,340

that it's not moving so

2644

03:37:05,570 --> 03:37:03,769

that looks fantastic guys and we'll be

2645

03:37:10,729 --> 03:37:05,580

ready to help you configure your PGT

2646

03:37:10,739 --> 03:37:14,150

ra settings

2647

03:37:14,160 --> 03:37:23,530

Bravo 7 clockwise two

2648

03:37:29,690 --> 03:37:27,170

earlier during the spacewalk

2649

03:37:32,750 --> 03:37:29,700

clockwise too

2650

03:37:34,790 --> 03:37:32,760

earlier during the spacewalk Kayla Baron

2651
03:37:37,550 --> 03:37:34,800
removed the stanchion bolt that was the

2652
03:37:40,729 --> 03:37:37,560
last stop to replacing the to removing

2653
03:37:43,130 --> 03:37:40,739
the degraded Sasa unit now one of her

2654
03:37:45,469 --> 03:37:43,140
first tasks in installing the new one is

2655
03:37:47,210 --> 03:37:45,479
driving the stanchion bolt again

2656
03:37:56,929 --> 03:37:47,220
she's getting her tool configured to do

2657
03:38:00,650 --> 03:37:58,929
izations

2658
03:38:03,229 --> 03:38:00,660
good now

2659
03:38:05,090 --> 03:38:03,239
Kayla we're expecting 17 to 18 and a

2660
03:38:07,370 --> 03:38:05,100
half turns and we'll take your turn and

2661
03:38:07,380 --> 03:38:16,190
sure

2662
03:38:16,200 --> 03:38:23,750
there's a side load there a little bit

2663
03:38:28,189 --> 03:38:25,670

you're getting a live view now of NASA

2664

03:38:30,410 --> 03:38:28,199

astronaut Kayla Baron driving the

2665

03:38:32,689 --> 03:38:30,420

stanchion Mount bolts meanwhile

2666

03:38:34,790 --> 03:38:32,699

off-screen Tom marshburn is holding this

2667

03:38:35,689 --> 03:38:34,800

asset in place attached to the robotic

2668

03:38:41,030 --> 03:38:35,699

arm

2669

03:38:41,040 --> 03:38:51,290

DJ BCT is going in

2670

03:38:51,300 --> 03:39:28,189

20 turns on your 22 turns now

2671

03:39:33,650 --> 03:39:29,990

how's this working

2672

03:39:38,450 --> 03:39:35,210

[Music]

2673

03:39:41,510 --> 03:39:40,010

there's a

2674

03:39:43,010 --> 03:39:41,520

torque that seems to be an increased

2675

03:39:47,030 --> 03:39:43,020

side load

2676
03:39:49,130 --> 03:39:47,040
are the um body of the PGT interferes a

2677
03:39:51,530 --> 03:39:49,140
bit or the um

2678
03:39:53,809 --> 03:39:51,540
Mass itself interferes with the body of

2679
03:39:56,630 --> 03:39:53,819
the PGT yeah so it's kind of difficult

2680
03:40:02,150 --> 03:39:56,640
to maintain a perfect position

2681
03:40:13,130 --> 03:40:05,809
today I'm feeling the side load there

2682
03:40:22,910 --> 03:40:15,070
push against

2683
03:40:27,170 --> 03:40:25,490
as NASA astronaut Kayla Baron Works to

2684
03:40:29,570 --> 03:40:27,180
drive those bolts the International

2685
03:40:31,490 --> 03:40:29,580
Space Station is flying over the South

2686
03:40:33,950 --> 03:40:31,500
China Sea headed towards the Philippines

2687
03:40:35,570 --> 03:40:33,960
and we are about three hours into our

2688
03:40:39,110 --> 03:40:35,580

spacewalk

2689

03:40:44,990 --> 03:40:41,090

same thing there's a little bit of play

2690

03:40:53,090 --> 03:40:47,689

after that position

2691

03:40:56,150 --> 03:40:53,100

and what I'm wondering is I think

2692

03:40:58,070 --> 03:40:56,160

let me get it came off actually the

2693

03:40:59,510 --> 03:40:58,080

softbox

2694

03:41:02,330 --> 03:40:59,520

um

2695

03:41:04,729 --> 03:41:02,340

what I'm thinking is maybe the bolt

2696

03:41:05,929 --> 03:41:04,739

wasn't actually engaged in the threads

2697

03:41:06,950 --> 03:41:05,939

obviously or else it wouldn't have done

2698

03:41:09,969 --> 03:41:06,960

that

2699

03:41:12,410 --> 03:41:09,979

um can you push straight Nader

2700

03:41:14,510 --> 03:41:12,420

and push

2701

03:41:17,870 --> 03:41:14,520

a little bit port

2702

03:41:19,010 --> 03:41:17,880

a little bit poor yep

2703

03:41:22,450 --> 03:41:19,020

um

2704

03:41:26,870 --> 03:41:22,460

and back a little bit server please

2705

03:41:29,030 --> 03:41:26,880

straight later into the plate

2706

03:41:31,929 --> 03:41:29,040

and if you can try to hold it right

2707

03:41:47,210 --> 03:41:31,939

there all right I will try again

2708

03:41:47,220 --> 03:42:12,229

all right

2709

03:42:17,389 --> 03:42:15,769

and that was 17 turns

2710

03:42:19,429 --> 03:42:17,399

and we're going to keep the light touch

2711

03:42:21,650 --> 03:42:19,439

and

2712

03:42:23,090 --> 03:42:21,660

pull on a little bit

2713

03:42:26,090 --> 03:42:23,100

um can I finish my call

2714

03:42:27,170 --> 03:42:26,100

real quick oh sorry yeah uh 17 turns

2715

03:42:30,710 --> 03:42:27,180

green light

2716

03:42:34,070 --> 03:42:30,720

26 foot pounds in that time I was

2717

03:42:36,650 --> 03:42:34,080

actually able to see the bolts drop in

2718

03:42:37,969 --> 03:42:36,660

depth so I I believe it's fully engaged

2719

03:42:39,769 --> 03:42:37,979

from

2720

03:42:41,330 --> 03:42:39,779

okay great so you're welcome to give it

2721

03:42:43,130 --> 03:42:41,340

a little whistle to confirm for yourself

2722

03:42:45,710 --> 03:42:43,140

sorry guys

2723

03:42:47,630 --> 03:42:45,720

on your call

2724

03:42:51,229 --> 03:42:47,640

and we copy all Kayla and that sounds

2725

03:42:53,510 --> 03:42:51,239

like a good install good install

2726

03:42:57,290 --> 03:42:53,520

yeah I can care

2727

03:42:57,300 --> 03:43:02,210

okay great work

2728

03:43:06,650 --> 03:43:04,370

great work yes Tom you can remove your

2729

03:43:14,030 --> 03:43:06,660

rat and Kayla we're gonna have you start

2730

03:43:18,050 --> 03:43:15,889

astronaut Drew Morgan serving as our

2731

03:43:19,610 --> 03:43:18,060

ground IV today just gave the go for

2732

03:43:22,429 --> 03:43:19,620

Kayla Baron to start working on the

2733

03:43:25,070 --> 03:43:22,439

cables of the spare sassa clear and then

2734

03:43:26,870 --> 03:43:25,080

you can work with Raja and Matthias to

2735

03:43:30,050 --> 03:43:26,880

move to the spare gimbal lockback

2736

03:43:32,809 --> 03:43:31,309

all right

2737

03:43:34,969 --> 03:43:32,819

through

2738

03:43:41,450 --> 03:43:34,979

when she was removing

2739

03:43:46,370 --> 03:43:43,189

nice job wagging that thing down and

2740

03:43:48,110 --> 03:43:46,380

copy your go from an Uber to Spirit

2741

03:43:50,389 --> 03:43:48,120

ual give us a second to set up and we'll

2742

03:43:53,269 --> 03:43:50,399

get you moving

2743

03:43:58,250 --> 03:43:53,279

some kind words from rajachary there

2744

03:43:58,260 --> 03:44:01,250

it's wrong

2745

03:44:05,870 --> 03:44:03,830

when removing the degraded Sasa unit

2746

03:44:08,689 --> 03:44:05,880

Kayla Baron had disconnected three

2747

03:44:09,950 --> 03:44:08,699

cables to free the degraded Sasa in

2748

03:44:12,290 --> 03:44:09,960

preparation to move it to the express

2749

03:44:14,389 --> 03:44:12,300

Logistics carrier and now that the

2750

03:44:17,030 --> 03:44:14,399

sphere is in its place she'll work to

2751

03:44:19,250 --> 03:44:17,040

reconnect these three cables powering

2752

03:44:37,790 --> 03:44:19,260

data heater power and operational power

2753

03:44:41,809 --> 03:44:40,250

hi Tom uh this next position is going to

2754

03:44:43,370 --> 03:44:41,819

look very familiar you're going to take

2755

03:44:51,290 --> 03:44:43,380

your aft just a little port and then

2756

03:44:51,300 --> 03:44:57,889

very much

2757

03:45:02,210 --> 03:44:59,689

for those just tuning in we're talking

2758

03:45:04,610 --> 03:45:02,220

about the Sasa or the s-band antenna sub

2759

03:45:06,349 --> 03:45:04,620

assembly this is used to transmit low

2760

03:45:08,210 --> 03:45:06,359

rate voice and data between the space

2761

03:45:10,250 --> 03:45:08,220

station and the team here on the ground

2762

03:45:11,809 --> 03:45:10,260

in Mission Control using s-band radio

2763

03:45:15,530 --> 03:45:11,819

frequencies

2764

03:45:17,510 --> 03:45:15,540

it went down mid-september with a failed

2765

03:45:20,090 --> 03:45:17,520

return link

2766

03:45:22,550 --> 03:45:20,100

meaning we can send data up but the

2767

03:45:27,590 --> 03:45:22,560

degraded antenna lost its ability to

2768

03:45:31,670 --> 03:45:29,750

NASA astronauts Kayla Baron and Tom

2769

03:45:33,349 --> 03:45:31,680

marshburn are on a spacewalk outside of

2770

03:45:57,410 --> 03:45:33,359

the International Space Station now and

2771

03:45:57,420 --> 03:46:06,469

s

2772

03:46:06,479 --> 03:46:11,210

okay

2773

03:46:16,610 --> 03:46:13,490

he's setting up for another joke apps

2774

03:46:17,929 --> 03:46:16,620

that's uh

2775

03:46:21,050 --> 03:46:17,939

maybe about four and a half minutes long

2776

03:46:23,210 --> 03:46:21,060

guys do you see it complete

2777

03:46:24,410 --> 03:46:23,220

did you say it's complete day is

2778

03:46:28,610 --> 03:46:24,420

complete and we'll let you know before

2779

03:46:33,590 --> 03:46:30,769

uh Drew

2780

03:46:36,290 --> 03:46:33,600

we're with you

2781

03:46:38,389 --> 03:46:36,300

I have a

2782

03:46:41,750 --> 03:46:38,399

four in my hand and I'm ready to mate to

2783

03:46:47,689 --> 03:46:41,760

G4 the lever is full last over center

2784

03:46:55,910 --> 03:46:47,699

with this ends no fod good Emi band

2785

03:47:00,469 --> 03:46:58,250

and Kayla you can continue with P3 and

2786

03:47:02,929 --> 03:47:00,479

P2 after that and we'll catch your

2787

03:47:04,969 --> 03:47:02,939

checks after the gas

2788

03:47:06,889 --> 03:47:04,979

what you see now on your screen are the

2789

03:47:53,330 --> 03:47:06,899

connectors that Kayla Baron is working

2790

03:47:53,340 --> 03:48:49,630

foreign

2791

03:48:54,889 --> 03:48:52,490

is working on those three cables off

2792

03:48:57,710 --> 03:48:54,899

screen we have Tom marshburn in the

2793

03:49:00,349 --> 03:48:57,720

robotic arm his tasks are to loosen the

2794

03:49:02,870 --> 03:49:00,359

gimbal locks so that later are on in the

2795

03:49:06,290 --> 03:49:02,880

procedures when the spare Sasa is

2796

03:49:08,030 --> 03:49:06,300

powered up it will be able to move and

2797

03:49:10,370 --> 03:49:08,040

track satellites right now the current

2798

03:49:12,590 --> 03:49:10,380

gimbal locks are keeping it rigid and in

2799

03:49:14,450 --> 03:49:12,600

place so that no unexpected movements

2800

03:49:25,610 --> 03:49:14,460

happen and we keep our space Walkers

2801

03:49:25,620 --> 03:49:32,150

two-thirds of the way through

2802

03:49:38,630 --> 03:49:35,570

all three and cgls are native full

2803

03:49:44,269 --> 03:49:38,640

forward over Center all had good pins no

2804

03:49:48,290 --> 03:49:46,969

copy Kayla great work we are done with

2805

03:49:49,790 --> 03:49:48,300

those three connectors those are good

2806

03:49:51,530 --> 03:49:49,800

checks the next thing we're going to

2807

03:49:54,370 --> 03:49:51,540

have you do is we want you to move your

2808

03:49:55,929 --> 03:49:54,380

green hook outboard two handrails to

2809

03:50:03,170 --> 03:49:55,939

3624

2810

03:50:03,180 --> 03:50:08,450

up to three six two four

2811

03:50:12,349 --> 03:50:10,550

Carrie LeBaron communicating with the

2812

03:50:14,929 --> 03:50:12,359

grounds that she has finished mating the

2813

03:50:21,050 --> 03:50:14,939

cables to the spare sassa meaning that

2814

03:50:25,849 --> 03:50:23,450

ground IV Drew Morgan already has his

2815

03:50:28,250 --> 03:50:25,859

sights on some get ahead tasks as he's

2816

03:50:30,170 --> 03:50:28,260

getting Kayla Baron in position four

2817

03:50:31,969 --> 03:50:30,180

we're three hours into the spacewalk

2818

03:50:33,530 --> 03:50:31,979

scheduled to take about six and a half

2819

03:50:37,790 --> 03:50:33,540

hours but we're already moving well

2820

03:50:37,800 --> 03:51:10,130

foreign

2821

03:51:26,510 --> 03:51:12,229

and then look at it uh

2822

03:51:54,830 --> 03:51:28,670

I'm ready for the GPA to publish

2823

03:51:58,309 --> 03:51:56,689

we're uh time we're ready for maneuver

2824

03:52:00,590 --> 03:51:58,319

to GCA to publish American Bulldog

2825

03:52:05,990 --> 03:52:00,600

position hey are you ready for the DK to

2826
03:52:10,370 --> 03:52:07,670
Debbie and do you want to take either

2827
03:52:12,110 --> 03:52:10,380
published or just

2828
03:52:13,729 --> 03:52:12,120
so it's gonna be about a meter starboard

2829
03:52:17,630 --> 03:52:13,739
and then a meter and a half starting the

2830
03:52:21,530 --> 03:52:19,250
I've got my Greenhouse out so I'm moving

2831
03:52:26,170 --> 03:52:21,540
over to three six two four

2832
03:52:26,180 --> 03:52:36,110
izer to go

2833
03:52:40,550 --> 03:52:38,570
promotion okay stop promotion that's

2834
03:52:41,630 --> 03:52:40,560
about uh 40 centimeters about half a

2835
03:52:42,889 --> 03:52:41,640
meter short of the published for

2836
03:52:44,809 --> 03:52:42,899
starboard

2837
03:52:46,969 --> 03:52:44,819
it looks good for right now

2838
03:52:59,630 --> 03:52:46,979

all right we'll give you about a meter

2839

03:52:59,640 --> 03:53:20,269

did you clearance see one here to go

2840

03:53:26,630 --> 03:53:24,250

it is 20 centimeters

2841

03:53:28,610 --> 03:53:26,640

the International Space Station is

2842

03:53:30,469 --> 03:53:28,620

flying through an orbital night time so

2843

03:53:32,750 --> 03:53:30,479

the views are a little dark but you can

2844

03:53:42,170 --> 03:53:32,760

see the Canon arm too with NASA

2845

03:53:46,729 --> 03:53:44,030

he's in communication with nas astronaut

2846

03:53:49,429 --> 03:53:46,739

rajachari right now he's working to

2847

03:53:51,170 --> 03:53:49,439

loosen the gimbals to allow the Sasa

2848

03:53:52,729 --> 03:53:51,180

antenna to track satellites and allow

2849

03:54:09,250 --> 03:53:52,739

for communication between the ground and

2850

03:54:17,150 --> 03:54:11,750

is coming

2851
03:54:19,790 --> 03:54:17,160
AC conversion and stop motion just

2852
03:54:23,870 --> 03:54:19,800
all right then GTA

2853
03:54:30,189 --> 03:54:26,150
put on and breaks around okay you're

2854
03:54:35,809 --> 03:54:33,590
okay we were with you Tom so one caution

2855
03:54:37,189 --> 03:54:35,819
to read you as you recall that we don't

2856
03:54:39,110 --> 03:54:37,199
want to exceed turn counts on these

2857
03:54:40,849 --> 03:54:39,120
bolts because that can cause damage to

2858
03:54:42,710 --> 03:54:40,859
the bolt and we're going to have two

2859
03:54:45,050 --> 03:54:42,720
sets of PGT settings on this the first

2860
03:54:47,750 --> 03:54:45,060
round will be Bravo 4 counterclockwise

2861
03:54:53,990 --> 03:54:50,469
another four

2862
03:54:56,030 --> 03:54:54,000
counterclockwise to confirms

2863
03:54:58,429 --> 03:54:56,040

besides

2864

03:55:00,530 --> 03:54:58,439

okay this is going to be a single turn

2865

03:55:03,050 --> 03:55:00,540

and we're going to do this in order four

2866

03:55:05,269 --> 03:55:03,060

three two then one so we're starting

2867

03:55:07,750 --> 03:55:05,279

with four towards your boots on the

2868

03:55:14,210 --> 03:55:10,490

number four and work

2869

03:55:19,370 --> 03:55:16,370

you just heard ground IV configure the

2870

03:55:21,290 --> 03:55:19,380

tools for NASA astronaut Tom marshburn

2871

03:55:23,389 --> 03:55:21,300

give him the correct settings to loosen

2872

03:55:25,969 --> 03:55:23,399

the bolts on the gimbal locks there's

2873

03:55:27,830 --> 03:55:25,979

four of these marshburn will be starting

2874

03:55:42,610 --> 03:55:27,840

on the right side with number four and

2875

03:55:47,929 --> 03:55:45,650

once the spare sassa is installed and

2876
03:55:50,809 --> 03:55:47,939
configured as Tom marshburn and Kayla

2877
03:55:55,670 --> 03:55:50,819
Baron are working to do now the Eva does

2878
03:56:00,229 --> 03:55:58,250
that's a good read back

2879
03:56:03,250 --> 03:56:00,239
after the install they will head back to

2880
03:56:06,290 --> 03:56:03,260
the express Logistics carrier three

2881
03:56:09,229 --> 03:56:06,300
and permanently install the degraded

2882
03:56:10,490 --> 03:56:09,239
Sasa if you recall earlier in the Eva

2883
03:56:13,070 --> 03:56:10,500
they brought it over there and

2884
03:56:14,210 --> 03:56:13,080
temporarily stowed it that after they've

2885
03:56:16,250 --> 03:56:14,220
installed the spare they're going to

2886
03:56:24,650 --> 03:56:16,260
work their way back there and get a more

2887
03:56:31,130 --> 03:56:26,450
the settings

2888
03:56:31,140 --> 03:56:34,490

there's Bravo for

2889

03:56:34,500 --> 03:56:39,110
down or two and it's working out

2890

03:56:43,250 --> 03:56:41,389
and copy time and one we just wanted to

2891

03:56:45,410 --> 03:56:43,260
confirm what volt you were on if you

2892

03:56:47,389 --> 03:56:45,420
could use the head

2893

03:56:49,670 --> 03:56:47,399
foot right left coordinate to tell us

2894

03:56:55,070 --> 03:56:49,680
which bolt you just worked there the

2895

03:56:58,849 --> 03:56:56,750
for the right foot number four in

2896

03:57:00,229 --> 03:56:58,859
Montgomery

2897

03:57:19,929 --> 03:57:00,239
that's the correct vote we're just

2898

03:57:25,910 --> 03:57:22,490
and guys the sun will be coming up here

2899

03:57:25,920 --> 03:57:29,750
okay

2900

03:57:29,760 --> 03:57:46,189
and Tom we're still checking for you

2901
03:57:52,010 --> 03:57:49,070
okay Tom we're gonna move now to bolt

2902
03:57:57,290 --> 03:57:52,020
number three that's boot side left to

2903
03:57:57,300 --> 03:58:02,229
three

2904
03:58:09,349 --> 03:58:04,610
and this will be the same thing one Turn

2905
03:58:13,189 --> 03:58:11,570
verified Bravo

2906
03:58:16,490 --> 03:58:13,199
or

2907
03:58:23,750 --> 03:58:16,500
counterclockwise too

2908
03:58:27,710 --> 03:58:26,150
NASA astronaut Tom marshburn confirming

2909
03:58:29,570 --> 03:58:27,720
that he's completed work on the first

2910
03:58:31,910 --> 03:58:29,580
bolt and is moving on to the second one

2911
03:58:33,710 --> 03:58:31,920
meanwhile the crew got a heads up that

2912
03:58:35,750 --> 03:58:33,720
the International Space Station will be

2913
03:58:37,490 --> 03:58:35,760

moving to an orbital daytime

2914

03:58:48,309 --> 03:58:37,500

currently in the South Pacific Ocean

2915

03:58:53,929 --> 03:58:52,070

left side toward your helmet

2916

03:58:56,450 --> 03:58:53,939

marshburn now was on bolt number two

2917

03:58:58,790 --> 03:58:56,460

remember marshburn started with four and

2918

03:59:11,170 --> 03:58:58,800

is working his way down to one

2919

03:59:14,769 --> 03:59:12,710

copy

2920

03:59:19,670 --> 03:59:14,779

and we're going to go on to bolt one

2921

03:59:19,680 --> 03:59:53,990

four pelvic right side

2922

03:59:57,889 --> 03:59:56,150

because our spacewalkers today are

2923

04:00:00,889 --> 03:59:57,899

making such good time accomplishing

2924

04:00:03,290 --> 04:00:00,899

their tasks while ahead of schedule

2925

04:00:20,590 --> 04:00:03,300

the crew here is thinking about getting

2926

04:00:26,150 --> 04:00:23,570

one of the get ahead tasks is looking at

2927

04:00:28,070 --> 04:00:26,160

a bolt I was on the airlock it was

2928

04:00:29,929 --> 04:00:28,080

showing some minor wear and tear and

2929

04:00:32,330 --> 04:00:29,939

installing a new one was actually one of

2930

04:00:34,130 --> 04:00:32,340

the get ahead tasks from Tomah piske and

2931

04:00:39,590 --> 04:00:34,140

Aki hoshide back in September during

2932

04:00:44,990 --> 04:00:42,349

nothing else for that

2933

04:00:46,849 --> 04:00:45,000

this is unrelated to the Sasa

2934

04:00:49,729 --> 04:00:46,859

but since the crew will be working

2935

04:00:51,830 --> 04:00:49,739

around the airlock as they Ingress and

2936

04:00:53,990 --> 04:00:51,840

egress one of the get ahead tasks are to

2937

04:00:56,330 --> 04:00:54,000

go ahead and take photos of the pit pin

2938

04:00:59,150 --> 04:00:56,340

that Tomah pesque and Aki hoshide had

2939

04:00:59,160 --> 04:01:09,590

yeah it's not rolling either

2940

04:01:13,269 --> 04:01:11,389

okay Tom what we're going to do is stay

2941

04:01:15,950 --> 04:01:13,279

with the original settings at Bravo 4

2942

04:01:18,469 --> 04:01:15,960

and then go back to bolt number four

2943

04:01:19,610 --> 04:01:18,479

right side towards your boots and we're

2944

04:01:21,950 --> 04:01:19,620

going to try to do that single turn

2945

04:01:27,290 --> 04:01:23,389

okay

2946

04:01:34,429 --> 04:01:29,870

and we're going back to bolt four

2947

04:01:43,809 --> 04:01:37,670

that's a good read back

2948

04:01:48,469 --> 04:01:46,309

all right that's great Tom let's go to

2949

04:01:51,910 --> 04:01:48,479

bolt one do the same thing that's right

2950

04:01:59,030 --> 04:01:54,889

same thing it worked

2951
04:02:03,769 --> 04:02:01,010
we try to get on that

2952
04:02:05,929 --> 04:02:03,779
like a difference

2953
04:02:07,350 --> 04:02:05,939
actually it's

2954
04:02:10,070 --> 04:02:07,360
didn't see anything

2955
04:02:20,929 --> 04:02:10,080
[Music]

2956
04:02:25,969 --> 04:02:22,610
and all this stuff in a little bit see

2957
04:02:25,979 --> 04:02:31,189
one more time

2958
04:02:35,090 --> 04:02:33,410
we're following a long time let us know

2959
04:02:36,229 --> 04:02:35,100
what you get there we are going into a

2960
04:02:37,610 --> 04:02:36,239
period here where we may have a little

2961
04:02:39,469 --> 04:02:37,620
bit of radicon just wanted to give you a

2962
04:02:41,990 --> 04:02:39,479
heads up

2963
04:02:44,750 --> 04:02:42,000

happy

2964

04:02:47,510 --> 04:02:44,760

so it's breaking this

2965

04:02:57,229 --> 04:02:47,520

is breaking the torch one is not moving

2966

04:03:01,370 --> 04:02:59,870

all right Tom we copy we're checking we

2967

04:03:23,769 --> 04:03:01,380

may go to a different PGT setting

2968

04:03:29,389 --> 04:03:26,929

so Tom an additional suggestion at the

2969

04:03:31,010 --> 04:03:29,399

original setting bra before still

2970

04:03:33,050 --> 04:03:31,020

we're going to ask you to put a little

2971

04:03:34,790 --> 04:03:33,060

bit of movement into the high gain in

2972

04:03:39,110 --> 04:03:34,800

Tennessee if you can jiggle while

2973

04:03:41,630 --> 04:03:40,250

okay

2974

04:03:43,849 --> 04:03:41,640

good work

2975

04:03:56,210 --> 04:03:43,859

avoiding that uh

2976

04:04:01,130 --> 04:03:58,910

I'm not getting motion of the septum

2977

04:04:08,689 --> 04:04:01,140

is still talking out

2978

04:04:14,150 --> 04:04:11,150

while marshburn works on loosening those

2979

04:04:16,490 --> 04:04:14,160

bolts communicating with the ground

2980

04:04:19,490 --> 04:04:16,500

okay Tom uh we are at this point gonna

2981

04:04:22,070 --> 04:04:19,500

go to PGT setting of Bravo 7 still

2982

04:04:24,229 --> 04:04:22,080

counterclockwise too so this is a high

2983

04:04:26,090 --> 04:04:24,239

torque we think that this might break

2984

04:04:29,750 --> 04:04:26,100

off the bolts so just be ready to catch

2985

04:04:36,849 --> 04:04:32,349

to seven

2986

04:04:41,510 --> 04:04:36,859

one Turn Only counterclockwise too

2987

04:04:41,520 --> 04:04:44,269

okay

2988

04:04:47,269 --> 04:04:45,769

he's working with the ground to

2989

04:04:49,189 --> 04:04:47,279

configure his pistol grip tool to

2990

04:04:58,490 --> 04:04:49,199

different settings another way of

2991

04:05:03,469 --> 04:05:01,610

okay three-quarter turn there

2992

04:05:04,910 --> 04:05:03,479

a little bit more and we got a one

2993

04:05:07,269 --> 04:05:04,920

parent on

2994

04:05:09,889 --> 04:05:07,279

the one

2995

04:05:11,750 --> 04:05:09,899

great news all right we're going to go

2996

04:05:16,010 --> 04:05:11,760

to our next set of PGT settings when

2997

04:05:23,630 --> 04:05:18,710

Alpha 2 counterclockwise to Alpha two

2998

04:05:23,640 --> 04:05:31,630

further into the Spectrum

2999

04:05:39,170 --> 04:05:36,670

clockwise two starting with hole four

3000

04:05:40,910 --> 04:05:39,180

once again loosening these gimbals

3001

04:05:42,530 --> 04:05:40,920

allows the Sasa antenna to track

3002

04:05:44,150 --> 04:05:42,540

satellites and allow for communication

3003

04:05:46,370 --> 04:05:44,160

between the ground and the space station

3004

04:05:48,590 --> 04:05:46,380

this is complementary to the work that

3005

04:06:00,610 --> 04:05:48,600

Caleb Barron did attaching the ISS

3006

04:06:00,620 --> 04:06:06,309

copy bolt 3 boot side left

3007

04:06:06,319 --> 04:06:12,110

good work

3008

04:06:17,630 --> 04:06:14,150

turn it easily

3009

04:06:20,269 --> 04:06:17,640

four thirds for both three

3010

04:06:29,689 --> 04:06:20,279

wonderful too good news left side

3011

04:06:35,570 --> 04:06:31,969

easy turn

3012

04:06:43,370 --> 04:06:38,570

now over to vote one

3013

04:06:43,380 --> 04:06:47,689

I'm excited

3014

04:06:47,699 --> 04:06:51,769

good motion Easy Motion

3015

04:06:51,779 --> 04:07:03,290

series

3016

04:07:09,590 --> 04:07:05,030

the volts are obviously free they're

3017

04:07:16,250 --> 04:07:12,769

position I'm going to start a PGT

3018

04:07:18,830 --> 04:07:16,260

the right next move yeah Tom you can go

3019

04:07:20,809 --> 04:07:18,840

ahead and Stow your PGT and rotate those

3020

04:07:22,370 --> 04:07:20,819

bolts back away from the septum to the

3021

04:07:24,650 --> 04:07:22,380

unlocked position

3022

04:07:26,750 --> 04:07:24,660

and then just verify that the gimbal

3023

04:07:33,170 --> 04:07:26,760

lock bolts are secure in that unlocked

3024

04:07:39,110 --> 04:07:36,530

now that the gimbal lock bolts all four

3025

04:07:41,210 --> 04:07:39,120

of them have been loosened it's now Tom

3026

04:07:44,210 --> 04:07:41,220

marshburn's task to rotate the gimbal

3027

04:07:53,809 --> 04:07:44,220

lock bolts away and into the unlocked

3028

04:07:58,849 --> 04:07:56,269

once complete marshburn will verify with

3029

04:08:11,090 --> 04:07:58,859

the ground to communicate that they are

3030

04:08:18,769 --> 04:08:15,050

even after tickling the antenna

3031

04:08:24,590 --> 04:08:21,170

this task that marshburn is working on

3032

04:08:33,189 --> 04:08:24,600

is the last step before he gets the go

3033

04:08:40,910 --> 04:08:35,630

and Tom I just wanted to check back with

3034

04:08:46,070 --> 04:08:42,710

or not

3035

04:08:49,490 --> 04:08:46,080

two or three after some jiggling

3036

04:08:52,309 --> 04:08:49,500

rotation of the surf and did go back

3037

04:08:56,510 --> 04:08:52,319

I'll make sure they're fully over the

3038

04:09:01,610 --> 04:08:59,630

those positions they're one and four

3039

04:09:02,990 --> 04:09:01,620

they'll move in this lot but are not

3040

04:09:06,469 --> 04:09:03,000

coming out

3041

04:09:10,309 --> 04:09:06,479

so I think I need to jiggle the uh

3042

04:09:10,319 --> 04:09:16,450

in that

3043

04:09:20,630 --> 04:09:18,710

marshburn confirming now that while some

3044

04:09:22,490 --> 04:09:20,640

of the bolts have been unlocked with

3045

04:09:27,910 --> 04:09:22,500

ease others need a little bit more

3046

04:09:44,330 --> 04:09:30,229

we're following Tom and we're still

3047

04:09:49,429 --> 04:09:48,110

I just wanted to offer up

3048

04:09:51,590 --> 04:09:49,439

um if we think Tom's going to be

3049

04:09:54,530 --> 04:09:51,600

troubleshooting for a while I could go

3050

04:09:56,689 --> 04:09:54,540

work a few get a test

3051
04:09:58,370 --> 04:09:56,699
um and got far from here so I should be

3052
04:10:04,849 --> 04:09:58,380
able to move back up while he's they're

3053
04:10:08,330 --> 04:10:07,130
Caleb uh for you we appreciate the offer

3054
04:10:10,130 --> 04:10:08,340
I don't think we're going to go to get

3055
04:10:14,269 --> 04:10:10,140
ahead just yet we do want to have you

3056
04:10:15,889 --> 04:10:14,279
inspect the rft box of the degraded unit

3057
04:10:18,649 --> 04:10:15,899
um I would just give it a look over if

3058
04:10:19,849 --> 04:10:18,659
you have the spare capacity to take a

3059
04:10:23,269 --> 04:10:19,859
look

3060
04:10:24,710 --> 04:10:23,279
it that'll appreciate

3061
04:10:31,370 --> 04:10:24,720
and we're about two minutes from a

3062
04:10:35,750 --> 04:10:33,590
and Drew I'm not getting a lot of motion

3063
04:10:37,250 --> 04:10:35,760

from the septum like we've done on the

3064

04:10:39,410 --> 04:10:37,260

ground unit

3065

04:10:45,170 --> 04:10:39,420

the uh

3066

04:10:49,969 --> 04:10:46,670

they're pretty loose when they're in the

3067

04:10:53,630 --> 04:10:49,979

slot they're just not riding over

3068

04:10:58,910 --> 04:10:56,990

despite uh some rolling and jiggling

3069

04:10:59,809 --> 04:10:58,920

I'm not actually seeing a lot of emotion

3070

04:11:03,510 --> 04:10:59,819

in the

3071

04:11:07,370 --> 04:11:04,670

[Applause]

3072

04:11:12,050 --> 04:11:10,130

we appreciate the words or right now we

3073

04:11:14,389 --> 04:11:12,060

understand that one in four are the

3074

04:11:16,910 --> 04:11:14,399

problem bolts and so what we thought

3075

04:11:19,670 --> 04:11:16,920

we'd have you do is set your PGT to

3076
04:11:21,750 --> 04:11:19,680
Alpha two and put one additional turn on

3077
04:11:23,090 --> 04:11:21,760
bolts one and four

3078
04:11:24,710 --> 04:11:23,100
[Applause]

3079
04:11:26,570 --> 04:11:24,720
two

3080
04:11:28,490 --> 04:11:26,580
artificial term

3081
04:11:30,710 --> 04:11:28,500
it seems like

3082
04:11:37,849 --> 04:11:30,720
that's the best we expect from my

3083
04:11:44,929 --> 04:11:40,910
so Alpha two

3084
04:11:49,969 --> 04:11:44,939
down if you verify going for four

3085
04:11:49,979 --> 04:11:56,570
one more turn

3086
04:12:02,570 --> 04:11:58,729
still whiskey in there

3087
04:12:02,580 --> 04:12:09,110
[Applause]

3088
04:12:09,120 --> 04:12:13,550

turn complete

3089

04:12:13,560 --> 04:12:38,929

okay number one came out

3090

04:12:38,939 --> 04:12:43,309

all four bolts

3091

04:12:47,450 --> 04:12:45,649

and through contact

3092

04:12:49,910 --> 04:12:47,460

yep Sean we're back with you after they

3093

04:12:51,410 --> 04:12:49,920

hand over so we were standing by for how

3094

04:12:53,750 --> 04:12:51,420

that went with those additional turns on

3095

04:12:55,849 --> 04:12:53,760

one and four

3096

04:12:58,370 --> 04:12:55,859

yeah that was the trick a little stuff

3097

04:13:00,530 --> 04:12:58,380

but one and four finally actually one

3098

04:13:03,889 --> 04:13:00,540

would not move so excuse me four would

3099

04:13:06,410 --> 04:13:03,899

not move even after the extra turn but

3100

04:13:08,090 --> 04:13:06,420

then after the extra turn number one did

3101

04:13:10,550 --> 04:13:08,100

move went back to four and then it

3102

04:13:13,030 --> 04:13:10,560

popped out as well so all four bolts are

3103

04:13:15,170 --> 04:13:13,040

in the stove position

3104

04:13:19,729 --> 04:13:15,180

all right that's exactly what we wanted

3105

04:13:25,130 --> 04:13:23,030

okay we're in a brief but expected hand

3106

04:13:26,570 --> 04:13:25,140

ling a live view now of Mission Control

3107

04:13:29,170 --> 04:13:26,580

Houston

3108

04:13:33,590 --> 04:13:29,180

where flight director

3109

04:13:35,630 --> 04:13:33,600

and ground IV are communicating with Tom

3110

04:13:38,570 --> 04:13:35,640

marshburn who is troubleshooting getting

3111

04:13:42,050 --> 04:13:38,580

some gimbal locks loosened again this

3112

04:13:43,550 --> 04:13:42,060

allows free movement once the Sasa is

3113

04:13:46,790 --> 04:13:43,560

powered on so that way it can

3114

04:13:52,130 --> 04:13:49,790

okay Tom and just double checking

3115

04:13:54,889 --> 04:13:52,140

yep

3116

04:13:56,630 --> 04:13:54,899

copy go ahead

3117

04:13:58,189 --> 04:13:56,640

so we want to also just give you a quick

3118

04:14:00,110 --> 04:13:58,199

update that you guys are about an hour

3119

04:14:02,570 --> 04:14:00,120

and 40 minutes ahead of the timeline or

3120

04:14:04,929 --> 04:14:02,580

limiting consumable is still medox it's

3121

04:14:07,550 --> 04:14:04,939

seven and a half hours so plenty of time

3122

04:14:09,830 --> 04:14:07,560

and uh every you guys are doing great

3123

04:14:12,410 --> 04:14:09,840

this is everything that we had hoped

3124

04:14:14,210 --> 04:14:12,420

this is perfect uh Tom you're gonna be

3125

04:14:16,490 --> 04:14:14,220

doing empty-handed flyback take us some

3126
04:14:17,990 --> 04:14:16,500
pictures and video and then Kayla will

3127
04:14:21,050 --> 04:14:18,000
take any words that you have on your

3128
04:14:32,530 --> 04:14:23,510
Roger one second into the joke house

3129
04:14:36,710 --> 04:14:34,969
sounds good Tom uh we're gonna first

3130
04:14:38,450 --> 04:14:36,720
have to take you 20 centimeters later

3131
04:14:40,189 --> 04:14:38,460
and then uh to undo what we did before

3132
04:14:43,250 --> 04:14:40,199
and then we'll take you to uh Tim still

3133
04:14:45,110 --> 04:14:43,260
back on position and so copy your uh go

3134
04:14:46,309 --> 04:14:45,120
from an Uber to the ELC three attempts

3135
04:14:48,649 --> 04:14:46,319
no back opposition I'll let you know

3136
04:14:50,870 --> 04:14:48,659
before emotion starts copy

3137
04:15:01,010 --> 04:14:50,880
all right yes and go for the maneuver

3138
04:15:05,630 --> 04:15:03,349

we just got confirmation that well ahead

3139

04:15:07,670 --> 04:15:05,640

of schedule our space Walkers NASA

3140

04:15:10,189 --> 04:15:07,680

astronauts Kayla Baron and Tom marshburn

3141

04:15:13,010 --> 04:15:10,199

have installed the spare Sasa to the

3142

04:15:15,290 --> 04:15:13,020

International Space Station's P1 Truss

3143

04:15:16,250 --> 04:15:15,300

this involved installing a stanchion

3144

04:15:20,090 --> 04:15:16,260

bolts

3145

04:15:21,950 --> 04:15:20,100

and connecting some wires that Baron had

3146

04:15:24,229 --> 04:15:21,960

previously disconnected

3147

04:15:26,450 --> 04:15:24,239

this allowed power to the unit

3148

04:15:29,389 --> 04:15:26,460

and Tom marshburn worked diligently to

3149

04:15:31,130 --> 04:15:29,399

get the gimbal locks released the fourth

3150

04:15:32,929 --> 04:15:31,140

one gave him a little bit of trouble and

3151

04:15:34,550 --> 04:15:32,939

required a little bit more coaxing but

3152

04:15:36,710 --> 04:15:34,560

at the end of the day Tom marshburn was

3153

04:15:51,170 --> 04:15:36,720

able to get the job done

3154

04:15:51,180 --> 04:16:05,030

a year to go

3155

04:16:05,040 --> 04:16:09,110

good motion

3156

04:16:09,120 --> 04:16:14,030

10 centimeters wrapping out

3157

04:16:19,189 --> 04:16:16,550

okay that will take me about a meter

3158

04:16:44,870 --> 04:16:41,510

ion

3159

04:16:48,050 --> 04:16:44,880

we're going to set up for a joke guys

3160

04:17:32,149 --> 04:16:51,110

and Tom we copied your go for Sasa power

3161

04:17:35,450 --> 04:17:34,070

the motion is about to almost seven

3162

04:17:36,769 --> 04:17:35,460

minutes long

3163

04:17:38,809 --> 04:17:36,779

okay

3164

04:17:46,189 --> 04:17:38,819

ask me mostly torn motion back to where

3165

04:17:50,929 --> 04:17:49,189

when you're ready to copy I've got words

3166

04:17:54,469 --> 04:17:50,939

on

3167

04:17:58,370 --> 04:17:54,479

um we discussed our rfg

3168

04:18:03,590 --> 04:18:02,030

so I have a good view of

3169

04:18:12,530 --> 04:18:03,600

the

3170

04:18:14,030 --> 04:18:12,540

surface area face

3171

04:18:15,710 --> 04:18:14,040

um that faced outboard when it was

3172

04:18:17,750 --> 04:18:15,720

installed right now I don't have a great

3173

04:18:21,229 --> 04:18:17,760

view of the most

3174

04:18:24,649 --> 04:18:21,239

Zenith space put on the um the main area

3175

04:18:26,490 --> 04:18:24,659

of the rfg that was based on board when

3176
04:18:28,070 --> 04:18:26,500
installed there's

3177
04:18:33,729 --> 04:18:28,080
[Music]

3178
04:18:36,229 --> 04:18:33,739
um discoloration on the 93

3179
04:18:48,649 --> 04:18:36,239
along the

3180
04:18:55,910 --> 04:18:52,070
is what appears to be a small pit at the

3181
04:18:55,920 --> 04:18:59,570
mmod streaks

3182
04:19:06,469 --> 04:19:05,510
and then on the more neater face

3183
04:19:09,469 --> 04:19:06,479
um

3184
04:19:14,870 --> 04:19:09,479
and the Grid on the neater part of the

3185
04:19:17,750 --> 04:19:14,880
main plane are also evidence of mmod

3186
04:19:20,870 --> 04:19:17,760
strikes and in some areas it looks

3187
04:19:26,809 --> 04:19:20,880
Taylor rose stand by real quick

3188
04:19:30,410 --> 04:19:28,550

we were going through a period of pretty

3189

04:19:38,510 --> 04:19:30,420

ratty calm there so we lost some of that

3190

04:19:43,490 --> 04:19:41,330

how you doing Tom really good

3191

04:20:03,370 --> 04:19:43,500

the first pass in the daytime something

3192

04:20:09,349 --> 04:20:05,809

Baron and marshburn now preparing to

3193

04:20:10,790 --> 04:20:09,359

power up the Sasa this is the spare that

3194

04:20:12,710 --> 04:20:10,800

they took from the express Logistics

3195

04:20:14,830 --> 04:20:12,720

carrier over to the P1 trust to replace

3196

04:20:17,450 --> 04:20:14,840

the degraded unit

3197

04:20:21,290 --> 04:20:17,460

following its successful power-up they

3198

04:20:22,490 --> 04:20:21,300

will head back to the ELC and Stow the

3199

04:20:24,590 --> 04:20:22,500

degraded unit

3200

04:20:34,429 --> 04:20:24,600

have I'm sorry about cutting you off

3201

04:20:39,530 --> 04:20:37,250

looks like mmod strike

3202

04:20:43,429 --> 04:20:39,540

um it looks just like you know sort of

3203

04:20:46,070 --> 04:20:43,439

matte silver petal underneath and then

3204

04:20:50,330 --> 04:20:46,080

other areas are more like a brownish

3205

04:20:52,010 --> 04:20:50,340

orange color around the area of the hip

3206

04:20:54,530 --> 04:20:52,020

um

3207

04:20:57,170 --> 04:20:54,540

knows that it's just some sort of

3208

04:20:59,149 --> 04:20:57,180

oxidation or something or like the age

3209

04:20:59,809 --> 04:20:59,159

of the hit

3210

04:21:02,450 --> 04:20:59,819

um

3211

04:21:05,330 --> 04:21:02,460

but from my vantage point I can probably

3212

04:21:11,389 --> 04:21:08,689

the mod strikes I was able to get some

3213

04:21:14,090 --> 04:21:11,399

what I think will be uh decent pictures

3214

04:21:17,149 --> 04:21:14,100

of the faces I've described

3215

04:21:19,370 --> 04:21:17,159

and I might be able to get eyes on the

3216

04:21:26,630 --> 04:21:19,380

other face once we have it installed on

3217

04:21:30,710 --> 04:21:29,030

copy all Kayla has great description we

3218

04:21:31,969 --> 04:21:30,720

may take you up on that offer to do

3219

04:21:33,590 --> 04:21:31,979

further inspection once we get it

3220

04:21:35,750 --> 04:21:33,600

installed and we wanted to confirm with

3221

04:21:38,570 --> 04:21:35,760

you the number you were describing a

3222

04:21:42,649 --> 04:21:38,580

number of mmod strikes and we just

3223

04:21:42,659 --> 04:21:50,090

um let me see

3224

04:21:56,450 --> 04:21:53,389

I would say I can see 11 from my

3225

04:21:58,550 --> 04:21:56,460

perspective but because of the um like

3226

04:22:03,830 --> 04:21:58,560

raised grid area there might be some

3227

04:22:11,689 --> 04:22:06,889

and I'm only really counting what I can

3228

04:22:14,269 --> 04:22:11,699

see on two of the

3229

04:22:16,610 --> 04:22:14,279

um pieces and not really the size but

3230

04:22:18,950 --> 04:22:16,620

we're the most

3231

04:22:21,170 --> 04:22:18,960

all right copy that Kayla good words and

3232

04:22:22,309 --> 04:22:21,180

uh we will come up with a plan if

3233

04:22:24,050 --> 04:22:22,319

there's an additional inspection that

3234

04:22:28,309 --> 04:22:24,060

will take once we move it over there to

3235

04:22:33,170 --> 04:22:30,710

yes sir you could take your right hand

3236

04:22:36,530 --> 04:22:33,180

and stick it out to the right

3237

04:22:36,540 --> 04:22:41,630

fingers out

3238

04:22:47,269 --> 04:22:44,149

thank you

3239

04:22:49,130 --> 04:22:47,279

got some good uh shots of you

3240

04:22:52,490 --> 04:22:49,140

um over at the

3241

04:23:02,210 --> 04:22:52,500

go on site Tom nice I think they're good

3242

04:23:02,220 --> 04:23:10,969

90 done with the move coffee Roger

3243

04:23:14,149 --> 04:23:12,710

you might have seen a camera peeking out

3244

04:23:16,130 --> 04:23:14,159

from the bottom of the screen with

3245

04:23:19,189 --> 04:23:16,140

direction from Tom marshburn asking

3246

04:23:34,130 --> 04:23:19,199

Kayla to take a peek that looks like we

3247

04:23:38,689 --> 04:23:35,929

there we go

3248

04:23:40,070 --> 04:23:38,699

before the quick photo Kayla Baron was

3249

04:23:41,630 --> 04:23:40,080

communicating with the ground giving a

3250

04:23:46,660 --> 04:23:41,640

visual inspection of the outside of the

3251

04:23:46,670 --> 04:23:52,610

[Music]

3252

04:23:58,010 --> 04:23:56,630

right uh start GTA published GCA it will

3253

04:23:58,969 --> 04:23:58,020

be about two and a half meters neater

3254

04:24:11,809 --> 04:23:58,979

I'll let you know before the motion

3255

04:24:11,819 --> 04:24:17,149

all right starting motion Nader

3256

04:24:17,159 --> 04:24:32,750

say good motion

3257

04:24:36,530 --> 04:24:34,790

it's tough to tell on your screen but on

3258

04:24:39,590 --> 04:24:36,540

the right side

3259

04:24:52,189 --> 04:24:39,600

the robotic arm of the station is gently

3260

04:24:56,510 --> 04:24:53,870

thank you centimeters

3261

04:24:58,910 --> 04:24:56,520

and stop motion

3262

04:25:03,649 --> 04:24:58,920

about 30 centimeters short

3263

04:25:06,769 --> 04:25:03,659

and uh everybody I think we're in the

3264

04:25:09,710 --> 04:25:08,330

pretty good position here Roger I

3265

04:25:11,689 --> 04:25:09,720

believe youth retail

3266

04:25:15,050 --> 04:25:11,699

yeah as long as you feel comfortable you

3267

04:25:16,210 --> 04:25:15,060

can fold as fast as I released it

3268

04:25:24,170 --> 04:25:16,220

the TCA

3269

04:25:29,090 --> 04:25:27,050

marshburn communicating with the robotic

3270

04:25:30,830 --> 04:25:29,100

arm operators Matthias Maurer and

3271

04:25:33,170 --> 04:25:30,840

rajachari

3272

04:25:38,389 --> 04:25:33,180

my right now while the handrail is still

3273

04:25:43,790 --> 04:25:41,450

all right my red is removed

3274

04:25:46,130 --> 04:25:43,800

and Tom I'm gonna unlock the jaws and

3275

04:25:48,769 --> 04:25:46,140

then I'll release them Kathy

3276

04:25:55,490 --> 04:25:48,779

yeah that is out of control Roger you

3277

04:25:55,500 --> 04:25:59,689

is released

3278

04:26:05,570 --> 04:26:01,849

two hands on the hill

3279

04:26:10,370 --> 04:26:07,429

and the kids are Roger I believe we have

3280

04:26:13,849 --> 04:26:10,380

a g theater publish coming up next we're

3281

04:26:13,859 --> 04:26:23,389

the Ingress 8 is clear tethers are clear

3282

04:26:27,469 --> 04:26:25,610

that's in worst time I'm going to work

3283

04:26:47,330 --> 04:26:27,479

on getting into a better position to

3284

04:26:51,110 --> 04:26:49,370

all right Tom uh the command frame is

3285

04:26:53,389 --> 04:26:51,120

push the body frame and we are ready for

3286

04:26:55,429 --> 04:26:53,399

maneuver to GCA to publish Sasa France

3287

04:26:59,210 --> 04:26:55,439

still position Steph are you ready for

3288

04:27:01,370 --> 04:26:59,220

the Jeep let's start GCA and uh

3289

04:27:02,929 --> 04:27:01,380

but he left one meter

3290

04:27:04,969 --> 04:27:02,939

probably yep that's what we've got for

3291

04:27:07,790 --> 04:27:04,979

you

3292

04:27:09,710 --> 04:27:07,800

marshburn and baron now moving to the

3293

04:27:12,410 --> 04:27:09,720

express Logistics carrier where they're

3294

04:27:27,950 --> 04:27:12,420

working to soft dock the degraded Sasa

3295

04:27:32,450 --> 04:27:30,050

watch your uh

3296

04:27:38,149 --> 04:27:32,460

turn a little bit there uh there's only

3297

04:27:38,159 --> 04:27:42,170

centimeters wrapping out

3298

04:27:44,570 --> 04:27:43,790

that's the public position how does that

3299

04:27:46,670 --> 04:27:44,580

look

3300

04:27:49,429 --> 04:27:46,680

I'm gonna need the Nader but let me let

3301
04:27:51,110 --> 04:27:49,439
the Kayla

3302
04:27:56,269 --> 04:27:51,120
move down

3303
04:28:00,530 --> 04:27:58,269
moved as well

3304
04:28:01,969 --> 04:28:00,540
we're in the body frame if you want to

3305
04:28:03,410 --> 04:28:01,979
give us reference to you otherwise we

3306
04:28:05,090 --> 04:28:03,420
can figure it out

3307
04:28:06,950 --> 04:28:05,100
that's right

3308
04:28:08,990 --> 04:28:06,960
all right

3309
04:28:11,870 --> 04:28:09,000
body forward

3310
04:28:13,189 --> 04:28:11,880
let's go about 40 centimeters be 40

3311
04:28:14,410 --> 04:28:13,199
centimeters body forward and confirm

3312
04:28:17,389 --> 04:28:14,420
that you're good with Kayla's position

3313
04:28:20,389 --> 04:28:17,399

happy and good repair position if she's

3314

04:28:22,389 --> 04:28:20,399

good with it yep okay and uh just watch

3315

04:28:28,670 --> 04:28:22,399

your blue plate

3316

04:28:28,680 --> 04:28:35,330

be good Mercy 27 years ago

3317

04:28:35,340 --> 04:28:39,170

good news

3318

04:28:42,889 --> 04:28:40,550

all right

3319

04:28:47,929 --> 04:28:42,899

let's assess this

3320

04:28:52,130 --> 04:28:50,149

um Tom you will need to go to your left

3321

04:28:55,550 --> 04:28:52,140

yeah I will

3322

04:28:56,750 --> 04:28:55,560

uh now go towards the plate the ornament

3323

04:28:59,330 --> 04:28:56,760

pin is in

3324

04:29:01,550 --> 04:28:59,340

all right it's kind of uh hovering over

3325

04:29:03,590 --> 04:29:01,560

the alignment

3326

04:29:07,189 --> 04:29:03,600

I think I've been a good position uh

3327

04:29:09,710 --> 04:29:07,199

with your direction so ngca

3328

04:29:12,410 --> 04:29:09,720

copy of GCA is complete and breaks

3329

04:29:14,990 --> 04:29:12,420

around copy breakdown all right Kayla

3330

04:29:17,030 --> 04:29:15,000

thank you for your direction uh pull it

3331

04:29:19,189 --> 04:29:17,040

towards you a little bit

3332

04:29:21,889 --> 04:29:19,199

okay the alignment pins in now

3333

04:29:23,149 --> 04:29:21,899

if you can rotate it so my end comes

3334

04:29:25,189 --> 04:29:23,159

down there you go

3335

04:29:28,189 --> 04:29:25,199

it's nice and flush there

3336

04:29:31,309 --> 04:29:28,199

didn't feel a bit satisfying

3337

04:29:34,389 --> 04:29:31,319

uh there's no soft Rockets I remember

3338

04:29:37,370 --> 04:29:34,399

correctly here it's just the alignment

3339

04:29:39,370 --> 04:29:37,380

and um I'm gonna try to see if I can get

3340

04:29:42,830 --> 04:29:39,380

these bulk pans birded

3341

04:29:46,729 --> 04:29:42,840

hey let me guys I kind of knocked it

3342

04:29:51,170 --> 04:29:48,769

if you could hold it as flush with the

3343

04:29:54,769 --> 04:29:51,180

frown as possible

3344

04:29:56,389 --> 04:29:54,779

I need to get more left to do that

3345

04:29:58,670 --> 04:29:56,399

the astronauts now we're talking about

3346

04:30:00,469 --> 04:29:58,680

the Fram or the flight reusable attach

3347

04:30:02,269 --> 04:30:00,479

mechanism it's what these replacement

3348

04:30:03,769 --> 04:30:02,279

parts are attached to and it's how they

3349

04:30:05,990 --> 04:30:03,779

were brought onto the space station in

3350

04:30:08,090 --> 04:30:06,000

the first place if you recall earlier in

3351
04:30:10,969 --> 04:30:08,100
the Eva when they removed the degraded

3352
04:30:16,490 --> 04:30:13,309
they temporarily stowed it back onto the

3353
04:30:18,110 --> 04:30:16,500
express Logistics carrier but now

3354
04:30:23,689 --> 04:30:18,120
they're doing a more permanent

3355
04:30:34,189 --> 04:30:26,510
s

3356
04:30:34,199 --> 04:30:41,450
a good motion

3357
04:30:44,450 --> 04:30:42,760
there's 20 centimeters

3358
04:30:45,950 --> 04:30:44,460
[Music]

3359
04:30:49,370 --> 04:30:45,960
three

3360
04:30:57,469 --> 04:30:51,670
so I'm gonna eat the

3361
04:30:57,479 --> 04:31:00,769
there you go

3362
04:31:09,410 --> 04:31:03,889
all right to see if that works in GTA

3363
04:31:17,210 --> 04:31:11,809

all right Tom if you could hold the um

3364

04:31:20,570 --> 04:31:19,189

the challenge here is to get these hand

3365

04:31:23,809 --> 04:31:20,580

sorted they're gonna have to be pretty

3366

04:31:26,149 --> 04:31:23,819

well aligned right so right here is a

3367

04:31:28,729 --> 04:31:26,159

really good position I think

3368

04:31:33,469 --> 04:31:28,739

you keep it stable if I remove my hands

3369

04:31:39,830 --> 04:31:36,530

I run with this another manual to my

3370

04:31:42,050 --> 04:31:39,840

left 20 or GTA to my left 20 centimeters

3371

04:31:44,929 --> 04:31:42,060

starting GCA 20 centimeters body left

3372

04:31:47,210 --> 04:31:44,939

the brakes are off and starting motion

3373

04:31:55,309 --> 04:31:47,220

clearance

3374

04:32:08,389 --> 04:31:57,530

ready to check that out

3375

04:32:26,030 --> 04:32:11,149

let me try this in GCA

3376

04:32:26,040 --> 04:32:38,870

looks like it was turning

3377

04:32:38,880 --> 04:32:50,090

I'll try the other one first

3378

04:32:58,189 --> 04:32:53,929

maybe I will put down my vrt's thumb

3379

04:33:02,689 --> 04:33:00,349

the next move would be the

3380

04:33:04,789 --> 04:33:02,699

moving the arm again throwing more in

3381

04:33:17,629 --> 04:33:04,799

like your position

3382

04:33:17,639 --> 04:33:21,410

I have not much

3383

04:33:21,420 --> 04:33:39,289

all right

3384

04:33:43,070 --> 04:33:41,449

okay I'll tell you what let me guess I

3385

04:33:44,629 --> 04:33:43,080

can get into a much better position here

3386

04:33:47,510 --> 04:33:44,639

but

3387

04:33:50,029 --> 04:33:47,520

get some more emotion

3388

04:34:01,670 --> 04:33:50,039

give me one chance to absolutely right

3389

04:34:09,529 --> 04:34:05,029

I have a real challenge here

3390

04:34:15,769 --> 04:34:12,470

actually over the you can see the

3391

04:34:17,810 --> 04:34:15,779

witness from the prior assassin they're

3392

04:34:20,150 --> 04:34:17,820

lying just right for that below where

3393

04:34:28,730 --> 04:34:20,160

it's not oxidized yeah I've noticed that

3394

04:34:31,730 --> 04:34:30,349

if you've got some engagement there

3395

04:34:37,129 --> 04:34:31,740

maybe nope

3396

04:34:37,139 --> 04:34:46,369

try getting out the ratchet wrench

3397

04:34:50,929 --> 04:34:49,310

Let's see we could ask if we could just

3398

04:34:52,369 --> 04:34:50,939

try driving it with the people it

3399

04:35:00,109 --> 04:34:52,379

doesn't play in it it's not just coming

3400

04:35:04,070 --> 04:35:02,510

I'll lift it I'll keep my hand on it if

3401

04:35:06,051 --> 04:35:04,080

you want to lift it up just a tad see if

3402

04:35:08,689 --> 04:35:06,061

it comes out

3403

04:35:10,730 --> 04:35:08,699

all right

3404

04:35:13,551 --> 04:35:10,740

tracking back out I don't think it's

3405

04:35:15,830 --> 04:35:13,561

engaged this other one oh I see yeah the

3406

04:35:18,529 --> 04:35:15,840

other one is if I was holding it but it

3407

04:35:24,880 --> 04:35:20,449

all right I can help you a lot more if

3408

04:35:32,869 --> 04:35:26,209

[Music]

3409

04:35:32,879 --> 04:35:37,609

Kayla we wanted to give you a second

3410

04:35:41,390 --> 04:35:38,750

okay we wanted to give you the

3411

04:35:43,310 --> 04:35:41,400

additional words that we can use PGT at

3412

04:35:45,709 --> 04:35:43,320

a low setting like an alpha one setting

3413

04:35:47,810 --> 04:35:45,719

or like you suggested the ratchet wrench

3414

04:35:56,090 --> 04:35:47,820

either two of those you would like to

3415

04:35:59,869 --> 04:35:58,129

that works and then when you have a

3416

04:36:04,010 --> 04:35:59,879

moment Kayla we'd like you to power your

3417

04:36:04,020 --> 04:36:08,209

thank you

3418

04:36:13,490 --> 04:36:11,209

so let's see

3419

04:36:15,410 --> 04:36:13,500

if you're just joining us NASA

3420

04:36:17,810 --> 04:36:15,420

astronauts Tom marshburn and Kayla Baron

3421

04:36:20,390 --> 04:36:17,820

are on a spacewalk to replace a faulty

3422

04:36:22,250 --> 04:36:20,400

sassa unit right now they're stowing the

3423

04:36:24,109 --> 04:36:22,260

degraded one earlier in the day they had

3424

04:36:27,170 --> 04:36:24,119

worked to remove it from its original

3425

04:36:28,970 --> 04:36:27,180

position on the P1 press truss grab the

3426
04:36:31,369 --> 04:36:28,980
spare from the express Logistics carrier

3427
04:36:34,429 --> 04:36:31,379
number three and replace it in the

3428
04:36:36,590 --> 04:36:34,439
degraded sasa's original position it

3429
04:36:38,570 --> 04:36:36,600
temporarily stole the degraded Sasa but

3430
04:36:41,090 --> 04:36:38,580
now they're working to permanently fix

3431
04:36:50,590 --> 04:36:41,100
it onto the spare part section of the

3432
04:36:55,310 --> 04:36:53,150
Tom marshburn is actually the oldest

3433
04:36:57,769 --> 04:36:55,320
human being to conduct an Eva and he is

3434
04:37:00,051 --> 04:36:57,779
very proud of that record this is his

3435
04:37:02,590 --> 04:37:00,061
fifth spacewalk overall the first three

3436
04:37:06,410 --> 04:37:02,600
occurring back to back on his 15-day

3437
04:37:08,570 --> 04:37:06,420
sts-127 Mission back in 2009 the fourth

3438
04:37:10,250 --> 04:37:08,580

spacewalk of his career alongside NASA

3439

04:37:12,289 --> 04:37:10,260

astronaut Chris Cassidy happened in

3440

04:37:16,129 --> 04:37:12,299

2013.

3441

04:37:16,139 --> 04:37:45,051

all right

3442

04:37:53,949 --> 04:37:49,129

common thinking that it needs to rotate

3443

04:38:13,369 --> 04:37:56,269

correct yeah that's better right there

3444

04:38:18,051 --> 04:38:15,709

and uh

3445

04:38:20,990 --> 04:38:18,061

do we know Joy there

3446

04:38:24,769 --> 04:38:23,150

why don't they go for a better position

3447

04:38:28,970 --> 04:38:24,779

for myself I think it could help you out

3448

04:38:32,750 --> 04:38:28,980

a lot more okay all right and uh see his

3449

04:38:35,949 --> 04:38:32,760

brother another uh TCA

3450

04:38:41,390 --> 04:38:39,051

centimeters right left

3451
04:38:50,330 --> 04:38:41,400
20 more centimeters body left starting

3452
04:38:54,769 --> 04:38:52,609
out

3453
04:38:56,510 --> 04:38:54,779
great body up here if you can check over

3454
04:38:59,990 --> 04:38:56,520
my head I just can't see it I think I'm

3455
04:39:02,269 --> 04:39:00,000
good I assume Max all right

3456
04:39:03,830 --> 04:39:02,279
how far do you want to go I'm going to

3457
04:39:06,170 --> 04:39:03,840
go up uh

3458
04:39:09,470 --> 04:39:06,180
30 centimeters

3459
04:39:11,570 --> 04:39:09,480
then Kayla's got your head clearance

3460
04:39:13,849 --> 04:39:11,580
your head's clear starting motion I take

3461
04:39:17,929 --> 04:39:13,859
good motion

3462
04:39:22,730 --> 04:39:20,209
and then

3463
04:39:25,250 --> 04:39:22,740

how do you pitch forward

3464

04:39:27,170 --> 04:39:25,260

20 degrees

3465

04:39:30,109 --> 04:39:27,180

clearance

3466

04:39:33,890 --> 04:39:30,119

okay body pitch forward 20 degrees good

3467

04:39:33,900 --> 04:39:44,690

pretty luscious

3468

04:39:44,700 --> 04:39:54,650

five years

3469

04:39:54,660 --> 04:40:04,310

and there is

3470

04:40:04,320 --> 04:40:16,208

100 years ago

3471

04:40:35,930 --> 04:40:21,410

20 centimeters

3472

04:40:38,628 --> 04:40:35,940

right stop motion in GTA

3473

04:40:40,670 --> 04:40:38,638

I mean GPA complete brakes are on

3474

04:40:42,590 --> 04:40:40,680

nothing

3475

04:40:44,628 --> 04:40:42,600

all right try not to side load it but

3476

04:40:46,730 --> 04:40:44,638

now I can control it a little bit better

3477

04:40:51,230 --> 04:40:46,740

um it's not currently flush

3478

04:40:55,788 --> 04:40:53,030

I need to get my hand up on the inside

3479

04:40:55,798 --> 04:40:58,550

nope

3480

04:41:02,330 --> 04:41:00,410

the astronauts here are attaching the

3481

04:41:06,010 --> 04:41:02,340

sassa to the frame or the flight

3482

04:41:10,128 --> 04:41:08,690

the astronauts using Mast bolts to keep

3483

04:41:12,230 --> 04:41:10,138

it secure

3484

04:41:15,590 --> 04:41:12,240

can needs to go down towards the frame

3485

04:41:19,250 --> 04:41:17,390

this particular frame allows the

3486

04:41:21,650 --> 04:41:19,260

communications antenna to receive heater

3487

04:41:23,868 --> 04:41:21,660

power but also affixed thermal blankets

3488

04:41:25,190 --> 04:41:23,878

to preserve the antenna's Integrity in

3489

04:41:36,350 --> 04:41:25,200

case they ever want to use it in the

3490

04:41:47,930 --> 04:41:38,510

how's that

3491

04:41:47,940 --> 04:41:55,310

rotate a little bit

3492

04:42:01,310 --> 04:41:58,070

do you think you can reach the bolts

3493

04:42:03,470 --> 04:42:01,320

in the world if I were to

3494

04:42:06,410 --> 04:42:03,480

hold it down

3495

04:42:37,730 --> 04:42:06,420

yeah you might be able to do that this

3496

04:42:42,170 --> 04:42:39,590

little things um

3497

04:42:43,670 --> 04:42:42,180

we'll give them a good return

3498

04:42:44,930 --> 04:42:43,680

yeah we've got good clearance if you

3499

04:42:47,270 --> 04:42:44,940

want to go body forward if that would

3500

04:42:53,270 --> 04:42:50,030

I'll take it

3501

04:42:55,310 --> 04:42:53,280

um could you put a hand back on me yeah

3502

04:43:01,910 --> 04:42:55,320

Roger stand by one I'm gonna put it back

3503

04:43:06,170 --> 04:43:04,190

the next thing we could do is

3504

04:43:15,830 --> 04:43:06,180

is this stable maybe hit them with the

3505

04:43:20,270 --> 04:43:17,930

I think

3506

04:43:23,570 --> 04:43:20,280

we're just not quite aligned here yeah

3507

04:43:26,090 --> 04:43:23,580

just light and this uh

3508

04:43:30,708 --> 04:43:26,100

get the pgp out push down on it I can

3509

04:43:37,310 --> 04:43:33,590

so doing all that was trying to throw it

3510

04:43:41,330 --> 04:43:38,868

and uh Roger I'm going to take you off

3511

04:43:42,890 --> 04:43:41,340

wait I might have gotten it oh okay

3512

04:43:47,030 --> 04:43:42,900

goodbye

3513

04:43:52,670 --> 04:43:47,040

brother oh man I think we're just close

3514

04:43:56,510 --> 04:43:54,470

so guys we've been following along and

3515

04:43:58,730 --> 04:43:56,520

so one of the suggestions that we had

3516

04:44:01,010 --> 04:43:58,740

was maybe try like Tom describes go

3517

04:44:03,288 --> 04:44:01,020

ahead and engage the PGT on the bolt and

3518

04:44:05,030 --> 04:44:03,298

if we need to take uh put Tom in a

3519

04:44:07,730 --> 04:44:05,040

better GCA I'm just in a slightly better

3520

04:44:09,350 --> 04:44:07,740

position and then Kayla has the PGT on

3521

04:44:11,090 --> 04:44:09,360

and then when we feel it in position

3522

04:44:14,448 --> 04:44:11,100

give it that

3523

04:44:19,430 --> 04:44:14,458

one less than one turn with the uh at

3524

04:44:25,070 --> 04:44:22,550

yeah of course I'm gonna do a quick GPA

3525

04:44:26,628 --> 04:44:25,080

and uh rather GCA

3526

04:44:28,190 --> 04:44:26,638

everybody forward

3527

04:44:30,110 --> 04:44:28,200

10 centimeters

3528

04:44:31,670 --> 04:44:30,120

happy brakes are coming off and uh

3529

04:44:33,590 --> 04:44:31,680

giving your body for 10 centimeters

3530

04:44:35,570 --> 04:44:33,600

starting motion

3531

04:44:37,910 --> 04:44:35,580

we just reached the four hour mark into

3532

04:44:39,890 --> 04:44:37,920

the plan six and a half hour spacewalk

3533

04:44:41,270 --> 04:44:39,900

with NASA astronauts Tom marshburn and

3534

04:44:43,788 --> 04:44:41,280

Kayla Baron

3535

04:44:46,368 --> 04:44:43,798

they are now working to Stow the

3536

04:44:49,430 --> 04:44:46,378

degraded sassa this one that failed or

3537

04:44:52,368 --> 04:44:49,440

part of it went down back in September

3538

04:44:55,190 --> 04:44:52,378

they replaced it with another unit and

3539

04:45:05,990 --> 04:44:55,200

now they're just temp stowing the sassa

3540

04:45:06,000 --> 04:45:11,270

and Kayla go ahead and go for two turns

3541

04:45:15,288 --> 04:45:13,010

they're discussing now the best way to

3542

04:45:17,690 --> 04:45:15,298

get this done with their ground IV Drew

3543

04:45:22,128 --> 04:45:17,700

Morgan and the Eva team here in mission

3544

04:45:24,170 --> 04:45:22,138

control that involves getting their PGT

3545

04:45:28,010 --> 04:45:24,180

their pistol grip tool it's like a

3546

04:45:32,030 --> 04:45:28,020

cordless drill in space configured and

3547

04:45:34,970 --> 04:45:32,040

using astronauts Matthias Maurer and

3548

04:45:36,650 --> 04:45:34,980

rajachari to get Tom marshburn in a

3549

04:45:38,570 --> 04:45:36,660

slightly more advantageous position on

3550

04:45:52,550 --> 04:45:38,580

the robotic arm

3551

04:45:52,560 --> 04:45:57,170

and we made as well

3552

04:46:02,030 --> 04:45:59,690

if you're in on both all right good work

3553

04:46:07,250 --> 04:46:02,040

Ken Kayla we're going to reset to Alpha

3554

04:46:11,390 --> 04:46:09,890

has the astronauts got directions on

3555

04:46:14,448 --> 04:46:11,400

their tool configuration from the ground

3556

04:46:16,730 --> 04:46:14,458

IV you are looking at a live view of how

3557

04:46:18,410 --> 04:46:16,740

my camera number 16 belonging to Kayla

3558

04:46:22,368 --> 04:46:18,420

Baron you're now seeing her point of

3559

04:46:43,330 --> 04:46:24,650

copy Kayla and you're five and a half to

3560

04:46:47,208 --> 04:46:45,410

easier for me to hit this one if you

3561

04:46:49,070 --> 04:46:47,218

have a good reach for it that was about

3562

04:46:57,010 --> 04:46:49,080

eight turns and I think it's worked out

3563

04:47:00,610 --> 04:46:59,090

a green light

3564

04:47:12,288 --> 04:47:00,620

it turns

3565

04:47:17,390 --> 04:47:15,470

stand by Caleb we're checking

3566

04:47:19,190 --> 04:47:17,400

Roger yeah how do you feel about your

3567

04:47:20,930 --> 04:47:19,200

positioning

3568

04:47:23,090 --> 04:47:20,940

I think you are probably in a better

3569

04:47:26,448 --> 04:47:23,100

spot for it okay we'll wait for the Dow

3570

04:47:32,448 --> 04:47:28,010

thank you

3571

04:47:39,890 --> 04:47:32,458

guys stand by on the second Bolt

3572

04:47:43,730 --> 04:47:41,810

okay on the bolt that we just drove

3573

04:47:46,610 --> 04:47:43,740

we're gonna just double check settings

3574

04:47:48,410 --> 04:47:46,620

Alpha five clockwise two and then we're

3575

04:47:50,390 --> 04:47:48,420

gonna attempt that bolt one more time

3576

04:47:54,470 --> 04:47:50,400

it's we're expecting a little higher

3577

04:47:54,480 --> 04:48:02,990

clockwise to our set

3578

04:48:06,470 --> 04:48:04,490

foreign

3579

04:48:08,090 --> 04:48:06,480

we'll hit that one again we're looking

3580

04:48:11,030 --> 04:48:08,100

for somewhere on the order of about

3581

04:48:16,430 --> 04:48:11,040

seven foot pounds

3582

04:48:20,208 --> 04:48:18,170

right that's a good install Baron now

3583

04:48:22,430 --> 04:48:20,218

double checking on her work she

3584

04:48:27,288 --> 04:48:22,440

installed the first of the two Mast

3585

04:48:31,730 --> 04:48:27,298

bolts to connect the Sasa to the Fram or

3586

04:48:33,650 --> 04:48:31,740

the flight re-leasable attach mechanism

3587

04:49:07,310 --> 04:48:33,660

good settings five and a half to nine

3588

04:49:12,350 --> 04:49:09,708

how's Kayla Baron drives that second

3589

04:49:14,990 --> 04:49:12,360

Mast bolt to secure it will sometimes

3590

04:49:17,990 --> 04:49:15,000

get some Earth views poking out of her

3591

04:49:20,208 --> 04:49:18,000

her wrist mirror the International Space

3592

04:49:22,190 --> 04:49:20,218

Station is about to cross the English

3593

04:49:32,030 --> 04:49:22,200

Channel

3594

04:49:32,040 --> 04:49:40,128

I I reached 6.9 on the torch there okay

3595

04:49:46,670 --> 04:49:43,850

all right that's a good install as well

3596

04:49:49,730 --> 04:49:48,470

all right Tom for you we wanted you to

3597

04:49:52,610 --> 04:49:49,740

assess where you are in your arm

3598

04:49:55,788 --> 04:49:52,620

position if you needed to do any GCA

3599

04:49:57,410 --> 04:49:55,798

um before we start installing the tent

3600

04:49:59,030 --> 04:49:57,420

the mli tent

3601
04:50:01,368 --> 04:49:59,040
and then we're going to be standing by

3602
04:50:03,948 --> 04:50:01,378
also for your go whether we can move

3603
04:50:05,330 --> 04:50:03,958
ahead with our comp swap where we'll be

3604
04:50:07,970 --> 04:50:05,340
swapping over to space to ground three

3605
04:50:09,708 --> 04:50:07,980
that'll be seamless to you but uh I will

3606
04:50:11,208 --> 04:50:09,718
do a Comm check there with you guys but

3607
04:50:14,868 --> 04:50:11,218
we just want to hear that you're in a

3608
04:50:19,550 --> 04:50:16,128
okay

3609
04:50:21,350 --> 04:50:19,560
and I'm gonna need to move around

3610
04:50:26,448 --> 04:50:21,360
let's

3611
04:50:30,708 --> 04:50:27,890
don't need to worry about this side so

3612
04:50:32,990 --> 04:50:30,718
much we're going to be putting in the

3613
04:50:34,670 --> 04:50:33,000

border thermostat is on this side and

3614

04:50:35,868 --> 04:50:34,680

they're

3615

04:50:37,550 --> 04:50:35,878

the folks here in Mission Control

3616

04:50:41,030 --> 04:50:37,560

confirmed a good installation of the

3617

04:50:45,770 --> 04:50:43,670

happy already do you want to uh back out

3618

04:50:47,090 --> 04:50:45,780

the these other inputs you put in or

3619

04:50:48,890 --> 04:50:47,100

just go from here

3620

04:50:50,750 --> 04:50:48,900

let's start by doing some of that that

3621

04:51:01,850 --> 04:50:50,760

is uh Bobby back

3622

04:51:07,190 --> 04:51:04,788

the particular area where the degraded

3623

04:51:09,708 --> 04:51:07,200

unit has been successfully installed to

3624

04:51:13,910 --> 04:51:09,718

does allow the communications antenna to

3625

04:51:13,920 --> 04:51:17,810

27 meters

3626
04:51:22,850 --> 04:51:20,150
pretty soon Tom marshburn will work to

3627
04:51:24,590 --> 04:51:22,860
reinstall the multi-layer insulation mli

3628
04:51:27,830 --> 04:51:24,600
which is another layer of thermal

3629
04:51:32,390 --> 04:51:29,690
the more if you want that's the that's

3630
04:51:33,530 --> 04:51:32,400
the 20. so that's good and I will need

3631
04:51:34,788 --> 04:51:33,540
uh

3632
04:51:39,110 --> 04:51:34,798
deep down

3633
04:51:39,120 --> 04:51:42,948
good motion

3634
04:51:49,070 --> 04:51:45,550
and stop motion

3635
04:51:51,590 --> 04:51:49,080
I think that'll do it

3636
04:51:53,208 --> 04:51:51,600
after I can reach everything

3637
04:51:54,410 --> 04:51:53,218
guys I'm gonna break in real quick Kayla

3638
04:51:58,930 --> 04:51:54,420

we're going to have you stand by on the

3639

04:52:04,910 --> 04:52:02,530

okay ngca

3640

04:52:06,830 --> 04:52:04,920

complete breaks around okay just so you

3641

04:52:07,910 --> 04:52:06,840

know I will need another one over to the

3642

04:52:10,430 --> 04:52:07,920

right side

3643

04:52:18,770 --> 04:52:10,440

get the other quarter turn faster so

3644

04:52:18,780 --> 04:52:28,750

foreign

3645

04:52:34,190 --> 04:52:31,850

what we need is a thorough inspection of

3646

04:52:35,750 --> 04:52:34,200

the low gain antenna side of the rfg the

3647

04:52:37,128 --> 04:52:35,760

part that you probably weren't able to

3648

04:52:43,270 --> 04:52:37,138

see while it was in the temp store

3649

04:52:48,948 --> 04:52:45,708

and if you can grab some photos for us

3650

04:52:54,650 --> 04:52:48,958

that'll be appreciated as well

3651
04:52:59,810 --> 04:52:56,690
and Tom for you if you are in a good

3652
04:53:01,368 --> 04:52:59,820
position with the GCA and you're content

3653
04:53:03,650 --> 04:53:01,378
with where you're located there what we

3654
04:53:06,770 --> 04:53:03,660
want to do is hear your go for the com

3655
04:53:09,948 --> 04:53:07,850
all right let me just check with

3656
04:53:13,670 --> 04:53:09,958
Matthias and Roger

3657
04:53:17,510 --> 04:53:15,410
working with that uh you mentioned maybe

3658
04:53:19,670 --> 04:53:17,520
needing a little more uh GCA for that

3659
04:53:21,288 --> 04:53:19,680
other court card faster uh so if you

3660
04:53:23,628 --> 04:53:21,298
need that first uh we're happy to do it

3661
04:53:25,368 --> 04:53:23,638
otherwise yeah we're we're just going to

3662
04:53:27,830 --> 04:53:25,378
be the next step in the Shroud

3663
04:53:28,970 --> 04:53:27,840

installation I can only get one side of

3664

04:53:31,190 --> 04:53:28,980

it from here

3665

04:53:34,430 --> 04:53:31,200

I can't get I can't get both sides with

3666

04:53:37,910 --> 04:53:36,948

I'll be getting more final

3667

04:53:40,010 --> 04:53:37,920

okay

3668

04:53:43,070 --> 04:53:40,020

yeah we're all good with chrome slots at

3669

04:53:47,628 --> 04:53:46,070

okay Tom we copy and Raja Matthias know

3670

04:53:49,310 --> 04:53:47,638

what to do if we lose com for greater

3671

04:53:51,050 --> 04:53:49,320

than five minutes but otherwise seamless

3672

04:54:03,050 --> 04:53:51,060

to you I'll check back with you once

3673

04:54:03,060 --> 04:54:16,970

all right

3674

04:54:22,010 --> 04:54:19,610

you have Lively views now of NASA

3675

04:54:24,530 --> 04:54:22,020

astronaut Tom marshburn the BART aboard

3676
04:54:27,110 --> 04:54:24,540
the robotic arm working to get that

3677
04:55:52,208 --> 04:54:27,120
multi-layer insulation layer covered

3678
04:55:57,350 --> 04:55:55,128
getting live views now from NASA

3679
04:55:59,628 --> 04:55:57,360
astronaut Caleb Barron's helmet camera

3680
04:56:02,288 --> 04:55:59,638
on her very first spacewalk of her

3681
04:56:06,288 --> 04:56:02,298
career as she puts the finishing touches

3682
04:56:08,390 --> 04:56:06,298
on the stowage of the degraded sassa

3683
04:56:09,910 --> 04:56:08,400
unit back onto the express Logistics

3684
04:56:13,490 --> 04:56:09,920
carrier

3685
04:56:15,910 --> 04:56:13,500
the unit is in good hands attached to

3686
04:56:18,708 --> 04:56:15,920
heat and getting its nice blanket on

3687
04:56:20,448 --> 04:56:18,718
this it's a degraded unit for now but in

3688
04:56:22,850 --> 04:56:20,458

the event that they ever want to repair

3689

04:56:35,150 --> 04:56:22,860

it and use it again it is available for

3690

04:56:38,690 --> 04:56:37,610

a new unit to replace the spare did not

3691

04:56:41,270 --> 04:56:38,700

have to be launched to the International

3692

04:56:42,770 --> 04:56:41,280

Space Station for this operation as it

3693

04:57:19,430 --> 04:56:42,780

already lived right here where the

3694

04:57:24,230 --> 04:57:21,470

we're in a brief but expected Handover

3695

04:57:25,788 --> 04:57:24,240

period right now meanwhile aboard

3696

04:57:27,470 --> 04:57:25,798

outside of the International Space

3697

04:57:29,690 --> 04:57:27,480

Station National astronauts Tom

3698

04:57:32,208 --> 04:57:29,700

marshburn and Caleb Barron are working

3699

04:57:34,610 --> 04:57:32,218

to install the multi-layer installation

3700

04:57:38,330 --> 04:57:34,620

this is a big thermal blanket going over

3701

04:57:41,510 --> 04:57:38,340

the antenna for protection and

3702

04:57:44,090 --> 04:57:41,520

thermal protection as well they're both

3703

04:58:26,090 --> 04:57:44,100

on either side of the antenna working to

3704

04:58:29,390 --> 04:58:28,010

these two space blocking astronauts

3705

04:58:31,368 --> 04:58:29,400

launched to the International Space

3706

04:58:33,230 --> 04:58:31,378

Station as part of the crew 3 mission

3707

04:58:35,510 --> 04:58:33,240

just earlier this month and as you can

3708

04:58:39,708 --> 04:58:35,520

see have already hit the ground running

3709

04:58:41,570 --> 04:58:39,718

today they worked to install a new Sasa

3710

04:58:43,910 --> 04:58:41,580

unit it was already a part of the

3711

04:58:46,670 --> 04:58:43,920

International Space Station removing a

3712

04:58:53,868 --> 04:58:46,680

degraded unit that had gone partially

3713

04:58:56,570 --> 04:58:55,128

because of other Communications

3714

04:58:59,690 --> 04:58:56,580

redundancies aboard the International

3715

04:59:01,490 --> 04:58:59,700

Space Station this spacewalk was not a

3716

04:59:05,090 --> 04:59:01,500

huge rush when it went down in September

3717

04:59:07,730 --> 04:59:05,100

but now the International Space Station

3718

04:59:10,910 --> 04:59:07,740

operations has time to do the spacewalk

3719

04:59:12,230 --> 04:59:10,920

and Kayla Baron and Tom marshburn have

3720

05:00:01,208 --> 04:59:12,240

executed it

3721

05:00:06,288 --> 05:00:04,190

following these finishing touches NASA

3722

05:00:08,628 --> 05:00:06,298

astronaut Kayla Baron will work to

3723

05:00:09,890 --> 05:00:08,638

return the bags of tools and other

3724

05:00:11,208 --> 05:00:09,900

equipment they would need during the

3725

05:00:13,310 --> 05:00:11,218

spacewalk that she had originally

3726

05:00:15,830 --> 05:00:13,320

brought out of the quest airlock and

3727

05:00:19,430 --> 05:00:15,840

return them back meanwhile Tom marshburn

3728

05:00:21,890 --> 05:00:19,440

will set to do the steps to the portable

3729

05:00:23,510 --> 05:00:21,900

foot restraint in reverse and put them

3730

05:00:26,090 --> 05:00:23,520

back on the Sita

3731

05:00:27,470 --> 05:00:26,100

and break free from

3732

05:00:29,570 --> 05:00:27,480

the robotic arm of the International

3733

05:02:15,590 --> 05:00:29,580

Space Station and join Kayla Baron back

3734

05:02:19,970 --> 05:02:17,990

you're looking now at a live view this

3735

05:02:22,788 --> 05:02:19,980

time from the helmet camera of NASA

3736

05:02:25,430 --> 05:02:22,798

astronaut Tom marshburn as he gets that

3737

05:05:49,910 --> 05:02:25,440

thermal protection covering hooked onto

3738

05:05:54,590 --> 05:05:52,490

during the installation of the spare

3739

05:05:57,650 --> 05:05:54,600

sassa where the degraded unit once was

3740

05:06:00,230 --> 05:05:57,660

Kayla Baron had attached some wires that

3741

05:06:03,590 --> 05:06:00,240

gave the unit power

3742

05:06:06,708 --> 05:06:03,600

and Tom marshburn was able to switch the

3743

05:06:10,070 --> 05:06:06,718

unit on this all occurred before they

3744

05:06:12,590 --> 05:06:10,080

went to go Stow the degraded unit we're

3745

05:06:14,390 --> 05:06:12,600

now hearing that the unit is getting

3746

05:06:17,270 --> 05:06:14,400

good for it and returned Communications

3747

05:06:19,910 --> 05:06:17,280

on the Sasa that means that the new Sasa

3748

05:06:22,788 --> 05:06:19,920

is functioning as expected

3749

05:06:24,890 --> 05:06:22,798

um if you can't recall the old one had a

3750

05:06:26,868 --> 05:06:24,900

failed return link it meant that we

3751
05:06:29,090 --> 05:06:26,878
could send data up to the space station

3752
05:06:30,708 --> 05:06:29,100
but the antenna lost its ability to send

3753
05:06:33,470 --> 05:06:30,718
signals back to Earth

3754
05:06:34,970 --> 05:06:33,480
fortunately we've got notification that

3755
05:07:22,070 --> 05:06:34,980
this brand new Sasa is getting

3756
05:07:26,750 --> 05:07:24,230
you're getting a live view now of Nas

3757
05:07:28,550 --> 05:07:26,760
astronaut Caleb Baron's helmet camera

3758
05:07:31,368 --> 05:07:28,560
her heck of use these high definition

3759
05:07:33,410 --> 05:07:31,378
cameras were watching this through her

3760
05:07:34,490 --> 05:07:33,420
perspective as she puts the finishing

3761
05:07:36,770 --> 05:07:34,500
touches

3762
05:07:38,570 --> 05:07:36,780
as she puts the thermal protection over

3763
05:08:22,490 --> 05:07:38,580

the degraded sassa unit

3764

05:08:26,270 --> 05:08:24,170

well this blanket that you're looking at

3765

05:08:28,970 --> 05:08:26,280

may look thin it's actually made up of

3766

05:08:31,550 --> 05:08:28,980

several layers sewn together of varying

3767

05:08:33,650 --> 05:08:31,560

materials including mylar

3768

05:08:35,868 --> 05:08:33,660

um for the purpose of being able to

3769

05:08:37,310 --> 05:08:35,878

withstand the swings from hot so colds

3770

05:09:30,230 --> 05:08:37,320

that the space station experiences

3771

05:09:33,948 --> 05:09:32,510

so while we're getting information here

3772

05:09:35,810 --> 05:09:33,958

on the grounds that we're getting good

3773

05:09:37,910 --> 05:09:35,820

forward and return Communications on

3774

05:09:40,788 --> 05:09:37,920

this newly installed Sasa unit

3775

05:09:42,530 --> 05:09:40,798

the crew our space walking crew today is

3776

05:09:44,390 --> 05:09:42,540

going to do a check of the

3777

05:09:46,850 --> 05:09:44,400

communications and we might hear

3778

05:10:07,610 --> 05:09:46,860

rajachary and Matthias Maurer confirm

3779

05:10:11,628 --> 05:10:10,070

in addition to these voice checks the

3780

05:10:13,430 --> 05:10:11,638

space walking astronauts are also going

3781

05:10:15,410 --> 05:10:13,440

to check out their own equipment I'm

3782

05:10:16,788 --> 05:10:15,420

going to do a hap check and glove

3783

05:10:18,288 --> 05:10:16,798

inspection as you've heard them do

3784

05:10:20,570 --> 05:10:18,298

several times throughout the spacewalk

3785

05:10:22,250 --> 05:10:20,580

this is just one more step before they

3786

05:10:33,230 --> 05:10:22,260

go back into the quest airlock to

3787

05:10:42,128 --> 05:10:35,570

and Houston Station on Space round one

3788

05:11:27,890 --> 05:10:44,990

station Houston the fifth round one read

3789

05:11:32,208 --> 05:11:30,288

you're seeing the camera views of NASA

3790

05:11:33,708 --> 05:11:32,218

astronaut Kayla Baron and if you look at

3791

05:11:35,510 --> 05:11:33,718

the top of your screen you can briefly

3792

05:11:37,430 --> 05:11:35,520

see some red stripes belonging to Tom

3793

05:11:39,650 --> 05:11:37,440

marshburn right now they're confirming

3794

05:12:40,070 --> 05:11:39,660

with the grounds that the thermal

3795

05:12:44,810 --> 05:12:42,890

see what's going on because of my

3796

05:12:47,868 --> 05:12:44,820

from this side

3797

05:12:50,448 --> 05:12:47,878

because he should adhere oh I see

3798

05:12:54,590 --> 05:12:50,458

yeah the there's no crew inside the

3799

05:12:56,930 --> 05:12:54,600

clamshell that should adhere to the tent

3800

05:12:58,310 --> 05:12:56,940

towel

3801

05:13:01,610 --> 05:12:58,320

um

3802

05:13:04,970 --> 05:13:01,620

it's not quite flat

3803

05:13:07,788 --> 05:13:04,980

right like my end needs to come

3804

05:13:09,708 --> 05:13:07,798

towards the Station app

3805

05:13:12,288 --> 05:13:09,718

yes

3806

05:13:14,750 --> 05:13:12,298

okay let's go down a little bit you're

3807

05:13:17,150 --> 05:13:14,760

now hearing the voice of Kayla Baron I

3808

05:13:19,128 --> 05:13:17,160

went quiet for a little while because

3809

05:13:21,530 --> 05:13:19,138

she had switched over from space to

3810

05:13:24,708 --> 05:13:21,540

ground to another

3811

05:13:26,448 --> 05:13:24,718

method of communication to test out the

3812

05:13:28,490 --> 05:13:26,458

Sasa and we confirmed that those

3813

05:13:30,590 --> 05:13:28,500

Communications checks were good

3814

05:13:34,970 --> 05:13:30,600

the good news that we have a working

3815

05:13:34,980 --> 05:13:40,250

that's fantastic awesome congratulations

3816

05:13:48,350 --> 05:13:42,948

that's great

3817

05:13:53,030 --> 05:13:50,990

the clam shell is not completely closed

3818

05:13:56,090 --> 05:13:53,040

but it's

3819

05:13:57,410 --> 05:13:56,100

as Tom marshburn and Caleb Baron put the

3820

05:13:59,750 --> 05:13:57,420

finishing touches on the thermal

3821

05:14:02,930 --> 05:13:59,760

insulation here in Mission Control

3822

05:14:05,330 --> 05:14:02,940

Houston we got a couple of Cheers

3823

05:14:11,330 --> 05:14:05,340

hearing the good news that the Sasa is

3824

05:14:11,340 --> 05:14:18,830

it needs to go

3825

05:14:24,230 --> 05:14:21,170

um I don't think so there's a tab on my

3826

05:14:26,570 --> 05:14:24,240

side okay that's about lined up

3827

05:14:30,470 --> 05:14:26,580

um so it and the opening should be

3828

05:14:32,570 --> 05:14:30,480

facing you exactly facing Venus yeah

3829

05:14:34,310 --> 05:14:32,580

um so what I would recommend is opening

3830

05:14:37,190 --> 05:14:34,320

it back up

3831

05:14:40,368 --> 05:14:37,200

kind of releasing it and then trying to

3832

05:14:42,530 --> 05:14:40,378

get it further asked before we close it

3833

05:14:46,310 --> 05:14:42,540

the top of the clan Trail though is

3834

05:14:49,368 --> 05:14:46,320

really flush hard against the

3835

05:14:52,550 --> 05:14:49,378

top of the high gate okay then sounds

3836

05:14:54,350 --> 05:14:52,560

like a good config I'll push the mli a

3837

05:14:55,850 --> 05:14:54,360

little bit further up to meet it it's a

3838

05:14:58,310 --> 05:14:55,860

little turtleneck might have been in the

3839

05:15:05,510 --> 05:14:58,320

way let me

3840

05:15:08,750 --> 05:15:07,490

you know that little turtleneck piece is

3841

05:15:10,430 --> 05:15:08,760

uh

3842

05:15:13,730 --> 05:15:10,440

to work that's looking pretty good right

3843

05:15:16,310 --> 05:15:13,740

there Tom if you close it okay

3844

05:15:26,810 --> 05:15:16,320

I think there was a little slap was uh

3845

05:15:30,830 --> 05:15:28,850

finger in there

3846

05:15:32,390 --> 05:15:30,840

being much better on my side in terms of

3847

05:15:35,170 --> 05:15:32,400

alignment there we go that's a lot

3848

05:15:37,970 --> 05:15:35,180

better on this side right now too yeah

3849

05:15:39,650 --> 05:15:37,980

that's good Tom

3850

05:15:43,190 --> 05:15:39,660

okay I'm done yeah I gotta get both

3851
05:15:43,200 --> 05:15:51,350
there's one

3852
05:15:51,360 --> 05:15:55,430
two

3853
05:15:55,440 --> 05:16:00,350
that holds it

3854
05:16:09,708 --> 05:16:02,150
okay

3855
05:16:14,330 --> 05:16:12,470
controls my feathers

3856
05:16:16,368 --> 05:16:14,340
I'm all clear

3857
05:16:17,810 --> 05:16:16,378
how are you for me uh taking off from

3858
05:16:20,150 --> 05:16:17,820
here

3859
05:16:21,230 --> 05:16:20,160
um I'm go

3860
05:16:23,150 --> 05:16:21,240
looking out your stick together

3861
05:16:25,128 --> 05:16:23,160
everything look good

3862
05:16:26,330 --> 05:16:25,138
everything looks good on my end and if

3863
05:16:27,890 --> 05:16:26,340

you don't mind y'all in just a little

3864

05:16:30,850 --> 05:16:27,900

bit double check your safety Shaffer

3865

05:16:35,330 --> 05:16:30,860

handles that one looks good on your

3866

05:16:39,530 --> 05:16:36,830

and uh

3867

05:16:41,330 --> 05:16:39,540

they can't quite see that one actually

3868

05:16:43,970 --> 05:16:41,340

I can see that one on your left hand I

3869

05:16:45,230 --> 05:16:43,980

just can't quite see your it's down I

3870

05:16:47,750 --> 05:16:45,240

feel it okay

3871

05:16:50,510 --> 05:16:47,760

you feel your right one

3872

05:17:01,570 --> 05:16:50,520

and uh

3873

05:17:05,990 --> 05:17:04,070

check with you on a couple things first

3874

05:17:09,350 --> 05:17:06,000

we will want to get a glove and have

3875

05:17:10,610 --> 05:17:09,360

check from you and uh we also wanted to

3876

05:17:12,590 --> 05:17:10,620

give you the big picture that we're

3877

05:17:14,150 --> 05:17:12,600

still about an hour or so ahead of

3878

05:17:16,010 --> 05:17:14,160

timeline and we think that we are going

3879

05:17:23,510 --> 05:17:16,020

to have the opportunity to get some get

3880

05:17:33,288 --> 05:17:25,730

Roger happy

3881

05:17:37,670 --> 05:17:35,750

hi Tom uh and while you guys are doing

3882

05:17:38,930 --> 05:17:37,680

the checks we're ready to get you set up

3883

05:17:40,610 --> 05:17:38,940

for the next maneuver we'll have to back

3884

05:17:42,110 --> 05:17:40,620

you out on some of the gcas you gave us

3885

05:17:43,670 --> 05:17:42,120

first if you're ready

3886

05:17:46,010 --> 05:17:43,680

yeah yeah same by just a little quick

3887

05:17:48,948 --> 05:17:46,020

comment I've got a dry half through and

3888

05:17:51,110 --> 05:17:48,958

the small finger of my right hand has a

3889

05:17:55,208 --> 05:17:51,120

couple of very small smudges on it but

3890

05:18:00,830 --> 05:17:58,368

and for me

3891

05:18:02,868 --> 05:18:00,840

um I still have some of those

3892

05:18:04,910 --> 05:18:02,878

they started out as kind of black but

3893

05:18:07,430 --> 05:18:04,920

now there's they've rubbed off of it the

3894

05:18:10,128 --> 05:18:07,440

dark smudges on my fingertips

3895

05:18:12,350 --> 05:18:10,138

and um I've noticed

3896

05:18:15,110 --> 05:18:12,360

on my very fingertips and kind of the

3897

05:18:19,128 --> 05:18:15,120

fingernail side there's some rings sort

3898

05:18:20,930 --> 05:18:19,138

of like eraser wearish wrinkles

3899

05:18:23,628 --> 05:18:20,940

um kind of wrinkle ridges I'm going to

3900

05:18:25,010 --> 05:18:23,638

show you guys that in my camera

3901

05:18:27,530 --> 05:18:25,020

I don't know if you want me to turn my

3902

05:18:34,270 --> 05:18:27,540

haircut back on for you

3903

05:18:38,510 --> 05:18:36,830

I'll go ahead and we'll take your hacker

3904

05:18:42,530 --> 05:18:38,520

back on

3905

05:18:42,540 --> 05:18:49,670

standby time

3906

05:18:59,770 --> 05:18:51,770

okay copy we're SWAT swapping over to

3907

05:19:03,590 --> 05:19:02,030

and Kayla can you confirm that those

3908

05:19:12,650 --> 05:19:03,600

wrinkles you're seeing are actually on

3909

05:19:23,530 --> 05:19:14,868

copy

3910

05:19:31,990 --> 05:19:25,970

if you could move your right hand to

3911

05:19:32,000 --> 05:20:03,470

touch more

3912

05:20:10,910 --> 05:20:06,050

Tom or go on your gloves and so you can

3913

05:20:15,170 --> 05:20:13,430

you're now getting views through NASA

3914

05:20:17,150 --> 05:20:15,180

astronaut Kayla Baron's camera helmet

3915

05:20:18,948 --> 05:20:17,160

camera

3916

05:20:20,270 --> 05:20:18,958

she's providing a glove check as she's

3917

05:20:23,930 --> 05:20:20,280

done periodically throughout the

3918

05:20:23,940 --> 05:20:27,288

ER

3919

05:20:31,250 --> 05:20:29,510

pcas to back out

3920

05:20:34,010 --> 05:20:31,260

okay so first we're going to undo the

3921

05:20:36,350 --> 05:20:34,020

gcas we gave you uh sort of all at once

3922

05:20:39,170 --> 05:20:36,360

and then we will reset the command frame

3923

05:20:40,430 --> 05:20:39,180

and get you to back off position so when

3924

05:20:42,170 --> 05:20:40,440

you start GCA shortly You're Gonna Go

3925

05:20:46,970 --> 05:20:42,180

body out first

3926

05:20:46,980 --> 05:20:57,110

starting motion

3927

05:21:04,548 --> 05:20:59,570

we're also pitching you

3928

05:21:08,390 --> 05:21:06,590

at the completion of Kayla Baron's glove

3929

05:21:09,948 --> 05:21:08,400

check where she reported the status of

3930

05:21:13,250 --> 05:21:09,958

her gloves down to the ground after

3931

05:21:15,170 --> 05:21:13,260

handling the SAS equipment we've now

3932

05:21:18,230 --> 05:21:15,180

switched to views of Tom marshburn on

3933

05:21:22,070 --> 05:21:20,750

by wrapping out the body you asked and

3934

05:21:27,470 --> 05:21:22,080

the pitch is done and we'll take your

3935

05:21:27,480 --> 05:21:57,708

sorry right

3936

05:22:31,310 --> 05:22:00,170

yeah see your body down now

3937

05:22:33,708 --> 05:22:32,628

all right we're just recommending

3938

05:22:46,128 --> 05:22:33,718

figuring frames and we'll let you know

3939

05:22:50,090 --> 05:22:47,208

foreign

3940

05:22:51,288 --> 05:22:50,100

Kayla we have can have your heck of you

3941

05:22:53,330 --> 05:22:51,298

back again and it looks like you're

3942

05:23:04,970 --> 05:22:53,340

complete with caps and so we'll take

3943

05:23:04,980 --> 05:23:09,010

checking

3944

05:23:13,490 --> 05:23:11,510

and we're handing over

3945

05:23:14,810 --> 05:23:13,500

all right Tom and uh the command frame

3946

05:23:15,650 --> 05:23:14,820

is switched to the Isaac's internal

3947

05:23:25,310 --> 05:23:15,660

frame

3948

05:23:30,650 --> 05:23:27,830

learn a brief unexpected Handover period

3949

05:23:32,990 --> 05:23:30,660

between satellites

3950

05:23:35,150 --> 05:23:33,000

in the

3951
05:23:36,830 --> 05:23:35,160
right corner of your screen upper right

3952
05:23:39,650 --> 05:23:36,840
corner you see our flight director

3953
05:23:41,930 --> 05:23:39,660
Vincent lacorte and our ground IV the

3954
05:23:43,430 --> 05:23:41,940
one communicating with our space walking

3955
05:23:45,470 --> 05:23:43,440
astronauts whose voice you might have

3956
05:23:47,810 --> 05:23:45,480
heard throughout our coverage

3957
05:23:49,850 --> 05:23:47,820
earlier communicated to the spacewalkers

3958
05:23:52,730 --> 05:23:49,860
that we may be able to do some get ahead

3959
05:24:10,910 --> 05:23:52,740
since the crew completed their tasks

3960
05:24:15,530 --> 05:24:13,190
we expect to get our live views back

3961
05:24:18,830 --> 05:24:15,540
shortly

3962
05:24:21,110 --> 05:24:18,840
we know that Kayla Baron's helmet cam is

3963
05:24:28,970 --> 05:24:21,120

on and is looking at her gloves for an

3964

05:24:33,410 --> 05:24:31,250

and Tom how are you doing pretty good

3965

05:24:35,990 --> 05:24:33,420

waiting for the uh

3966

05:24:52,030 --> 05:24:36,000

maneuver back Roger

3967

05:24:59,990 --> 05:24:54,530

time for you when you have a break in

3968

05:25:07,010 --> 05:25:02,510

hey Kathy I'm just gonna I'll do that

3969

05:25:11,510 --> 05:25:08,930

copy that works

3970

05:25:32,090 --> 05:25:11,520

we're currently in GCA correction I'm

3971

05:25:36,170 --> 05:25:34,430

one of the get ahead tasks is to break

3972

05:25:38,270 --> 05:25:36,180

torque or loosen the bolts connecting

3973

05:25:40,250 --> 05:25:38,280

the DC to DC converter unit for the

3974

05:25:42,530 --> 05:25:40,260

battery charge and discharge units on

3975

05:25:44,208 --> 05:25:42,540

the P4 truss of the space station

3976

05:25:46,850 --> 05:25:44,218

motion here and then we'll do a little

3977

05:25:51,410 --> 05:25:49,010

correction uh beforehand as well here

3978

05:25:52,850 --> 05:25:51,420

comes the motion

3979

05:25:55,070 --> 05:25:52,860

in good motion

3980

05:25:56,990 --> 05:25:55,080

Andrew working on the inventory

3981

05:26:01,190 --> 05:25:57,000

and I'm ready to give you a crew lock

3982

05:26:06,110 --> 05:26:01,990

ready

3983

05:26:12,890 --> 05:26:09,170

I've got a tree lock bag with an

3984

05:26:17,030 --> 05:26:15,708

small rip

3985

05:26:19,430 --> 05:26:17,040

um and then of course the integrated

3986

05:26:21,890 --> 05:26:19,440

Heather

3987

05:26:24,708 --> 05:26:21,900

um I have an adjustable to an internal

3988

05:26:26,270 --> 05:26:24,718

d-ring to a GoPro

3989

05:26:30,230 --> 05:26:26,280

I have

3990

05:26:31,670 --> 05:26:30,240

a cat keeper to an internal rep

3991

05:26:32,930 --> 05:26:31,680

s

3992

05:26:35,690 --> 05:26:32,940

on it

3993

05:26:38,150 --> 05:26:35,700

I have a large small red with a small

3994

05:26:41,030 --> 05:26:38,160

hook to an internal d-ring

3995

05:26:43,010 --> 05:26:41,040

and an adjustable with a large touch to

3996

05:26:45,770 --> 05:26:43,020

an internal d-ring

3997

05:26:54,110 --> 05:26:45,780

everything on that side

3998

05:26:54,120 --> 05:27:02,948

they helped

3999

05:27:08,208 --> 05:27:05,390

Kayla Baron now completing one of the

4000

05:27:10,490 --> 05:27:08,218

first tasks in her work site cleanup and

4001
05:27:13,430 --> 05:27:10,500
taking including taking inventory of a

4002
05:27:17,090 --> 05:27:13,440
bag that she brought out there with her

4003
05:27:21,548 --> 05:27:17,100
Andrew the remainder of my inventory I

4004
05:27:24,410 --> 05:27:21,558
have a internal ret to a socket caddy

4005
05:27:26,868 --> 05:27:24,420
masaki caddy I have an ear rod with a

4006
05:27:29,628 --> 05:27:26,878
two inch rigid socket and a six inch

4007
05:27:32,270 --> 05:27:29,638
wobble socket I have a

4008
05:27:35,090 --> 05:27:32,280
scratch it with a foam reel on a small

4009
05:27:37,850 --> 05:27:35,100
small red to an internal d-ring and I

4010
05:27:40,690 --> 05:27:37,860
have a long duration tie-down feather

4011
05:27:52,070 --> 05:27:40,700
with an integrated long wire tie

4012
05:27:52,080 --> 05:27:56,030
checking

4013
05:28:01,628 --> 05:27:59,030

all right Tom are you ready for the joke

4014

05:28:03,890 --> 05:28:01,638

questions about five minutes long

4015

05:28:05,208 --> 05:28:03,900

on the ground just confirmed that Kayla

4016

05:28:07,788 --> 05:28:05,218

Baron brought back with her everything

4017

05:28:09,470 --> 05:28:07,798

that she brought out another step in the

4018

05:28:11,030 --> 05:28:09,480

worksite cleanup

4019

05:28:12,890 --> 05:28:11,040

neighbor back towards the front of the

4020

05:28:14,990 --> 05:28:12,900

dress

4021

05:28:16,368 --> 05:28:15,000

one of her first tasks of the day was to

4022

05:28:17,930 --> 05:28:16,378

bring these two bags out of the quest

4023

05:28:20,868 --> 05:28:17,940

airlock and over to the express

4024

05:28:26,150 --> 05:28:20,878

Logistics carrier where they worked for

4025

05:28:34,128 --> 05:28:27,650

standby we just wanted to confirm that

4026
05:28:38,390 --> 05:28:36,170
and Thomas it's okay with you once you

4027
05:28:39,830 --> 05:28:38,400
give me a go I could finish my Oru bag

4028
05:28:41,628 --> 05:28:39,840
inventory so I can work on getting

4029
05:28:43,850 --> 05:28:41,638
things packed yeah go ahead and finish

4030
05:28:46,970 --> 05:28:43,860
that up foreign

4031
05:28:48,530 --> 05:28:46,980
you have a good bag inventory and we

4032
05:28:50,510 --> 05:28:48,540
just wanted to remind you that we do

4033
05:28:53,330 --> 05:28:50,520
need the ratchet with the six inch for

4034
05:28:59,030 --> 05:28:56,750
sure I was going to ask you if you agree

4035
05:29:00,770 --> 05:28:59,040
um with me putting the wobble socket on

4036
05:29:05,330 --> 05:29:00,780
the ratchet and taking a ratchet on my

4037
05:29:11,448 --> 05:29:08,030
yep that works for us

4038
05:29:13,610 --> 05:29:11,458

okay and for the medium Oru bag I've got

4039

05:29:16,670 --> 05:29:13,620

a large small red

4040

05:29:19,548 --> 05:29:16,680

do the bag to an adjustable which is

4041

05:29:21,650 --> 05:29:19,558

Tethered to the mli

4042

05:29:23,390 --> 05:29:21,660

um and there's also an adjustable across

4043

05:29:26,208 --> 05:29:23,400

the bottom of the bag

4044

05:29:34,670 --> 05:29:26,218

externally I have a large small

4045

05:29:40,548 --> 05:29:36,708

so Kayla we are going to need the ball

4046

05:29:52,490 --> 05:29:43,910

I agree good call guys

4047

05:29:52,500 --> 05:30:19,910

foreign

4048

05:30:25,670 --> 05:30:22,970

it's got a small small

4049

05:30:27,410 --> 05:30:25,680

for the external d-ring

4050

05:30:30,590 --> 05:30:27,420

and also a

4051
05:30:35,150 --> 05:30:30,600
remarkable adjustable

4052
05:30:38,930 --> 05:30:36,948
have a GoPro

4053
05:30:42,708 --> 05:30:38,940
another adjustable

4054
05:30:47,990 --> 05:30:46,250
halfway through the motion I think

4055
05:30:49,850 --> 05:30:48,000
I think One Direction tie down

4056
05:31:02,868 --> 05:30:49,860
another with the uh

4057
05:31:02,878 --> 05:31:06,288
thank you French

4058
05:31:10,548 --> 05:31:08,448
the farm wheel

4059
05:31:18,530 --> 05:31:10,558
a small red

4060
05:31:18,540 --> 05:31:22,070
pry bar return integral rep

4061
05:31:28,788 --> 05:31:24,350
face cover

4062
05:31:33,948 --> 05:31:30,890
and the second caddy with the e-rad and

4063
05:31:38,208 --> 05:31:33,958

the two inch socket is on the

4064

05:31:38,218 --> 05:32:07,850

checking

4065

05:32:12,048 --> 05:32:09,470

and Tom that's a good crew lock

4066

05:32:14,930 --> 05:32:13,548

Kayla Baron had just completed the

4067

05:32:16,910 --> 05:32:14,940

inventory of the bags that she had

4068

05:32:19,128 --> 05:32:16,920

brought out her with brought out with

4069

05:32:21,350 --> 05:32:19,138

her for the spacewalk and now we just

4070

05:32:23,150 --> 05:32:21,360

got confirmation that Tom marshburn did

4071

05:32:32,090 --> 05:32:23,160

the same thing and he has everything

4072

05:32:35,690 --> 05:32:34,010

here's what we brought back to the quest

4073

05:33:00,070 --> 05:32:35,700

airlock with the exception of the tools

4074

05:33:05,208 --> 05:33:03,650

did I have the Mutt and I'm working on

4075

05:33:09,890 --> 05:33:05,218

getting it sewed in the media mower

4076

05:33:09,900 --> 05:33:18,590

am I at 12 now

4077

05:33:18,600 --> 05:33:24,530

it's a beautiful fastest in there

4078

05:33:31,548 --> 05:33:26,990

already looking around

4079

05:33:37,670 --> 05:33:34,730

they're now in an orbital day time as

4080

05:33:39,708 --> 05:33:37,680

Kayla Baron was calling out that she has

4081

05:33:42,110 --> 05:33:39,718

her red and her mutt this is the

4082

05:33:43,670 --> 05:33:42,120

retractable tether and the multi-used

4083

05:34:45,110 --> 05:33:43,680

tether

4084

05:34:48,890 --> 05:34:46,850

in your position hold we're going to

4085

05:34:52,368 --> 05:34:48,900

reconfigure here and we'll uh be setting

4086

05:35:24,110 --> 05:34:52,378

up for a GPA to publish AP of our egress

4087

05:35:26,750 --> 05:35:25,490

all right and we're ready if you are

4088

05:35:29,628 --> 05:35:26,760

talking I'm ready

4089

05:35:31,128 --> 05:35:29,638

I could clear everything is in hey I'll

4090

05:35:32,990 --> 05:35:31,138

tell you we're ready for maneuver to GCA

4091

05:35:34,430 --> 05:35:33,000

to published apfr egress enroll in

4092

05:35:35,810 --> 05:35:34,440

position we're ready to be about a meter

4093

05:35:36,590 --> 05:35:35,820

and a half meter and then a meter and a

4094

05:35:39,830 --> 05:35:36,600

half

4095

05:35:56,510 --> 05:35:39,840

very perfect very juicy

4096

05:35:56,520 --> 05:36:13,490

clear

4097

05:36:19,910 --> 05:36:17,090

inside of yours space workers Walkers

4098

05:36:22,490 --> 05:36:19,920

Tom marshburn and Kayla Baron are now

4099

05:36:24,948 --> 05:36:22,500

wrapping up their tasks for the day

4100

05:36:27,410 --> 05:36:24,958

Kayla Barons cleaning up the work site

4101
05:36:46,270 --> 05:36:27,420
while Tom marshburn is working to

4102
05:37:03,788 --> 05:36:49,310
tell me one meter

4103
05:37:07,670 --> 05:37:05,930
any questions

4104
05:37:08,868 --> 05:37:07,680
about 40 centimeters short of the

4105
05:37:14,930 --> 05:37:08,878
published

4106
05:37:19,788 --> 05:37:17,390
I'll take the other 40.

4107
05:37:23,690 --> 05:37:19,798
continuing motion

4108
05:37:29,690 --> 05:37:26,628
you're going to stop motion

4109
05:37:36,048 --> 05:37:29,700
it's a 25 meter shorts

4110
05:37:45,170 --> 05:37:38,448
and Drew I believe I'm uh

4111
05:37:49,368 --> 05:37:47,208
yeah Tom it looks like we are you're in

4112
05:37:50,990 --> 05:37:49,378
the egress position and then you can

4113
05:37:57,948 --> 05:37:51,000

Stow your crew lock bag on the truss

4114

05:38:02,690 --> 05:38:00,048

Andrew I have an update for you on my

4115

05:38:02,700 --> 05:38:06,670

we're standing by

4116

05:38:15,230 --> 05:38:11,750

umut is attached by a large small rat to

4117

05:38:16,430 --> 05:38:15,240

a bearing on the adjustable equipment

4118

05:38:17,990 --> 05:38:16,440

tether

4119

05:38:19,310 --> 05:38:18,000

um that's feathered inside across the

4120

05:38:24,948 --> 05:38:19,320

bottom of the bag

4121

05:38:26,990 --> 05:38:24,958

and my ratchet wrench with palm oil has

4122

05:38:28,670 --> 05:38:27,000

the six inch wobble socket installed

4123

05:38:32,930 --> 05:38:28,680

with a good pull test stuff on my mini

4124

05:38:34,910 --> 05:38:32,940

workstation now and if you agree I will

4125

05:38:37,910 --> 05:38:34,920

sew the tree lock bag in the media mower

4126
05:38:42,410 --> 05:38:39,410
that sounds like a good configuration

4127
05:38:45,350 --> 05:38:42,420
Kayla we'll go for that

4128
05:38:47,690 --> 05:38:45,360
while Baron Works to Stow her bags that

4129
05:38:49,970 --> 05:38:47,700
she brought out on the quest airlock Tom

4130
05:38:51,830 --> 05:38:49,980
marshburn got to go to Ingress the

4131
05:38:53,570 --> 05:38:51,840
robotic arm

4132
05:38:55,910 --> 05:38:53,580
I'll then work to remove the portable

4133
05:38:58,490 --> 05:38:55,920
foot restraint and store it on the Sita

4134
05:38:59,390 --> 05:38:58,500
which lives on the outside of the space

4135
05:39:01,010 --> 05:38:59,400
station

4136
05:39:05,868 --> 05:39:01,020
you will not need to bring it back into

4137
05:39:10,730 --> 05:39:07,970
and Tom you can go ahead and retract

4138
05:39:35,288 --> 05:39:10,740

that Ingress Aid

4139

05:39:41,208 --> 05:39:38,090

in time I can help you build your tether

4140

05:39:41,218 --> 05:40:32,948

everyone

4141

05:40:38,090 --> 05:40:35,750

hey Drew the acrylic back and stowed at

4142

05:40:40,910 --> 05:40:38,100

8 700.

4143

05:40:42,650 --> 05:40:40,920

you see that room

4144

05:40:43,970 --> 05:40:42,660

okay copy and then when you find your

4145

05:40:50,030 --> 05:40:43,980

green hook then we just want you to

4146

05:40:54,590 --> 05:40:52,070

then you can attach that to your red

4147

05:40:54,600 --> 05:41:05,510

s there

4148

05:41:05,520 --> 05:41:11,090

one for the green hook

4149

05:41:11,100 --> 05:41:39,048

the rest of the first

4150

05:41:39,058 --> 05:42:40,270

thank you

4151
05:42:45,890 --> 05:42:42,890
okay we're about two minutes from hand

4152
05:42:47,330 --> 05:42:45,900
over here from from a a Handover and I

4153
05:42:48,590 --> 05:42:47,340
just wanted to double check you were

4154
05:42:51,048 --> 05:42:48,600
feeling good to work some of these get

4155
05:42:53,448 --> 05:42:51,058
aheads for us

4156
05:42:54,948 --> 05:42:53,458
sure I'm feeling great

4157
05:42:57,230 --> 05:42:54,958
I've got the medium how are you bag

4158
05:43:01,490 --> 05:42:57,240
packed up and on my DRT and I was gonna

4159
05:43:03,048 --> 05:43:01,500
head down to p44 Alpha

4160
05:43:04,430 --> 05:43:03,058
all right that sounds good and then if

4161
05:43:08,090 --> 05:43:04,440
you could give us a safer handle check

4162
05:43:11,270 --> 05:43:08,100
as you get down off of the ELC

4163
05:43:13,990 --> 05:43:12,890

we're in a brief but expected Handover

4164

05:43:17,090 --> 05:43:14,000

period

4165

05:43:18,470 --> 05:43:17,100

Kayla Baron is talking with the ground

4166

05:43:19,730 --> 05:43:18,480

now

4167

05:43:21,590 --> 05:43:19,740

um reporting that she's all done with

4168

05:43:23,090 --> 05:43:21,600

her tasks and when the ground asks how

4169

05:43:24,890 --> 05:43:23,100

she's feeling and if she's up to doing

4170

05:43:27,788 --> 05:43:24,900

some of these get ahead tasks she she

4171

05:43:30,410 --> 05:43:27,798

said she's willing and able

4172

05:43:33,230 --> 05:43:30,420

handles are down

4173

05:43:35,150 --> 05:43:33,240

and I got one for Andrew

4174

05:43:39,890 --> 05:43:35,160

okay copy all we'll be handing over here

4175

05:43:47,090 --> 05:43:43,010

my green Hook is going on to the

4176
05:43:52,070 --> 05:43:50,090
and I'm blocking it

4177
05:43:53,570 --> 05:43:52,080
copy that Tom that's a good check and

4178
05:43:58,690 --> 05:43:53,580
then you can release your yellow Hook

4179
05:44:03,350 --> 05:44:01,850
that's a recent arrests

4180
05:44:06,890 --> 05:44:03,360
and then you'll attach it to your green

4181
05:44:19,810 --> 05:44:06,900
Rail and lock it in place

4182
05:44:19,820 --> 05:44:25,910
we're stepping into the Handover

4183
05:44:29,810 --> 05:44:27,708
we expect to get our live views back

4184
05:44:32,090 --> 05:44:29,820
shortly and when we do we can soon

4185
05:44:34,670 --> 05:44:32,100
expect to see a NASA astronaut Tom

4186
05:44:36,948 --> 05:44:34,680
marshburn free from the robotic arm for

4187
05:44:39,288 --> 05:44:36,958
the first time in about four hours we're

4188
05:44:41,270 --> 05:44:39,298

now at the five hour mark of the planned

4189

05:44:43,670 --> 05:44:41,280

six and a half hour Eva they've

4190

05:44:45,350 --> 05:44:43,680

completed all of their tasks for today

4191

05:44:47,810 --> 05:44:45,360

and we've got a good Communications

4192

05:44:50,030 --> 05:44:47,820

check both on the ground and a verbal

4193

05:44:53,150 --> 05:44:50,040

confirmation that the astronauts can

4194

05:44:54,948 --> 05:44:53,160

communicate and hear them okay meaning

4195

05:45:40,368 --> 05:44:54,958

that the new sassy unit installed is

4196

05:45:40,378 --> 05:46:05,448

foreign

4197

05:46:05,458 --> 05:46:10,310

okay guys we're back with you

4198

05:46:16,850 --> 05:46:13,548

Drew uh ready for a safety filter

4199

05:46:16,860 --> 05:46:19,548

we're ready

4200

05:46:24,110 --> 05:46:21,470

well let's see ring extender I've got a

4201
05:46:25,730 --> 05:46:24,120
Red Hook that is closed and locked the

4202
05:46:27,708 --> 05:46:25,740
yellow hook

4203
05:46:29,510 --> 05:46:27,718
is closed and locked on the green reel

4204
05:46:33,230 --> 05:46:29,520
and the green hook

4205
05:46:34,490 --> 05:46:33,240
is closed and locked on the red reel and

4206
05:46:39,788 --> 05:46:34,500
they're both

4207
05:46:48,128 --> 05:46:42,350
second to First unlocked and they're

4208
05:46:54,948 --> 05:46:50,090
all right Tom that's a good tether

4209
05:46:58,788 --> 05:46:56,930
so you can remove the apfr from the arm

4210
05:47:00,048 --> 05:46:58,798
and you can still enter your brt or tend

4211
05:47:02,090 --> 05:47:00,058
it on over there

4212
05:47:07,010 --> 05:47:02,100
and you can give the arm a go to

4213
05:47:11,090 --> 05:47:09,650

has marshburn works with the ground to

4214

05:47:13,070 --> 05:47:11,100

move his tethers into a good

4215

05:47:15,410 --> 05:47:13,080

configuration to get off of the robotic

4216

05:47:17,390 --> 05:47:15,420

arm getting some views of the earth

4217

05:47:19,010 --> 05:47:17,400

during this orbital daytime as the

4218

05:47:58,270 --> 05:47:19,020

International Space Station passes over

4219

05:48:02,090 --> 05:48:00,590

and Kayla we wanted to check in with you

4220

05:48:03,530 --> 05:48:02,100

we know you got tough checklist pages

4221

05:48:06,650 --> 05:48:03,540

that we're probably guiding you over

4222

05:48:10,670 --> 05:48:06,660

there to the 4A iea and we're going for

4223

05:48:13,190 --> 05:48:10,680

the 4a3 bcdu which is there in the half

4224

05:48:19,730 --> 05:48:13,200

corner on the non-radiator side

4225

05:48:19,740 --> 05:48:25,070

um I believe I'm looking at it right now

4226
05:48:25,080 --> 05:48:31,270
is let's see

4227
05:48:38,090 --> 05:48:35,208
you well actually yep a battery charge

4228
05:48:40,730 --> 05:48:38,100
discharge unit Oru serial number zero

4229
05:48:40,740 --> 05:48:58,390
we're checking

4230
05:49:05,810 --> 05:49:00,770
according to my tough checklist page

4231
05:49:10,150 --> 05:49:05,820
that Drew would be bcdu for Alpha three

4232
05:49:17,810 --> 05:49:10,160
and I am on the AFT starboard corner

4233
05:49:22,190 --> 05:49:19,430
all right Kayla you are on the right

4234
05:49:24,170 --> 05:49:22,200
bcdu we'll have you take your ratchet

4235
05:49:27,470 --> 05:49:24,180
wrench and then we're only going to do a

4236
05:49:31,448 --> 05:49:27,480
half to a quarter turn on H1 and H1 is

4237
05:49:31,458 --> 05:49:38,150
Baron now working on her get ahead tasks

4238
05:49:41,930 --> 05:49:39,770

you'll note that she only needs to

4239

05:49:43,970 --> 05:49:41,940

slightly turn the bolts this is because

4240

05:50:37,788 --> 05:49:43,980

we're just generally loosening them for

4241

05:50:37,798 --> 05:50:44,750

hey Roger Matthias the apfr is removed

4242

05:50:44,760 --> 05:50:49,670

in life respect

4243

05:50:49,680 --> 05:50:53,570

there's a half turn on each one

4244

05:50:58,490 --> 05:50:56,810

okay copy that Kayla and uh one thing I

4245

05:51:00,410 --> 05:50:58,500

I caution that I needed to give you is

4246

05:51:01,730 --> 05:51:00,420

once we break torque on those then we

4247

05:51:17,570 --> 05:51:01,740

won't be able to translate on those

4248

05:51:21,708 --> 05:51:19,610

copy that Kayla and now we're going to

4249

05:51:26,990 --> 05:51:21,718

go to the PGT and I'll give you settings

4250

05:51:32,030 --> 05:51:29,030

Kayla Baron now breaking torque on the

4251
05:51:33,590 --> 05:51:32,040
bolts to save time for future spacewalks

4252
05:51:36,590 --> 05:51:33,600
if they in the event that they ever need

4253
05:51:40,850 --> 05:51:38,990
loosening these bolts connecting the DC

4254
05:51:43,430 --> 05:51:40,860
to DC converter unit to the battery

4255
05:51:52,910 --> 05:51:43,440
charge and discharge units on the P4

4256
05:51:58,128 --> 05:51:54,708
wait runs from rajachary there who

4257
05:52:01,368 --> 05:51:58,138
assisted with the flying of the robotic

4258
05:52:04,070 --> 05:52:01,378
arm containing passenger Tom marshburn

4259
05:52:06,948 --> 05:52:04,080
I'm going to read you

4260
05:52:09,350 --> 05:52:06,958
I've got Alpha seven counterclockwise

4261
05:52:11,330 --> 05:52:09,360
two set and I'm listening

4262
05:52:12,830 --> 05:52:11,340
okay those are good settings first of

4263
05:52:14,570 --> 05:52:12,840

all we want to just make sure that you

4264

05:52:16,490 --> 05:52:14,580

ensure that the socket's fully engaged

4265

05:52:18,530 --> 05:52:16,500

before you turn the bolt to prevent bolt

4266

05:52:21,170 --> 05:52:18,540

damage and torque is broken when you

4267

05:52:22,788 --> 05:52:21,180

feel motion on the bolt head and to

4268

05:52:26,090 --> 05:52:22,798

prevent bolt damage we don't want to

4269

05:52:27,650 --> 05:52:26,100

exceed a half turn on release so a

4270

05:52:33,830 --> 05:52:27,660

little bit late in giving you that one

4271

05:52:37,570 --> 05:52:36,590

and you got a little broken up there at

4272

05:52:39,948 --> 05:52:37,580

the Andrew

4273

05:52:42,910 --> 05:52:39,958

I would say I've turned about a half

4274

05:52:47,330 --> 05:52:42,920

turn with the ratchet wrench

4275

05:52:51,470 --> 05:52:47,340

and so confirm you want me to drive this

4276
05:52:55,810 --> 05:52:52,788
Kayla you have a good understanding

4277
05:52:55,820 --> 05:53:01,250
and only one half turn

4278
05:53:01,260 --> 05:53:04,850
the character

4279
05:53:10,430 --> 05:53:07,490
so sorry I apologize for that Kayla so

4280
05:53:11,690 --> 05:53:10,440
this one's on this H1 with it PGT you're

4281
05:53:13,310 --> 05:53:11,700
in the correct settings Alpha seven

4282
05:53:15,288 --> 05:53:13,320
counterclockwise two and we're going to

4283
05:53:18,048 --> 05:53:15,298
do seven turns on this H1 it's going to

4284
05:53:20,810 --> 05:53:18,058
be a full release of this H1 okay

4285
05:53:22,368 --> 05:53:20,820
well Kayla Baron gets to work loosening

4286
05:53:24,350 --> 05:53:22,378
those bolts we're getting a view of Tom

4287
05:53:26,390 --> 05:53:24,360
marshburn taking a look at the portable

4288
05:53:28,610 --> 05:53:26,400

foot restraint in his hands

4289

05:53:31,070 --> 05:53:28,620

this was attached to the robotic arm

4290

05:53:38,750 --> 05:53:31,080

that connected his feet for the majority

4291

05:53:48,230 --> 05:53:40,730

okay copy Tom and if we could just

4292

05:53:52,310 --> 05:53:50,030

actually ended up a little off from what

4293

05:53:53,590 --> 05:53:52,320

I expected to set uh setting of seven

4294

05:54:00,048 --> 05:53:53,600

right now

4295

05:54:06,890 --> 05:54:05,150

so each one is released and I did get

4296

05:54:15,650 --> 05:54:06,900

seven turns and right at about seven

4297

05:54:18,230 --> 05:54:16,970

child just for your words we're gonna be

4298

05:54:23,990 --> 05:54:18,240

moving the arm here it should be uh

4299

05:54:30,770 --> 05:54:26,090

okay copy Kayla and we're gonna reset

4300

05:54:30,780 --> 05:54:35,990

and this will be for both two

4301
05:54:36,000 --> 05:54:45,190
correction

4302
05:54:51,650 --> 05:54:48,470
and Kayla you're going to do this H2

4303
05:54:52,970 --> 05:54:51,660
bolt on the four Alpha 3 bcdu and we'll

4304
05:55:06,590 --> 05:54:52,980
just take your torque turns and light

4305
05:55:11,990 --> 05:55:08,930
and Tom unfortunately we would like to

4306
05:55:13,430 --> 05:55:12,000
get the apfr in a 12 o'clock clocking if

4307
05:55:16,010 --> 05:55:13,440
able

4308
05:55:21,948 --> 05:55:16,020
uh four five lucky

4309
05:55:25,128 --> 05:55:23,390
okay

4310
05:55:28,010 --> 05:55:25,138
and then I'll uh

4311
05:55:30,770 --> 05:55:28,020
probably uh

4312
05:55:33,410 --> 05:55:30,780
roll it around right if it's in a low

4313
05:55:37,250 --> 05:55:33,420

profile position now but I flip around

4314

05:55:42,110 --> 05:55:40,548

the pitch but the role

4315

05:55:46,190 --> 05:55:42,120

and it'll be in the low far as well if I

4316

05:55:46,200 --> 05:55:54,948

position

4317

05:55:54,958 --> 05:55:59,208

I was looking at the low profile

4318

05:55:59,218 --> 05:56:07,250

situation rather than the number

4319

05:56:07,260 --> 05:56:10,060

Andrew

4320

05:56:13,010 --> 05:56:10,190

[Music]

4321

05:56:19,070 --> 05:56:16,368

Alpha seven clockwise two sets

4322

05:56:21,530 --> 05:56:19,080

uh H2 torqued out pretty much

4323

05:56:33,830 --> 05:56:21,540

immediately at about half a turn

4324

05:56:39,410 --> 05:56:36,890

okay that is a good reinstall on H2

4325

05:56:41,510 --> 05:56:39,420

Kayla next we're going to move down that

4326
05:56:42,890 --> 05:56:41,520
same side of the iea the non-radiator

4327
05:56:47,690 --> 05:56:42,900
side and we're going to go to the four

4328
05:56:52,730 --> 05:56:49,788
and can I just confirm Drew I never

4329
05:56:57,770 --> 05:56:52,740
released H2 with the ratchet

4330
05:56:57,780 --> 05:57:01,310
I just want to make sure I'm tracking

4331
05:57:01,320 --> 05:57:04,430
in front here

4332
05:57:12,230 --> 05:57:06,770
you're correct Kayla you you understand

4333
05:57:20,868 --> 05:57:17,880
oh well solar PGT and head over to

4334
05:57:22,730 --> 05:57:20,878
[Music]

4335
05:58:42,048 --> 05:57:22,740
yep we'll meet you over there and that

4336
05:58:46,010 --> 05:58:44,208
you're getting a live view now of NASA

4337
05:58:47,570 --> 05:58:46,020
astronaut Tom marshburn as he puts the

4338
05:58:49,850 --> 05:58:47,580

finishing touches on putting away his

4339

05:58:52,850 --> 05:58:49,860

portable foot restraint this connected

4340

05:58:55,910 --> 05:58:52,860

him to the robotic arm conducted by

4341

05:58:57,948 --> 05:58:55,920

Matthias Maurer and rajachari this means

4342

05:59:00,410 --> 05:58:57,958

that cleanup of their work site is

4343

05:59:02,510 --> 05:59:00,420

pretty much all complete now that Tom is

4344

05:59:04,670 --> 05:59:02,520

out of his robotic arm

4345

05:59:07,250 --> 05:59:04,680

Kayla has stowed the bags and did an

4346

05:59:08,570 --> 05:59:07,260

inventory on her tools the crew is

4347

05:59:10,548 --> 05:59:08,580

reporting that they're feeling quite

4348

05:59:19,310 --> 05:59:10,558

well and a couple of the get ahead tasks

4349

05:59:32,390 --> 05:59:24,170

and I am on the bbcu that is on the most

4350

05:59:32,400 --> 05:59:45,590

just checking Caleb

4351
05:59:50,330 --> 05:59:47,810
well we're talking about tools we did

4352
05:59:51,590 --> 05:59:50,340
get a question from YouTube

4353
05:59:53,628 --> 05:59:51,600
um kind of calling out some of the

4354
05:59:55,610 --> 05:59:53,638
pistol grip tools that the ground IV

4355
05:59:56,990 --> 05:59:55,620
communicated with the crew

4356
06:00:00,350 --> 05:59:57,000
smaller

4357
06:00:02,690 --> 06:00:00,360
for instance you might hear Alpha 5 cw2

4358
06:00:06,230 --> 06:00:02,700
well Alpha and beta are different torque

4359
06:00:09,110 --> 06:00:06,240
settings uh Bravo is the more powerful

4360
06:00:12,590 --> 06:00:09,120
of the two B7 is the highest torque

4361
06:00:15,948 --> 06:00:14,208
okay we're just checking a couple things

4362
06:00:17,448 --> 06:00:15,958
here the first thing if you wouldn't

4363
06:00:19,548 --> 06:00:17,458

mind moving your mini workstation and

4364

06:00:21,470 --> 06:00:19,558

effector to a handrail rather than the

4365

06:00:24,170 --> 06:00:21,480

second number indicates speed being one

4366

06:00:26,690 --> 06:00:24,180

through three three being really fast so

4367

06:00:29,030 --> 06:00:26,700

for instance if you call out Alpha 5 cw2

4368

06:00:31,970 --> 06:00:29,040

it means moderate torque value going in

4369

06:00:34,010 --> 06:00:31,980

the direction clockwise with a speed

4370

06:00:47,230 --> 06:00:34,020

of two so perfectly in the middle

4371

06:00:52,730 --> 06:00:49,910

okay Kayla your go to break torque on

4372

06:00:55,670 --> 06:00:52,740

both H1 and H2 we're about a quarter to

4373

06:01:02,030 --> 06:00:57,890

have your brakes work on both H1 and

4374

06:01:02,040 --> 06:01:21,470

good read back

4375

06:01:21,480 --> 06:01:26,448

Andrew got into the fourth class

4376

06:01:39,070 --> 06:01:28,310

it's going black grateful good twist

4377

06:02:08,628 --> 06:01:43,310

okay Tom take that fox to an alpha on

4378

06:02:14,510 --> 06:02:10,670

and the first work on each one a quarter

4379

06:02:14,520 --> 06:02:49,910

copy

4380

06:02:49,920 --> 06:02:53,590

through the road Alpha

4381

06:02:58,010 --> 06:02:56,930

all right copy that Tom great job so

4382

06:03:00,048 --> 06:02:58,020

we're not going to have you do anything

4383

06:03:08,448 --> 06:03:00,058

additional from here so this is going to

4384

06:03:14,270 --> 06:03:11,810

um I just wrote to work on H2

4385

06:03:16,190 --> 06:03:14,280

um I'm just finishing up the second bbcu

4386

06:03:19,128 --> 06:03:16,200

and then I have to stop restraint tie

4387

06:03:24,890 --> 06:03:21,350

what's up

4388

06:03:26,930 --> 06:03:24,900

good head over that way towards you

4389

06:03:30,288 --> 06:03:26,940

is that up here

4390

06:03:31,490 --> 06:03:30,298

and uh for Drew uh HQ broke in a quarter

4391

06:03:34,010 --> 06:03:31,500

turn

4392

06:03:36,788 --> 06:03:34,020

Ed PGT

4393

06:03:40,310 --> 06:03:36,798

yep next we're gonna do H1 Alpha 7

4394

06:03:40,320 --> 06:03:49,010

as we're moving back over to each one

4395

06:03:52,610 --> 06:03:50,090

see what I think about heading over

4396

06:04:02,810 --> 06:03:52,620

towards Kayla

4397

06:04:02,820 --> 06:04:05,650

foreign

4398

06:04:10,128 --> 06:04:08,750

it's up to you and Kayla if you gonna

4399

06:04:11,810 --> 06:04:10,138

head all the way out there but she's

4400

06:04:14,090 --> 06:04:11,820

going to be done here pretty quickly in

4401
06:04:21,410 --> 06:04:14,100
the end we want Kayla to translate back

4402
06:04:21,420 --> 06:04:27,410
ready

4403
06:04:34,730 --> 06:04:30,890
we'll all get some snaps here

4404
06:04:35,990 --> 06:04:34,740
okay for Drew I've got Alpha seven

4405
06:04:38,390 --> 06:04:36,000
uh

4406
06:04:44,830 --> 06:04:38,400
clockwise Tuesday

4407
06:04:54,590 --> 06:04:47,750
Kayla the settings are going to be Alpha

4408
06:04:59,750 --> 06:04:56,390
and understand I'm fully releasing about

4409
06:05:01,910 --> 06:04:59,760
a seven seven turned

4410
06:05:33,890 --> 06:05:01,920
good read back about seven turns to

4411
06:05:39,490 --> 06:05:35,750
well we'll go ahead and get my crew like

4412
06:05:46,010 --> 06:05:44,208
Andrew sounds good uh that was each turn

4413
06:05:48,948 --> 06:05:46,020

on H1

4414

06:05:51,170 --> 06:05:48,958

the PGC did not skip this time but I

4415

06:05:52,670 --> 06:05:51,180

believe it's fully released but I'm not

4416

06:05:53,510 --> 06:05:52,680

sure what indications I have of that

4417

06:05:55,730 --> 06:05:53,520

though

4418

06:05:58,190 --> 06:05:55,740

I did notice the um

4419

06:05:59,628 --> 06:05:58,200

block unlock indicator

4420

06:06:02,390 --> 06:05:59,638

is

4421

06:06:05,510 --> 06:06:02,400

indicating

4422

06:06:07,670 --> 06:06:05,520

it was kind of like bouncing I guess

4423

06:06:13,190 --> 06:06:07,680

clicking back and forth near the walk

4424

06:06:13,200 --> 06:06:22,930

checking

4425

06:06:33,110 --> 06:06:25,190

okay let's give it two more turns on

4426

06:06:39,948 --> 06:06:35,208

I'm giving the paddle a couple of

4427

06:06:39,958 --> 06:06:43,430

all right we see it

4428

06:06:54,250 --> 06:06:45,770

Andrew that was two more turns on the PD

4429

06:07:00,590 --> 06:06:57,650

okay copy Kayla we're gonna we're ready

4430

06:07:03,230 --> 06:07:00,600

for you to reset your PGT Alpha 7 and

4431

06:07:05,830 --> 06:07:03,240

this one will be clockwise too for bolt

4432

06:07:11,390 --> 06:07:08,690

7 clockwise two set and I'll just adjust

4433

06:07:13,868 --> 06:07:11,400

my body positions and then let you know

4434

06:07:50,690 --> 06:07:13,878

when I'm gonna start turns

4435

06:07:57,470 --> 06:07:55,430

I have Alpha seven clockwise two sets

4436

06:08:01,850 --> 06:07:57,480

and I'll be driving to torque about a

4437

06:08:01,860 --> 06:08:06,170

copy that that sounds like good

4438

06:08:06,180 --> 06:08:11,208

in my 9.2 foot

4439

06:08:11,218 --> 06:08:17,150

quarter turn

4440

06:08:17,160 --> 06:08:22,128

okay copy Caleb

4441

06:08:28,490 --> 06:08:24,288

once they're heading over to the sub

4442

06:09:40,430 --> 06:08:30,230

okay we'll meet you there that's in the

4443

06:09:40,440 --> 06:09:45,788

and Drew I've got my crew like that

4444

06:09:45,798 --> 06:10:13,868

copy Tom

4445

06:10:17,030 --> 06:10:15,708

Kayla while you're making your way over

4446

06:10:19,430 --> 06:10:17,040

there we know that you still have that

4447

06:10:20,750 --> 06:10:19,440

Oru bag on you if you want to Temp Stow

4448

06:10:23,448 --> 06:10:20,760

that out of your way because we think

4449

06:10:26,990 --> 06:10:23,458

you might need the brt in order to do

4450

06:10:27,000 --> 06:10:40,030

right here

4451

06:10:40,040 --> 06:10:44,330

in the second year Drew

4452

06:10:44,340 --> 06:10:59,090

copy

4453

06:11:02,868 --> 06:11:00,770

and Kayla a couple more words for you

4454

06:11:04,850 --> 06:11:02,878

those micro fixtures there on that

4455

06:11:06,288 --> 06:11:04,860

lithium ion battery by the Saab

4456

06:11:07,750 --> 06:11:06,298

restraint the Saab that we're going to

4457

06:11:10,610 --> 06:11:07,760

restrain

4458

06:11:43,390 --> 06:11:10,620

those are unfortunately are not able to

4459

06:11:47,570 --> 06:11:45,890

and then one final reminder Kayla

4460

06:12:55,390 --> 06:11:47,580

there's the radiator just there at your

4461

06:12:55,400 --> 06:12:59,890

still in the medium are you back

4462

06:13:04,850 --> 06:13:02,750

copy and I have a recommended handrail

4463

06:13:10,850 --> 06:13:04,860

for you for you to brt when you're

4464

06:13:10,860 --> 06:14:31,310

it's five one two four

4465

06:16:23,448 --> 06:15:13,190

foreign

4466

06:16:26,690 --> 06:16:25,310

okay copy I know you've studied the

4467

06:16:28,190 --> 06:16:26,700

pictures of this I can give you any

4468

06:16:30,048 --> 06:16:28,200

words but you know that big one is going

4469

06:17:23,390 --> 06:16:30,058

to go through the tunnel there and then

4470

06:17:27,288 --> 06:17:25,430

switching now to live views from us

4471

06:17:29,330 --> 06:17:27,298

astronaut Kayla Baron as she works on a

4472

06:17:31,548 --> 06:17:29,340

couple of get ahead tasks before the

4473

06:17:33,470 --> 06:17:31,558

conclusion of this spacewalk she's

4474

06:17:35,208 --> 06:17:33,480

breaking torque or loosening a couple of

4475

06:17:37,910 --> 06:17:35,218

the bolts on a couple of different

4476

06:17:40,730 --> 06:17:37,920

locations on the space station

4477

06:17:42,770 --> 06:17:40,740

again not related to the Sasa but could

4478

06:19:28,250 --> 06:17:42,780

one day be helpful in case we ever need

4479

06:19:34,250 --> 06:19:30,590

right here I've got the wire tie through

4480

06:19:41,570 --> 06:19:34,260

the rubber strength tunnels both of them

4481

06:19:45,170 --> 06:19:43,670

okay Kayla that looks good and you know

4482

06:19:48,890 --> 06:19:45,180

the second wire tag goes on that micro

4483

06:19:48,900 --> 06:19:59,030

work

4484

06:20:03,230 --> 06:20:01,788

and that's on the um lithium ion battery

4485

06:20:06,230 --> 06:20:03,240

to

4486

06:21:11,570 --> 06:20:06,240

the inboard side correct

4487

06:21:16,670 --> 06:21:13,968

after completing her task to break

4488

06:21:18,830 --> 06:21:16,680

torque Kayla Baron is now working on her

4489

06:21:21,770 --> 06:21:18,840

second get ahead task this involves

4490

06:21:23,690 --> 06:21:21,780

putting wire Ties on the sub or solar

4491

06:21:28,548 --> 06:21:23,700

array blanket boxes and that's what you

4492

06:21:35,690 --> 06:21:32,690

I've got it secured to H2 with

4493

06:21:37,548 --> 06:21:35,700

you have swiss

4494

06:21:39,350 --> 06:21:37,558

copy Kayla and so now we're going to

4495

06:21:42,230 --> 06:21:39,360

take that wire tie that you just placed

4496

06:21:43,610 --> 06:21:42,240

and we want it to go across that cable

4497

06:21:46,368 --> 06:21:43,620

connection there so it's kind of

4498

06:21:49,490 --> 06:21:46,378

capturing it depressing it down and then

4499

06:21:51,410 --> 06:21:49,500

use that wire to then grab the lasso

4500

06:21:54,788 --> 06:21:51,420

that you just did on the on the side

4501
06:21:54,798 --> 06:22:10,430
Stan and some work

4502
06:22:15,350 --> 06:22:12,530
how far do you expect these to rotate

4503
06:22:15,360 --> 06:22:18,708
very

4504
06:22:18,718 --> 06:22:22,610
checking

4505
06:22:27,410 --> 06:22:24,350
maybe like

4506
06:22:39,230 --> 06:22:30,110
30 degrees away from

4507
06:22:42,468 --> 06:22:40,670
we wanted to rotate all the way against

4508
06:22:44,628 --> 06:22:42,478
that hard stop like you have it exactly

4509
06:22:48,410 --> 06:22:44,638
closest to the micro Square So you

4510
06:22:48,420 --> 06:23:12,048
and let me get this cable underneath

4511
06:23:17,390 --> 06:23:14,628
yeah Kayla and so that Oru just off to

4512
06:23:19,010 --> 06:23:17,400
your right is the pfcs and we want to be

4513
06:23:21,468 --> 06:23:19,020

able to get at that robotically and so

4514

06:23:25,548 --> 06:23:21,478

your tie back is gonna give us clear

4515

06:23:31,788 --> 06:23:28,010

I'm going to reposition where I have the

4516

06:23:34,490 --> 06:23:31,798

attachment point here if I can

4517

06:24:45,288 --> 06:23:34,500

um just because I realize that's fine

4518

06:24:50,750 --> 06:24:47,330

and uh Drew

4519

06:24:53,930 --> 06:24:50,760

got an idea for you guys

4520

06:24:57,530 --> 06:24:53,940

um would it be okay to thread the

4521

06:25:00,948 --> 06:24:57,540

H2 wire tie under the looped wire tie

4522

06:25:02,570 --> 06:25:00,958

and then tighten it back that way

4523

06:25:04,670 --> 06:25:02,580

yep Kayla that's exactly what we want

4524

06:25:09,288 --> 06:25:04,680

you to do then double it back and then

4525

06:25:13,968 --> 06:25:11,810

picture I kind of remembered the um and

4526
06:25:16,850 --> 06:25:13,978
being connected but

4527
06:25:20,510 --> 06:25:16,860
say thanks to you better

4528
06:25:25,250 --> 06:25:22,730
as one of her get ahead test NASA

4529
06:25:28,190 --> 06:25:25,260
astronaut Kayla Baron is working to

4530
06:25:45,890 --> 06:25:28,200
install a set of two long wire ties to

4531
06:25:50,868 --> 06:25:48,948
and I will try to tell me if you can see

4532
06:25:52,788 --> 06:25:50,878
it in my wvs I'll show you how much play

4533
06:25:59,890 --> 06:25:52,798
remains

4534
06:26:04,310 --> 06:26:02,390
Kayla it looks great

4535
06:26:09,170 --> 06:26:04,320
um we are very satisfied with that we're

4536
06:26:14,090 --> 06:26:12,048
I will work on um getting my media mower

4537
06:26:18,590 --> 06:26:14,100
you back back on my brt

4538
06:26:18,600 --> 06:26:23,448

traffic

4539

06:26:32,448 --> 06:26:26,090

all right that sounds good Kayla and uh

4540

06:26:36,230 --> 06:26:34,670

NASA astronaut Kayla Baron just

4541

06:26:38,750 --> 06:26:36,240

confirming that she has finished the

4542

06:26:40,910 --> 06:26:38,760

final of her four get ahead tasks

4543

06:26:42,830 --> 06:26:40,920

after the installation of those wire

4544

06:26:44,150 --> 06:26:42,840

ties that the ground confirmed looked

4545

06:26:46,250 --> 06:26:44,160

great and was exactly what they were

4546

06:26:48,048 --> 06:26:46,260

looking for she'll now make her way back

4547

06:26:49,610 --> 06:26:48,058

to Tom marshburn while they'll begin the

4548

06:26:51,410 --> 06:26:49,620

procedures to

4549

06:27:12,708 --> 06:26:51,420

get back into the space station out of

4550

06:27:12,718 --> 06:27:20,810

how are you doing doing good

4551
06:27:20,820 --> 06:27:25,490
some of you in there awesome

4552
06:27:28,850 --> 06:27:27,410
I see a little cleanup steps here and

4553
06:28:25,448 --> 06:27:28,860
then I'll start my translation back to

4554
06:28:30,890 --> 06:28:28,610
Baron is now tracing her steps uh that

4555
06:28:33,590 --> 06:28:30,900
she took originally to the work site for

4556
06:28:36,288 --> 06:28:33,600
her get ahead tasks now going in reverse

4557
06:28:38,150 --> 06:28:36,298
back to Tom marshburn they'll soon begin

4558
06:29:28,868 --> 06:28:38,160
the Ingress procedures which are

4559
06:29:33,890 --> 06:29:32,090
I'm Tom and Kayla for both of you if we

4560
06:29:36,230 --> 06:29:33,900
could get one final glove and hap check

4561
06:29:40,490 --> 06:29:36,240
from you as Kayla starts to make her way

4562
06:29:40,500 --> 06:29:50,030
thank you sure can work

4563
06:29:53,510 --> 06:29:52,310

Andrew I've got some smoking on the

4564

06:29:56,270 --> 06:29:53,520

middle finger

4565

06:30:04,930 --> 06:29:56,280

my right hand

4566

06:30:12,230 --> 06:30:09,288

okay that's a good check on you Tom

4567

06:30:14,628 --> 06:30:12,240

and smudging of the little finger of my

4568

06:30:19,010 --> 06:30:14,638

left hand and a half is dry

4569

06:30:19,020 --> 06:30:22,190

copy

4570

06:30:28,910 --> 06:30:25,788

and Drew I have some black smudges on my

4571

06:30:36,350 --> 06:30:33,170

new ones actually I didn't have before

4572

06:30:42,890 --> 06:30:36,360

um but other than that

4573

06:30:51,530 --> 06:30:46,548

actually I see a little bit of wear on

4574

06:31:00,048 --> 06:30:51,540

the outside RTV wear on the outside of

4575

06:31:03,530 --> 06:31:02,270

okay Kayla that's a good glove check and

4576
06:31:05,270 --> 06:31:03,540
we're ready for you to start translating

4577
06:31:07,968 --> 06:31:05,280
back towards your green hook as you make

4578
06:31:10,368 --> 06:31:07,978
your way back near the sapphire antenna

4579
06:31:11,930 --> 06:31:10,378
we do have one warning for you if we're

4580
06:31:14,390 --> 06:31:11,940
going to ask that you stay at least

4581
06:31:16,128 --> 06:31:14,400
about four feet away from the P1 South

4582
06:31:17,810 --> 06:31:16,138
to High Gain antenna but if you stay on

4583
06:31:22,070 --> 06:31:17,820
the translation path and you stay off

4584
06:31:27,110 --> 06:31:23,628
over there

4585
06:31:31,670 --> 06:31:29,030
I don't know if my advisor up real quick

4586
06:31:33,410 --> 06:31:31,680
before I start heading back

4587
06:31:35,270 --> 06:31:33,420
and Kayla I think you said it but just

4588
06:31:41,150 --> 06:31:35,280

yet actually

4589

06:31:41,160 --> 06:31:47,628

copy

4590

06:31:51,410 --> 06:31:49,910

I'm gonna wait like 30 seconds for the

4591

06:31:55,128 --> 06:31:51,420

sun to go down and we'll put their eyes

4592

06:31:59,510 --> 06:31:55,138

are up and then I will head

4593

06:31:59,520 --> 06:32:05,510

we copied

4594

06:32:24,890 --> 06:32:07,730

doing okay

4595

06:32:33,288 --> 06:32:28,070

well I'm back at the uh

4596

06:32:33,298 --> 06:32:41,390

I'll meet you over here

4597

06:32:41,400 --> 06:32:49,380

just came in Board of disarch

4598

06:32:53,448 --> 06:32:51,890

[Music]

4599

06:32:55,010 --> 06:32:53,458

Tom and Kayla we're about two minutes

4600

06:32:57,410 --> 06:32:55,020

from a Handover I just wanted to let you

4601
06:33:00,048 --> 06:32:57,420
know we're just shy of a six hour Eva

4602
06:33:03,230 --> 06:33:00,058
and we're gonna meet you back at the

4603
06:33:06,770 --> 06:33:03,240
airlock here shortly and Kayla will just

4604
06:33:37,548 --> 06:33:06,780
listen for words for their green hook

4605
06:33:41,270 --> 06:33:39,410
the International Space Station just

4606
06:33:43,430 --> 06:33:41,280
entered into an orbital night time and

4607
06:33:45,170 --> 06:33:43,440
then we have some views of NASA

4608
06:33:47,628 --> 06:33:45,180
astronaut Kayla Baron from her helmet

4609
06:33:48,948 --> 06:33:47,638
camera as she makes her way back to the

4610
06:33:51,170 --> 06:33:48,958
quest airlock

4611
06:33:55,310 --> 06:33:51,180
on her journey she will be passing by

4612
06:33:57,110 --> 06:33:55,320
The Sassy unit and we'll now keep a

4613
06:35:04,910 --> 06:33:57,120

distance from it because it is powered

4614

06:35:10,368 --> 06:35:08,570

come on you're safe I'm just taking my

4615

06:35:13,190 --> 06:35:10,378

time here to make sure my safety tether

4616

06:35:14,090 --> 06:35:13,200

is tended lots of uh places for it to

4617

06:35:23,390 --> 06:35:14,100

hang up

4618

06:35:29,690 --> 06:35:26,270

just try to get eyes on the uh

4619

06:35:32,448 --> 06:35:29,700

F antenna here in a minute

4620

06:35:34,850 --> 06:35:32,458

got my medium or your you bag off to my

4621

06:35:38,208 --> 06:35:34,860

left so I just want to make sure

4622

06:35:54,788 --> 06:35:38,218

um effective clearance to the use of the

4623

06:35:59,628 --> 06:35:57,230

or in a brief but expected Handover

4624

06:36:02,270 --> 06:35:59,638

period as Kayla Baron makes her way back

4625

06:36:04,010 --> 06:36:02,280

to the quest airlock one last get ahead

4626

06:36:06,048 --> 06:36:04,020

test that they should have to do

4627

06:36:08,510 --> 06:36:06,058

it can be done by either Baron or

4628

06:36:11,448 --> 06:36:08,520

marshburn is to take a picture of a pit

4629

06:36:14,208 --> 06:36:11,458

pin that astronauts tomafesque and Aki

4630

06:36:16,430 --> 06:36:14,218

hoshide had installed into the airlock

4631

06:36:18,948 --> 06:36:16,440

pass in this past September during their

4632

06:36:21,490 --> 06:36:18,958

spacewalk the original was showing some

4633

06:37:02,930 --> 06:36:21,500

wear and tear and the two International

4634

06:37:08,948 --> 06:37:04,670

all right my green look is on my red

4635

06:37:08,958 --> 06:37:54,170

we copy

4636

06:37:54,180 --> 06:38:00,288

I'm continuing my translation

4637

06:38:00,298 --> 06:38:17,690

for flight following

4638

06:38:17,700 --> 06:38:37,070

it's beautiful

4639

06:38:37,080 --> 06:38:44,150

so you're coming

4640

06:38:53,510 --> 06:38:46,548

let me take this part a little slow

4641

06:38:58,010 --> 06:38:55,850

NASA astronaut Tom marshburn just

4642

06:39:00,410 --> 06:38:58,020

confirms that he has a visual on Kayla

4643

06:39:02,330 --> 06:39:00,420

Baron she is making her way so that the

4644

06:39:04,010 --> 06:39:02,340

speed two spacewalking astronauts can

4645

06:39:10,250 --> 06:39:04,020

Ingress international space stations

4646

06:39:10,260 --> 06:39:37,368

all right

4647

06:39:39,890 --> 06:39:38,930

um Tom could you please move further

4648

06:39:41,690 --> 06:39:39,900

outboard

4649

06:39:44,868 --> 06:39:41,700

absolutely if you're right below where I

4650

06:39:44,878 --> 06:39:54,590

see

4651
06:39:59,030 --> 06:39:56,750
I was just tracking your safety cover as

4652
06:40:14,270 --> 06:39:59,040
to where you come down okay

4653
06:40:20,750 --> 06:40:15,770
hey how's that

4654
06:40:24,530 --> 06:40:22,670
I think each other is up against the uh

4655
06:40:37,070 --> 06:40:24,540
see the handrail now if Jordan coming

4656
06:40:52,270 --> 06:40:40,850
my fear saved each other Tom okay good

4657
06:40:57,170 --> 06:40:54,650
the two astronauts are now heading

4658
06:40:59,690 --> 06:40:57,180
towards the airlock as was her first

4659
06:41:02,330 --> 06:40:59,700
task of the day Kayla Baron had removed

4660
06:41:04,850 --> 06:41:02,340
the thermal hatch cover and now she'll

4661
06:41:06,770 --> 06:41:04,860
be the one to open it back up again

4662
06:41:08,150 --> 06:41:06,780
they'll get to work stowing their bags

4663
06:41:14,448 --> 06:41:08,160

and equipment that they brought out with

4664

06:41:14,458 --> 06:41:20,270

see between your feet

4665

06:41:23,930 --> 06:41:22,730

because you continue on we'll just talk

4666

06:41:25,250 --> 06:41:23,940

again when you get to the turnaround

4667

06:41:30,230 --> 06:41:25,260

point

4668

06:41:30,240 --> 06:41:45,650

I think it was going through but

4669

06:41:45,660 --> 06:41:49,850

thanks for that heads up on that

4670

06:41:56,990 --> 06:41:52,250

let's get your feet uh station forward a

4671

06:41:57,000 --> 06:42:09,350

oh it's tightening up now looking better

4672

06:42:14,030 --> 06:42:11,990

I see it just for your awareness Tom

4673

06:42:16,190 --> 06:42:14,040

it's caught up on the corner of this mli

4674

06:42:17,570 --> 06:42:16,200

it'll be easy for you to clear on your

4675

06:42:19,190 --> 06:42:17,580

way bye

4676
06:42:21,288 --> 06:42:19,200
I want to move it because it was keeping

4677
06:42:26,770 --> 06:42:21,298
it right

4678
06:42:26,780 --> 06:42:51,430
I wanna see this first

4679
06:42:55,430 --> 06:42:53,930
and Kayla you have to go to open the

4680
06:42:59,628 --> 06:42:55,440
thermal cover when you arrive at the

4681
06:43:18,890 --> 06:43:02,150
okay

4682
06:43:18,900 --> 06:43:36,530
like I'm clear that in my life

4683
06:43:36,540 --> 06:43:52,430
Professor Julie Andrews

4684
06:43:52,440 --> 06:44:04,810
down a local

4685
06:44:12,170 --> 06:44:09,250
league and the thermal cover is open

4686
06:44:16,128 --> 06:44:12,180
coffee Kayla thermal covers open and you

4687
06:44:17,330 --> 06:44:16,138
can Stow the bags as you would like we

4688
06:44:18,830 --> 06:44:17,340

know that you also have that ratchet

4689

06:44:20,510 --> 06:44:18,840

wrench still on your mini workstation if

4690

06:44:26,590 --> 06:44:20,520

you wanted to take that off and stow it

4691

06:44:31,910 --> 06:44:29,390

Baron just gave verbal confirmation that

4692

06:44:33,530 --> 06:44:31,920

the hatch thermal cover is open one of

4693

06:44:35,868 --> 06:44:33,540

the early steps into getting back into

4694

06:44:37,730 --> 06:44:35,878

the quest airlock she's now going to

4695

06:44:39,468 --> 06:44:37,740

work on stowing some of the bags that

4696

06:44:57,830 --> 06:44:39,478

contain the tools that they needed to

4697

06:45:02,810 --> 06:45:00,468

now approaching six hours into the

4698

06:45:05,330 --> 06:45:02,820

spacewalk with NASA astronaut Tom

4699

06:45:07,548 --> 06:45:05,340

marshburn and Kayla Baron Baron's first

4700

06:45:10,250 --> 06:45:07,558

and marshburn's fifth spacewalk of his

4701
06:45:19,788 --> 06:45:10,260
career the quest airlock is now in view

4702
06:45:19,798 --> 06:45:38,868
I drifted a little bit

4703
06:45:43,670 --> 06:45:41,390
ready to get a little more right here

4704
06:45:47,448 --> 06:45:43,680
girls

4705
06:45:50,030 --> 06:45:48,770
and when you're ready Kayla you can

4706
06:45:55,190 --> 06:45:50,040
attach your right waste tether to the

4707
06:45:55,200 --> 06:46:05,390
it's been work right now

4708
06:46:10,250 --> 06:46:07,670
my waste feather is attached to the

4709
06:46:11,270 --> 06:46:10,260
airlock hearing extender the color side

4710
06:46:13,610 --> 06:46:11,280
a lot

4711
06:46:15,890 --> 06:46:13,620
and Tom I'm going to get the stadium Oru

4712
06:46:18,048 --> 06:46:15,900
bag on a airlock rat real quick and then

4713
06:46:21,230 --> 06:46:18,058

I'll be ready to get out of your way and

4714

06:46:25,610 --> 06:46:21,240

take the other crew lock bag

4715

06:46:30,230 --> 06:46:28,190

and then Tom we have one last half for

4716

06:46:33,708 --> 06:46:30,240

you after you get that crew lock bag

4717

06:46:37,250 --> 06:46:33,718

over to Kayla if you could use your D5

4718

06:46:40,610 --> 06:46:37,260

camera and take some pictures of the AFT

4719

06:46:42,708 --> 06:46:40,620

pit pin on the forward hinge of there

4720

06:46:44,750 --> 06:46:42,718

patch I think you've seen the diagrams

4721

06:46:46,610 --> 06:46:44,760

so just go ahead and take pictures of

4722

06:46:48,948 --> 06:46:46,620

all those

4723

06:46:53,208 --> 06:46:51,468

looks like astronaut Tom marshburn was

4724

06:46:56,270 --> 06:46:53,218

assigned to the last get ahead task of

4725

06:46:59,810 --> 06:46:56,280

the day to photograph a pit pin on the

4726
06:47:02,030 --> 06:46:59,820
hinge of the hatch installed during the

4727
06:47:05,270 --> 06:47:02,040
first International all International

4728
06:47:07,368 --> 06:47:05,280
spacewalk out of the quest air lock

4729
06:47:11,150 --> 06:47:07,378
I attend it

4730
06:47:11,160 --> 06:47:24,948
I'll finish ingressing

4731
06:47:29,270 --> 06:47:27,770
Paul marshburn grabs that photo Baron is

4732
06:47:31,070 --> 06:47:29,280
disappearing from view as she enters

4733
06:47:32,868 --> 06:47:31,080
into the quest airlock her feet now

4734
06:47:36,048 --> 06:47:32,878
visible as she's almost completely

4735
06:47:40,548 --> 06:47:37,548
here we go

4736
06:48:00,350 --> 06:47:40,558
hey Emma are you though

4737
06:48:03,170 --> 06:48:02,150
hey Tom

4738
06:48:05,090 --> 06:48:03,180

okay

4739

06:48:06,350 --> 06:48:05,100

Julian dress

4740

06:48:16,430 --> 06:48:06,360

y

4741

06:48:16,440 --> 06:48:42,350

got a hand on it

4742

06:48:46,310 --> 06:48:44,448

got the airlock Road on it and I'm going

4743

06:48:48,590 --> 06:48:46,320

to release yours

4744

06:48:51,010 --> 06:48:48,600

are you ready for it

4745

06:48:56,810 --> 06:48:51,020

let's see I'm ready

4746

06:48:56,820 --> 06:49:05,390

let me know when you're safe inside safe

4747

06:49:09,170 --> 06:49:07,250

that's already complete you're like uh

4748

06:49:09,830 --> 06:49:09,180

you're all depletes or you are good to

4749

06:49:13,490 --> 06:49:09,840

go

4750

06:49:17,510 --> 06:49:14,930

alrighty

4751
06:49:20,948 --> 06:49:17,520
marshburn is now making his way inside

4752
06:49:24,170 --> 06:49:20,958
the quest airlock meanwhile astronaut

4753
06:49:25,968 --> 06:49:24,180
rajatari has left Matthias Maurer and

4754
06:49:28,968 --> 06:49:25,978
has headed back to the

4755
06:49:31,190 --> 06:49:28,978
equipment lock where he'll assist Baron

4756
06:49:32,868 --> 06:49:31,200
and marshburn out of their suits with

4757
06:49:36,830 --> 06:49:32,878
the help of the other suit IV mark

4758
06:49:41,330 --> 06:49:38,990
okay Tom and your go to take Kayla's

4759
06:49:43,250 --> 06:49:41,340
anchor hook and put it on to your right

4760
06:50:10,968 --> 06:49:43,260
waist tether and then confirm that it's

4761
06:50:16,128 --> 06:50:13,548
Amanda hi and Charlie now snapping a

4762
06:50:19,490 --> 06:50:16,138
couple of photos as marshburn makes his

4763
06:50:23,230 --> 06:50:19,500

way back towards the crew lock

4764

06:50:25,910 --> 06:50:23,240

once he gets in and the door is closed

4765

06:50:30,048 --> 06:50:25,920

repressurization can begin bringing the

4766

06:50:34,190 --> 06:50:30,058

PSI down from vacuum back to a PSI of

4767

06:50:38,208 --> 06:50:34,200

about 14.7 at which point the hatch can

4768

06:50:40,548 --> 06:50:38,218

be opened and rajatari and Mark vandehei

4769

06:50:42,650 --> 06:50:40,558

will move the astronauts back into the

4770

06:51:11,750 --> 06:50:42,660

equipment lock to help

4771

06:51:11,760 --> 06:51:17,390

each other we just closed in a lot

4772

06:51:35,090 --> 06:51:19,310

copy time and you can retrieve your

4773

06:51:35,100 --> 06:51:44,230

that's retrieved

4774

06:51:48,590 --> 06:51:46,788

that's it I'm heading in and I'll get

4775

06:51:50,510 --> 06:51:48,600

this fixed

4776
06:51:55,968 --> 06:51:50,520
and Tom if you could just turn your heck

4777
06:51:55,978 --> 06:52:01,190
after that works

4778
06:52:01,200 --> 06:52:10,910
the button how's that

4779
06:52:14,750 --> 06:52:12,650
and Tom we just wanted to check with you

4780
06:52:16,730 --> 06:52:14,760
and make sure that you grab a couple of

4781
06:52:19,128 --> 06:52:16,740
photos

4782
06:52:25,070 --> 06:52:19,138
foreign

4783
06:52:25,080 --> 06:53:05,990
copy thank you

4784
06:53:25,250 --> 06:53:07,610
you're gonna get up into positions

4785
06:53:25,260 --> 06:54:17,650
foreign

4786
06:54:23,390 --> 06:54:21,410
view now at the feet of astronaut Tom

4787
06:54:26,390 --> 06:54:23,400
marshburn as he makes his way back into

4788
06:54:28,850 --> 06:54:26,400

the airlock NASA astronaut Kayla Baron

4789

06:54:32,090 --> 06:54:28,860

his space walking colleague for the day

4790

06:54:33,708 --> 06:54:32,100

is already inside is working to Stow

4791

06:54:35,270 --> 06:54:33,718

some of the bags that she brought in

4792

06:54:38,570 --> 06:54:35,280

full of the tools

4793

06:54:39,530 --> 06:54:38,580

all primary tasks were complete today to

4794

06:54:42,650 --> 06:54:39,540

replace

4795

06:54:44,810 --> 06:54:42,660

a faulty Communications antenna

4796

06:54:47,510 --> 06:54:44,820

and replace it with a functioning one

4797

06:54:53,868 --> 06:54:47,520

and in addition all of their get ahead

4798

06:54:53,878 --> 06:55:04,810

much appreciated

4799

06:55:18,890 --> 06:55:07,910

and Tom that's all we needed you can get

4800

06:55:25,910 --> 06:55:22,490

that's your SD stop for a second

4801
06:55:27,548 --> 06:55:25,920
your sdu was caught on your foot

4802
06:55:35,570 --> 06:55:27,558
yeah

4803
06:55:42,530 --> 06:55:38,150
I have the bags right here so if they're

4804
06:55:42,540 --> 06:55:55,868
foreign

4805
06:56:00,650 --> 06:55:58,250
Baron and marshburn now working together

4806
06:56:02,810 --> 06:56:00,660
to configure both their bodies and their

4807
06:56:09,850 --> 06:56:02,820
equipment into the airlock so that

4808
06:56:09,860 --> 06:56:19,548
slowly coming back

4809
06:56:19,558 --> 06:56:37,128
foreign

4810
06:56:42,410 --> 06:56:39,708
the person you see on screen now is NASA

4811
06:56:44,690 --> 06:56:42,420
astronaut Mark vandehei and sometimes

4812
06:56:46,968 --> 06:56:44,700
we'll see astronaut rajachari floating

4813
06:56:49,730 --> 06:56:46,978

into view as well they're the suit IVs

4814

06:56:51,048 --> 06:56:49,740

for today's operation helping Baron and

4815

06:56:55,670 --> 06:56:51,058

marshburn get in and out of their

4816

06:57:15,048 --> 06:56:57,948

and if you can verify for us that the

4817

06:57:25,670 --> 06:57:16,548

I got to release it all the way extra

4818

06:57:25,680 --> 06:57:41,650

they said hello

4819

06:57:41,660 --> 06:57:46,610

misu is connected and lost

4820

06:57:46,620 --> 06:58:03,170

Caleb

4821

06:58:34,390 --> 06:58:05,330

at a weird angle

4822

06:58:39,350 --> 06:58:37,070

you're seeing the suited up gloves of

4823

06:58:41,448 --> 06:58:39,360

NASA astronaut Tom marshburn as

4824

06:58:43,730 --> 06:58:41,458

designated by the number 22 in the

4825

06:59:17,150 --> 06:58:43,740

corner we're getting his perspective as

4826
06:59:17,160 --> 06:59:31,128
to the barrel

4827
06:59:31,138 --> 06:59:37,128
one two three

4828
06:59:41,270 --> 06:59:38,628
The View you're looking at is the

4829
06:59:43,430 --> 06:59:41,280
thermal cover of the quest airlock once

4830
06:59:45,110 --> 06:59:43,440
Tom marshburn gets that closed then they

4831
06:59:47,030 --> 06:59:45,120
could work to close the hatch that

4832
06:59:49,670 --> 06:59:47,040
Throne will cover just an extra layer of

4833
06:59:52,490 --> 06:59:49,680
protection for the hatch door from the

4834
06:59:54,830 --> 06:59:52,500
elements of space the Eva does not

4835
06:59:57,650 --> 06:59:54,840
conclude once the door is closed but

4836
07:00:01,190 --> 06:59:57,660
when the spacesuits are back off of

4837
07:00:09,650 --> 07:00:02,868
just not a strong enough magnet doesn't

4838
07:00:15,048 --> 07:00:13,430

copy copy time and uh we'll just ask

4839

07:00:16,610 --> 07:00:15,058

that you make sure give your best effort

4840

07:00:20,090 --> 07:00:16,620

in getting a magnet engage and then

4841

07:00:23,930 --> 07:00:20,100

cinch it up to six black lines on that

4842

07:00:27,048 --> 07:00:25,730

I've got six there's still a bit of a

4843

07:00:30,350 --> 07:00:27,058

gap

4844

07:00:33,350 --> 07:00:30,360

that's the limit of the adjustable

4845

07:00:35,628 --> 07:00:33,360

and uh yeah that Magnus uh is not

4846

07:00:37,250 --> 07:00:35,638

engaging

4847

07:00:39,230 --> 07:00:37,260

tell us

4848

07:00:42,010 --> 07:00:39,240

six on it for just a second then pops

4849

07:00:48,770 --> 07:00:45,468

pretty close to me however yeah I'm

4850

07:01:08,390 --> 07:00:48,780

looking at that five inches Gap

4851
07:01:08,400 --> 07:01:13,310
with the medium lower you back behind me

4852
07:01:17,990 --> 07:01:14,690
um it is

4853
07:01:29,208 --> 07:01:18,000
near you oh that was your feet okay

4854
07:01:33,170 --> 07:01:31,010
Tom we were wondering if you could try

4855
07:01:35,030 --> 07:01:33,180
to manipulate a little bit because we

4856
07:01:49,128 --> 07:01:35,040
think that it's flexing away so the

4857
07:01:53,690 --> 07:01:52,190
the um because it's sort of like pulled

4858
07:01:57,230 --> 07:01:53,700
almost all the way tight

4859
07:02:06,590 --> 07:01:59,330
okay so it may be up in about the middle

4860
07:02:14,208 --> 07:02:09,048
the chest was a size little bell

4861
07:02:21,288 --> 07:02:16,610
probably get all the way up

4862
07:02:25,430 --> 07:02:23,330
Tom if you hold with your left hand as

4863
07:02:29,990 --> 07:02:25,440

you are and then push on The Middle

4864

07:02:30,000 --> 07:02:38,270

yeah I did that

4865

07:02:41,930 --> 07:02:39,830

we'll push it on the ribs with my right

4866

07:02:45,650 --> 07:02:41,940

hand

4867

07:02:50,208 --> 07:02:48,288

and letting go

4868

07:02:53,690 --> 07:02:50,218

it just simply got enough

4869

07:03:05,628 --> 07:02:53,700

magnetic force I do see a bend in the

4870

07:03:17,750 --> 07:03:07,430

I've got all the ribs

4871

07:03:17,760 --> 07:03:22,610

okay stay in fact intact now

4872

07:03:30,048 --> 07:03:25,250

instead of barely

4873

07:03:34,490 --> 07:03:31,730

all right Tom we like it a very light

4874

07:03:36,350 --> 07:03:34,500

touch to pop it off yep uh we're gonna

4875

07:03:37,968 --> 07:03:36,360

go with it it looks good and we're gonna

4876
07:03:40,310 --> 07:03:37,978
go ahead and have you remove your SEO

4877
07:03:41,990 --> 07:03:40,320
from its pouch open your DCM cover and

4878
07:03:46,430 --> 07:03:42,000
then connect and verify that we are

4879
07:03:46,440 --> 07:04:06,610
okay

4880
07:04:12,350 --> 07:04:08,628
marshburn confirms that the hatch

4881
07:04:14,030 --> 07:04:12,360
thermal cover is closed he worked with

4882
07:04:40,368 --> 07:04:14,040
the ground to make sure that it laid

4883
07:06:04,430 --> 07:04:41,490
foreign

4884
07:06:10,548 --> 07:06:07,250
how's yours going Kayla I'm connected

4885
07:06:15,048 --> 07:06:13,190
Drew both SV user connected

4886
07:06:16,610 --> 07:06:15,058
okay copy you're both connected to your

4887
07:06:18,708 --> 07:06:16,620
su's and they're locked in place I have

4888
07:06:21,890 --> 07:06:18,718

a note for you here we'd recommend the

4889

07:06:23,868 --> 07:06:21,900

tcv setting between 8 and Max cold this

4890

07:06:26,330 --> 07:06:23,878

is dialed towards your dial towards your

4891

07:06:27,650 --> 07:06:26,340

feet when we go to our next couple of

4892

07:06:30,890 --> 07:06:27,660

steps

4893

07:06:30,900 --> 07:06:36,890

happy Roger I am an eight

4894

07:06:36,900 --> 07:06:43,968

what's up Kayla

4895

07:06:54,548 --> 07:06:46,368

okay guys it's time to go water switch

4896

07:06:59,030 --> 07:06:57,890

my water switches off I have the HTO is

4897

07:07:03,048 --> 07:06:59,040

awesome

4898

07:07:03,058 --> 07:07:10,730

okay that starts our two minute timer

4899

07:07:14,390 --> 07:07:12,590

Baron and marshburn now moving through

4900

07:07:16,850 --> 07:07:14,400

the final steps of their Ingress

4901
07:07:19,490 --> 07:07:16,860
procedures including turning their water

4902
07:07:22,490 --> 07:07:19,500
off they're soon going to verify that

4903
07:07:30,230 --> 07:07:22,500
the hatch is clear and ready to be

4904
07:07:30,240 --> 07:07:33,890
and the password is clear

4905
07:07:45,948 --> 07:07:36,288
okay and then you can verify also that

4906
07:07:45,958 --> 07:07:49,490
it says further decal

4907
07:08:22,368 --> 07:07:50,930
all right copy that time we'll let you

4908
07:08:26,810 --> 07:08:24,468
turning off the water in their extra

4909
07:08:28,430 --> 07:08:26,820
vehicular Mobility units also known as

4910
07:08:48,110 --> 07:08:28,440
their spacesuits is a process that's

4911
07:08:51,830 --> 07:08:50,690
it's true all right so we still have a

4912
07:08:55,610 --> 07:08:51,840
little bit of time I just wanted to say

4913
07:08:55,620 --> 07:09:01,670

yeah Tom we got time

4914

07:09:05,868 --> 07:09:03,530

hey copy just want to make sure we had

4915

07:09:08,330 --> 07:09:05,878

good comp still and uh pretty

4916

07:09:10,070 --> 07:09:08,340

unbelievable that the

4917

07:09:11,690 --> 07:09:10,080

team everyone is able to pull this

4918

07:09:13,490 --> 07:09:11,700

together in just a few weeks and get

4919

07:09:14,690 --> 07:09:13,500

Kayla and I trained up and Roger in the

4920

07:09:15,850 --> 07:09:14,700

fiesta

4921

07:09:18,530 --> 07:09:15,860

the

4922

07:09:22,128 --> 07:09:18,540

capability to do something that quickly

4923

07:09:23,030 --> 07:09:22,138

is just fantastic uh Vincent Lacourt as

4924

07:09:25,788 --> 07:09:23,040

a team

4925

07:09:27,590 --> 07:09:25,798

that are just an outstanding Banner our

4926
07:09:30,948 --> 07:09:27,600
Thompson and Greer will gave us all the

4927
07:09:33,770 --> 07:09:30,958
tools we needed and provided just

4928
07:09:36,650 --> 07:09:33,780
perfect instruction for us gave us all

4929
07:09:39,110 --> 07:09:36,660
information in an understandable Manner

4930
07:09:41,948 --> 07:09:39,120
and uh we were just executing their

4931
07:09:46,190 --> 07:09:41,958
suggestions of what they told us

4932
07:09:48,770 --> 07:09:46,200
forgive us in the suits out safely

4933
07:09:52,548 --> 07:09:48,780
um Drew of course fantastic job is

4934
07:09:54,530 --> 07:09:52,558
always IV and uh Christian Louboutin

4935
07:09:57,350 --> 07:09:54,540
Lopez for putting together those very

4936
07:09:59,810 --> 07:09:57,360
precise perfect uh robotic Maneuvers I

4937
07:10:01,190 --> 07:09:59,820
know that was a lot of all-nighters are

4938
07:10:03,650 --> 07:10:01,200

all weakers even

4939

07:10:05,750 --> 07:10:03,660

that together and uh finally Linda and

4940

07:10:07,610 --> 07:10:05,760

the training team

4941

07:10:10,490 --> 07:10:07,620

putting all that together

4942

07:10:12,650 --> 07:10:10,500

of course on rapid notice uh given us

4943

07:10:14,810 --> 07:10:12,660

whatever we needed to succeed today

4944

07:10:21,830 --> 07:10:14,820

so I congratulations to everyone really

4945

07:10:26,930 --> 07:10:24,288

guys we really appreciate the kind words

4946

07:10:28,730 --> 07:10:26,940

and on behalf of the entire Eva 78

4947

07:10:30,350 --> 07:10:28,740

Eda team it was a real pleasure to

4948

07:10:32,270 --> 07:10:30,360

develop this and execute it with you

4949

07:10:34,910 --> 07:10:32,280

guys did a fantastic job thank you for

4950

07:10:37,788 --> 07:10:34,920

restoring s-band to the ISS

4951
07:10:39,650 --> 07:10:37,798
UE this was uh just a great morning Tom

4952
07:10:41,868 --> 07:10:39,660
Kayla a couple of Pros out there and

4953
07:10:44,270 --> 07:10:41,878
Mark Roger Matthias thank you very much

4954
07:10:46,788 --> 07:10:44,280
for getting us through this great job

4955
07:10:49,610 --> 07:10:46,798
we're about a minute and a half from

4956
07:11:35,590 --> 07:10:49,620
Handover and

4957
07:11:35,600 --> 07:12:07,190
the time

4958
07:12:07,200 --> 07:12:12,128
hey the half years

4959
07:12:16,968 --> 07:12:14,628
copy Tom we understand that the EV hatch

4960
07:12:19,850 --> 07:12:16,978
is closed and locked Kayla for you on

4961
07:12:25,570 --> 07:12:19,860
the UIA check that oxygen for emu one

4962
07:12:25,580 --> 07:12:34,368
AMU one and

4963
07:12:41,570 --> 07:12:37,968

we're on a brief handra over period

4964

07:12:42,890 --> 07:12:41,580

but the crew in orbit is in the crew

4965

07:12:46,128 --> 07:12:42,900

lock

4966

07:12:48,110 --> 07:12:46,138

section of quest they're undergoing some

4967

07:12:55,610 --> 07:12:48,120

checks right now before repressurization

4968

07:13:01,310 --> 07:12:56,990

you have to play with everything that's

4969

07:13:05,090 --> 07:13:03,230

Kayla I think we clipped there in a

4970

07:13:07,070 --> 07:13:05,100

Handover we just wanted to verify that

4971

07:13:10,750 --> 07:13:07,080

the oxygen for the Emu one and two

4972

07:13:17,930 --> 07:13:15,128

one and two are both open

4973

07:13:21,230 --> 07:13:17,940

all right copy and then also on the UIA

4974

07:13:24,230 --> 07:13:21,240

switch power for ev1 and two

4975

07:13:29,750 --> 07:13:24,240

verify switch power to on and verify

4976

07:13:38,690 --> 07:13:34,610

let's see so power EV one and two are on

4977

07:13:41,628 --> 07:13:38,700

and the Emu LEDs are on the Orlon LEDs

4978

07:13:46,670 --> 07:13:44,750

it's about two LEDs yeah Kayla that's a

4979

07:13:49,730 --> 07:13:46,680

good check my mistake and then we'll

4980

07:13:52,310 --> 07:13:49,740

also take a check of the voltage for ev1

4981

07:14:00,288 --> 07:13:52,320

and ev2

4982

07:14:03,708 --> 07:14:01,850

all right that's a good check for both

4983

07:14:08,990 --> 07:14:03,718

of you and now on your dcms you can

4984

07:14:09,000 --> 07:14:14,930

okay and you can expect a warning tone

4985

07:14:14,940 --> 07:14:34,270

hours in SCU free YouTube

4986

07:14:38,930 --> 07:14:37,610

all right copy both guys from there we

4987

07:14:39,948 --> 07:14:38,940

are going to hand you over to Mark and

4988

07:14:45,830 --> 07:14:39,958

Raja

4989

07:14:48,650 --> 07:14:47,330

Drew and Johnny and the rest of the team

4990

07:14:50,208 --> 07:14:48,660

thanks for taking such great care of

4991

07:14:51,468 --> 07:14:50,218

these folks and uh accomplishing the

4992

07:14:54,650 --> 07:14:51,478

mission so well

4993

07:14:56,330 --> 07:14:54,660

Kayla and Tom I asked you to crush it

4994

07:14:57,948 --> 07:14:56,340

but man you all triple crushed it so

4995

07:15:02,090 --> 07:14:57,958

let's get you inside

4996

07:15:08,810 --> 07:15:02,100

a step on your DCM O2 actuator to press

4997

07:15:14,628 --> 07:15:11,090

ah

4998

07:15:20,208 --> 07:15:14,638

I O2 actually is impressed

4999

07:15:25,610 --> 07:15:23,030

six minutes six hours and 30 minutes

5000

07:15:26,868 --> 07:15:25,620

into the Eva NASA astronaut Mark Vande

5001
07:15:28,850 --> 07:15:26,878
high on the right of the screen is

5002
07:15:42,590 --> 07:15:28,860
walking the two spacewalking astronauts

5003
07:15:47,810 --> 07:15:45,288
copy ones impressed Tom check the EV

5004
07:15:51,468 --> 07:15:47,820
hatch mpet is closed

5005
07:15:53,150 --> 07:15:51,478
yeah EDS info is closed

5006
07:15:55,070 --> 07:15:53,160
okay I'm going to start repressing the

5007
07:15:56,270 --> 07:15:55,080
crew lock so I'm going to go to halfway

5008
07:15:57,288 --> 07:15:56,280
between off and normal for a couple

5009
07:15:58,670 --> 07:15:57,298
minutes let me know if you want me to

5010
07:16:17,410 --> 07:15:58,680
speed it up or slow it down or just

5011
07:16:37,810 --> 07:16:19,670
so far for me

5012
07:17:17,628 --> 07:16:40,610
when the crew lock gets to four PSI you

5013
07:17:23,510 --> 07:17:20,750

like I've got my feet in your face

5014

07:17:47,930 --> 07:17:23,520

they're all good okay

5015

07:17:51,468 --> 07:17:49,670

so would you both think about me

5016

07:17:56,048 --> 07:17:51,478

speeding this up a little bit

5017

07:18:00,650 --> 07:17:56,058

the Eva concluded at 11 47 a.m Central

5018

07:18:02,570 --> 07:18:00,660

1247 Eastern Time marking the end of the

5019

07:18:05,090 --> 07:18:02,580

end of a U.S Eva is marked when

5020

07:18:07,070 --> 07:18:05,100

repressurization has begun and the

5021

07:18:11,208 --> 07:18:07,080

pressure in the crew lock is climbing

5022

07:18:13,730 --> 07:18:11,218

it's at about 1.1 PSI the total time of

5023

07:18:24,048 --> 07:18:13,740

the spacewalk today was 6 hours and 32

5024

07:18:29,448 --> 07:18:26,590

a little bit more

5025

07:18:40,190 --> 07:18:29,458

okay a little more yep I'm ready for a

5026
07:18:43,368 --> 07:18:41,990
but it is getting hard for us to hear

5027
07:18:44,930 --> 07:18:43,378
you in here so you have to give me some

5028
07:19:04,510 --> 07:18:44,940
hand signals I did copy a little bit

5029
07:19:04,520 --> 07:19:09,288
doing good

5030
07:19:09,298 --> 07:19:12,730
great

5031
07:19:17,570 --> 07:19:14,930
potentially go a little bit higher but

5032
07:19:19,128 --> 07:19:17,580
maybe just leave it here yes I think I

5033
07:19:23,388 --> 07:19:19,138
could if you want to just pop it up a

5034
07:19:23,398 --> 07:19:30,410
I'm happy with this as well

5035
07:19:30,420 --> 07:19:34,610
give me a thumbs up

5036
07:19:34,620 --> 07:19:56,810
speed up a little bit more here we go

5037
07:20:07,128 --> 07:20:00,708
Mark if you could slow down a little bit

5038
07:20:20,388 --> 07:20:09,590

okay we're getting close to four PSI

5039

07:20:24,888 --> 07:20:22,548

okay our next step where we get the five

5040

07:20:26,330 --> 07:20:24,898

PSI I'm going to move the IV hash

5041

07:20:28,190 --> 07:20:26,340

Equalization valve to off we're waiting

5042

07:20:42,888 --> 07:20:28,200

for that you can expect another alert

5043

07:20:42,898 --> 07:20:53,690

well it didn't give me Z93 on me

5044

07:20:53,700 --> 07:20:59,690

happy nosy 93.

5045

07:20:59,700 --> 07:21:03,350

my knowledge I did not either

5046

07:21:03,360 --> 07:21:25,010

happy Kayla as well

5047

07:21:31,610 --> 07:21:27,230

okay we just hit 5 PSI we're starting

5048

07:21:31,620 --> 07:21:37,810

foreign

5049

07:21:43,250 --> 07:21:41,208

pressure to stabilize and then we'll see

5050

07:21:50,690 --> 07:21:43,260

what uh difference we get over the next

5051
07:21:53,628 --> 07:21:52,310
what do you think

5052
07:21:57,548 --> 07:21:53,638
this is awesome

5053
07:22:02,330 --> 07:22:00,170
and you just heard NASA astronaut

5054
07:22:05,150 --> 07:22:02,340
remarking on her very first spacewalk

5055
07:22:08,150 --> 07:22:05,160
that it was awesome

5056
07:22:10,968 --> 07:22:08,160
this was the 245th Eva for station

5057
07:22:13,070 --> 07:22:10,978
assembly maintenance and upgrades it was

5058
07:22:15,770 --> 07:22:13,080
a 13th spacewalk for the year

5059
07:22:18,170 --> 07:22:15,780
for the ISS this was marshburn's fifth

5060
07:22:20,690 --> 07:22:18,180
spacewalk giving him a total of 31 hours

5061
07:22:22,128 --> 07:22:20,700
one minute space walking time outside of

5062
07:22:24,468 --> 07:22:22,138
the space station

5063
07:22:26,628 --> 07:22:24,478

this is Baron's first ever spacewalk so

5064

07:22:29,448 --> 07:22:26,638

the total of today's spacewalk 6 hours

5065

07:22:32,330 --> 07:22:29,458

and 32 minutes is her record

5066

07:22:33,670 --> 07:22:32,340

since this is the 245th spacewalk that

5067

07:22:36,948 --> 07:22:33,680

totals

5068

07:22:40,310 --> 07:22:36,958

1548 hours and 26 minutes or the

5069

07:22:41,330 --> 07:22:40,320

equivalent of 64 days 12 hours and 26

5070

07:22:43,730 --> 07:22:41,340

minutes

5071

07:22:53,750 --> 07:22:43,740

this is the very first Eva of expedition

5072

07:23:00,288 --> 07:22:56,750

that was the uh Mass Vault it looked

5073

07:23:06,110 --> 07:23:02,810

expansion yeah

5074

07:23:10,910 --> 07:23:06,120

yeah it was I think it was just um

5075

07:23:12,110 --> 07:23:10,920

both goes so deep into that fitting

5076
07:23:13,670 --> 07:23:12,120
um

5077
07:23:15,350 --> 07:23:13,680
so it's really hard to get good

5078
07:23:18,590 --> 07:23:15,360
visibility on if you're like really

5079
07:23:20,170 --> 07:23:18,600
seated and if it's really driving

5080
07:23:23,330 --> 07:23:20,180
um

5081
07:23:25,368 --> 07:23:23,340
we got there yeah

5082
07:23:35,330 --> 07:23:25,378
there and now recapping with Tom how her

5083
07:23:41,930 --> 07:23:37,128
it was hard to tell until I really

5084
07:23:44,090 --> 07:23:41,940
thought when I had it fully engaged

5085
07:23:45,770 --> 07:23:44,100
you could actually see that Big Bolt

5086
07:23:46,430 --> 07:23:45,780
move down

5087
07:23:48,110 --> 07:23:46,440
um

5088
07:23:54,410 --> 07:23:48,120

it was hard to know that's what it was

5089

07:23:58,968 --> 07:23:56,090

part of the day for me was getting the

5090

07:24:00,708 --> 07:23:58,978

uh well those gimbal bolts were

5091

07:24:02,628 --> 07:24:00,718

but the APR was the hardest thing I had

5092

07:24:04,490 --> 07:24:02,638

to do today

5093

07:24:05,868 --> 07:24:04,500

have you ever used that that collar is

5094

07:24:07,250 --> 07:24:05,878

just

5095

07:24:09,170 --> 07:24:07,260

I think for sure you're at a heart

5096

07:24:11,690 --> 07:24:09,180

stopping it and grinds past that and

5097

07:24:19,250 --> 07:24:11,700

pops into the full locking collar yeah

5098

07:24:25,010 --> 07:24:22,190

the spacewalk began at 5 15 a.m Central

5099

07:24:27,350 --> 07:24:25,020

Time 6 15 a.m Eastern

5100

07:24:30,650 --> 07:24:27,360

nearly an hour ahead of schedule it

5101
07:24:36,590 --> 07:24:30,660
concluded at 11 47 a.m Central giving us

5102
07:24:42,410 --> 07:24:38,990
because they're so far in board from the

5103
07:24:44,990 --> 07:24:42,420
handrails right and um

5104
07:24:47,270 --> 07:24:45,000
having the you have to get pretty high

5105
07:24:49,670 --> 07:24:47,280
too because it's up on the frame and

5106
07:24:51,230 --> 07:24:49,680
time we had a good leak check so we're

5107
07:24:53,270 --> 07:24:51,240
going to continue on with the crew lock

5108
07:24:55,910 --> 07:24:53,280
repress copy so let's put your glove

5109
07:24:56,990 --> 07:24:55,920
heaters to off off my glove heaters are

5110
07:25:03,048 --> 07:24:57,000
off

5111
07:25:05,388 --> 07:25:04,310
all right John let me know when your

5112
07:25:06,968 --> 07:25:05,398
glove heaters are off and then we'll

5113
07:25:09,048 --> 07:25:06,978

press

5114

07:25:10,430 --> 07:25:09,058

air off now check your gloves for

5115

07:25:11,628 --> 07:25:10,440

contamination let us know if we've got

5116

07:25:13,610 --> 07:25:11,638

any

5117

07:25:16,730 --> 07:25:13,620

negative for one

5118

07:25:19,010 --> 07:25:16,740

big enough I have the dark smudges I

5119

07:25:22,128 --> 07:25:19,020

reported earlier but given that there

5120

07:25:24,288 --> 07:25:22,138

are uh black in color I think you can

5121

07:25:27,530 --> 07:25:24,298

confidently say that's not you know 1883

5122

07:25:35,350 --> 07:25:27,540

paint let's say no contamination thanks

5123

07:25:35,360 --> 07:25:39,530

Houston copies no issues

5124

07:25:42,888 --> 07:25:41,150

all right Houston's good with that and

5125

07:25:46,010 --> 07:25:42,898

we're going to continue on so on both of

5126
07:25:56,030 --> 07:25:46,020
your dcms take your O2 actuators to IV

5127
07:26:01,490 --> 07:25:58,850
TV2 O2 actuators and IV

5128
07:26:09,190 --> 07:26:01,500
yeah dv1 or two actuator is getting

5129
07:26:09,200 --> 07:26:35,330
Equalization valve to

5130
07:26:35,340 --> 07:26:48,750
foreign

5131
07:26:48,760 --> 07:27:09,410
[Applause]

5132
07:27:14,150 --> 07:27:11,330
I kind of expected that to be true

5133
07:27:17,330 --> 07:27:14,160
because that alignment pin can can

5134
07:27:19,190 --> 07:27:17,340
rotate about that alignment pin

5135
07:27:20,208 --> 07:27:19,200
um but until you get one bolt started

5136
07:27:27,888 --> 07:27:20,218
it's like

5137
07:27:35,868 --> 07:27:30,110
the PSI in the crew lock is steadily

5138
07:27:40,430 --> 07:27:38,690

your uh directions for the remove and

5139

07:27:44,570 --> 07:27:40,440

the install

5140

07:27:51,350 --> 07:27:46,788

yeah that worked out surprisingly well I

5141

07:28:03,410 --> 07:27:53,388

surprised it was like popping off that

5142

07:28:08,110 --> 07:28:05,090

I'm a Believer

5143

07:28:11,030 --> 07:28:08,120

gimbal crib sheet that uh

5144

07:28:12,888 --> 07:28:11,040

I kind of felt like what we ended up

5145

07:28:14,208 --> 07:28:12,898

doing should be was going to be what we

5146

07:28:16,730 --> 07:28:14,218

should do but

5147

07:28:20,750 --> 07:28:16,740

where they March through it it just uh

5148

07:28:20,760 --> 07:28:49,150

you guys worked through that really well

5149

07:28:52,968 --> 07:28:51,530

NASA astronauts Kayla Baron and Tom

5150

07:28:55,250 --> 07:28:52,978

marshburn

5151
07:29:00,650 --> 07:28:55,260
began their day by removing the degraded

5152
07:29:05,628 --> 07:29:03,948
oh wow so it kind of felt like you know

5153
07:29:07,730 --> 07:29:05,638
belly towards the Earth was an

5154
07:29:09,948 --> 07:29:07,740
interesting perspective to have there's

5155
07:29:11,570 --> 07:29:09,958
not a lot to hold on to I know yeah with

5156
07:29:13,430 --> 07:29:11,580
your um

5157
07:29:15,110 --> 07:29:13,440
you know you have your hand on those

5158
07:29:17,628 --> 07:29:15,120
handrails along the edges and then your

5159
07:29:19,250 --> 07:29:17,638
feet kind of dangling out over the edge

5160
07:29:29,208 --> 07:29:19,260
of the Earth

5161
07:29:33,288 --> 07:29:31,070
all right time Kayla we're getting this

5162
07:29:34,430 --> 07:29:33,298
close to getting the dpdt of about zero

5163
07:29:56,570 --> 07:29:34,440

when that happens you can expect an

5164

07:29:56,580 --> 07:30:00,548

or that uh

5165

07:30:05,750 --> 07:30:04,190

doing a radio frequency cable was I

5166

07:30:07,670 --> 07:30:05,760

forget what they call it

5167

07:30:11,530 --> 07:30:07,680

on top of the system of this assassinet

5168

07:30:15,110 --> 07:30:11,540

that was just right there right anyway

5169

07:30:20,150 --> 07:30:15,120

we are going to 1.240 the post Eva

5170

07:30:28,730 --> 07:30:22,788

the pressure in the crew lock now 14.7

5171

07:30:28,740 --> 07:30:37,910

foreign

5172

07:30:37,920 --> 07:30:41,690

buddy

5173

07:30:45,888 --> 07:30:43,910

NASA astronaut Mark Vander High working

5174

07:30:48,650 --> 07:30:45,898

to open the hatch so that Baron and

5175

07:31:00,048 --> 07:30:48,660

marshburn can come through

5176
07:31:00,058 --> 07:32:07,208
foreign

5177
07:32:13,070 --> 07:32:09,590
working to get the first spacewalker

5178
07:32:17,448 --> 07:32:14,208
thank you

5179
07:32:37,010 --> 07:32:17,458
very lucky Houston on one the EV crew is

5180
07:32:41,570 --> 07:32:39,110
and it looks like Kayla Baron having

5181
07:32:50,930 --> 07:32:41,580
just completed her very first spacewalk

5182
07:32:55,968 --> 07:32:52,968
Chari and Vanda high now working to

5183
07:32:57,770 --> 07:32:55,978
remove her safer units the jetpack type

5184
07:33:00,048 --> 07:32:57,780
backpack that would have been used in

5185
07:33:51,548 --> 07:33:00,058
case of an emergency was not needed

5186
07:33:58,190 --> 07:33:54,830
Baron's safer unit is now removed

5187
07:33:59,510 --> 07:33:58,200
you can see Tom marshburn still in the

5188
07:34:02,090 --> 07:33:59,520

airlock

5189

07:34:22,448 --> 07:34:02,100

in the crew lock he's got the suit with

5190

07:34:26,810 --> 07:34:24,830

astronauts Kayla Baron and Tom marshburn

5191

07:34:29,150 --> 07:34:26,820

began their day by removing a degraded

5192

07:34:31,910 --> 07:34:29,160

s-band sub-assembly just one of many

5193

07:34:34,010 --> 07:34:31,920

Communications antenna aboard the space

5194

07:34:35,868 --> 07:34:34,020

station it had lost partial

5195

07:34:37,670 --> 07:34:35,878

functionality a few months ago but

5196

07:34:39,410 --> 07:34:37,680

thanks to several redundancies built in

5197

07:34:41,150 --> 07:34:39,420

the crew saw very minimal impact to

5198

07:34:43,368 --> 07:34:41,160

their operations

5199

07:34:45,708 --> 07:34:43,378

they brought a spare sassa already on

5200

07:34:47,510 --> 07:34:45,718

board connected to the express Logistics

5201
07:34:49,310 --> 07:34:47,520
carrier number three

5202
07:34:50,750 --> 07:34:49,320
and put it in the degraded sasa's place

5203
07:34:52,730 --> 07:34:50,760
on the P1 truss of the International

5204
07:34:54,708 --> 07:34:52,740
Space Station

5205
07:34:56,810 --> 07:34:54,718
they got this bear installed hooked up

5206
07:34:58,968 --> 07:34:56,820
turned on and they did a Communications

5207
07:35:00,530 --> 07:34:58,978
check to verify that it worked

5208
07:35:01,910 --> 07:35:00,540
the team here in Mission Control

5209
07:35:04,010 --> 07:35:01,920
confirmed that they saw the

5210
07:35:05,690 --> 07:35:04,020
communications antenna online and that

5211
07:35:08,448 --> 07:35:05,700
they heard the voice check

5212
07:35:09,888 --> 07:35:08,458
the spacewalkers restored s-band

5213
07:35:11,628 --> 07:35:09,898

capability to the International Space

5214

07:35:13,788 --> 07:35:11,638

Station this morning

5215

07:35:16,368 --> 07:35:13,798

they wrapped up the day by stowing the

5216

07:35:17,750 --> 07:35:16,378

degraded antenna hooking it up to a heat

5217

07:35:20,448 --> 07:35:17,760

source and tucking it in for the night

5218

07:35:21,770 --> 07:35:20,458

with a thermal blanket covering Kayla

5219

07:35:23,930 --> 07:35:21,780

Baron was able to complete some get

5220

07:35:26,388 --> 07:35:23,940

ahead tasks including breaking torque on

5221

07:35:28,430 --> 07:35:26,398

some of the bolts on the battery charge

5222

07:35:31,610 --> 07:35:28,440

and discharge units and connecting some

5223

07:35:31,620 --> 07:35:41,208

both are now in the equipment lock

5224

07:35:44,770 --> 07:35:43,128

they completed all of their tasks for

5225

07:35:47,570 --> 07:35:44,780

today including the get ahead tax

5226
07:35:50,270 --> 07:35:47,580
including the get ahead tasks and in the

5227
07:35:53,030 --> 07:35:50,280
words of astronaut Mark Vanda high in

5228
07:36:06,190 --> 07:35:53,040
the farther part of your screen they

5229
07:36:10,850 --> 07:36:08,750
marshburn wrapped up his fifth Eva with

5230
07:36:12,288 --> 07:36:10,860
his career with some kind words noting

5231
07:36:14,208 --> 07:36:12,298
that it was unbelievable that everyone

5232
07:36:16,430 --> 07:36:14,218
was able to pull this together in just a

5233
07:36:19,730 --> 07:36:16,440
few weeks and gave a nod to his support

5234
07:36:22,430 --> 07:36:19,740
team including Eva officer art Thomason

5235
07:36:23,388 --> 07:36:22,440
our flight director Vincent lacorte and

5236
07:36:25,010 --> 07:36:23,398
all the folks here on the ground

5237
07:37:22,788 --> 07:36:25,020
including those monitoring the

5238
07:37:22,798 --> 07:38:08,110

we can

5239

07:38:13,968 --> 07:38:10,670

your location on one friendly reminder

5240

07:39:38,868 --> 07:38:13,978

to perform step 17 decimal one for the

5241

07:39:42,830 --> 07:39:41,208

Charlie and Vanda hi on your screen

5242

07:39:45,770 --> 07:39:42,840

helping the spacewalkers out of their

5243

07:39:48,468 --> 07:39:45,780

spacesuit now that it has concluded

5244

07:39:49,850 --> 07:39:48,478

following this they'll take their gloves

5245

07:39:51,770 --> 07:39:49,860

and helmet off

5246

07:44:06,610 --> 07:39:51,780

get the rest of their spacesuits off and

5247

07:44:12,590 --> 07:44:09,468

Caleb Barron's helmet is now off as she

5248

07:44:15,170 --> 07:44:12,600

works to get her gloves off next up

5249

07:44:46,250 --> 07:44:15,180

we're about to see rajachar as he helps

5250

07:44:53,350 --> 07:44:48,650

and there we have NASA astronaut Tom

5251
07:44:57,530 --> 07:44:55,850
this concludes the spacewalk for these

5252
07:44:58,850 --> 07:44:57,540
two NASA astronauts now that they've

5253
07:45:00,410 --> 07:44:58,860
accomplished their goal of restoring

5254
07:45:04,190 --> 07:45:00,420
s-band capability to the International

5255
07:45:07,310 --> 07:45:04,200
Space Station in 6 hours and 32 hours of

5256
07:45:10,610 --> 07:45:07,320
space walking time replacing

5257
07:45:14,270 --> 07:45:10,620
a degraded Sasa unit with a spare on

5258
07:45:16,430 --> 07:45:14,280
board the space swap concluded at 11 47

5259
07:45:18,590 --> 07:45:16,440
a.m Central Time

5260
07:45:20,510 --> 07:45:18,600
marshburn officially had his fifth face

5261
07:45:23,030 --> 07:45:20,520
walk in the books giving him a total of

5262
07:45:25,070 --> 07:45:23,040
31 hours one minute suited up and

5263
07:45:26,930 --> 07:45:25,080

supporting space station maintenance and

5264

07:45:28,788 --> 07:45:26,940

assembly on a spacewalk

5265

07:45:30,888 --> 07:45:28,798

Kayla Baron concluded her very first

5266

07:45:34,850 --> 07:45:30,898

spacewalk of her career ending it with a

5267

07:45:37,490 --> 07:45:34,860

riveting review saying it was awesome

5268

07:45:40,490 --> 07:45:37,500

next up NASA will introduce its 2021

5269

07:45:42,770 --> 07:45:40,500

class of astronauts at 12 30 PM eastern

5270

07:45:44,448 --> 07:45:42,780

time on Monday December 6th from

5271

07:45:47,090 --> 07:45:44,458

Ellington fields from right here at

5272

07:45:48,888 --> 07:45:47,100

NASA's Johnson Space Center in Houston

5273

07:45:50,750 --> 07:45:48,898

after completing their training these

5274

07:45:52,730 --> 07:45:50,760

individuals could be eligible for a

5275

07:45:54,948 --> 07:45:52,740

variety of flight assignments including

5276

07:45:56,930 --> 07:45:54,958

missions on and around the Moon through

5277

07:45:58,788 --> 07:45:56,940

NASA's Artemis program

5278

07:46:00,770 --> 07:45:58,798

one of our space Walkers today Kayla

5279

07:46:02,810 --> 07:46:00,780

Baron on the left of your screen along

5280

07:46:05,030 --> 07:46:02,820

with rajachary there in the middle

5281

07:46:07,430 --> 07:46:05,040

who helped operate the robotic arm were

5282

07:46:09,350 --> 07:46:07,440

selected back in 2017 which is the last

5283

07:46:11,990 --> 07:46:09,360

time NASA brought new additions to the

5284

07:46:14,448 --> 07:46:12,000

astronaut core now in 2021 we're ready

5285

07:46:17,448 --> 07:46:14,458

to do it again so tune in to find out

5286

07:46:19,190 --> 07:46:17,458

who these individuals might be

5287

07:46:36,730 --> 07:46:19,200

thanks everyone for following along and

5288

07:46:42,590 --> 07:46:39,830

we see deep into the heart and veins of

5289

07:46:44,510 --> 07:46:42,600

our ever-changing planet pictures of

5290

07:46:47,388 --> 07:46:44,520

Earth are worth more than a thousand

5291

07:46:50,510 --> 07:46:47,398

words they are the blueprint for our

5292

07:46:52,910 --> 07:46:50,520

future to unlock the full potential of