



1  
00:00:09,430 --> 00:00:04,430  
[Music]

2  
00:00:09,440 --> 00:00:15,520  
[Laughter]

3  
00:00:15,530 --> 00:00:40,850  
[Music]

4  
00:00:40,860 --> 00:00:54,120  
foreign

5  
00:00:54,130 --> 00:01:04,850  
[Music]

6  
00:01:08,750 --> 00:01:06,710  
good morning from the International

7  
00:01:10,310 --> 00:01:08,760  
Space Station flight control room head

8  
00:01:12,950 --> 00:01:10,320  
to the Johnson Space Center in Houston

9  
00:01:16,609 --> 00:01:12,960  
and Mission Control as we begin our

10  
00:01:18,410 --> 00:01:16,619  
coverage today of U.S spacewalk 82 you

11  
00:01:20,510 --> 00:01:18,420  
are looking live inside the equipment

12  
00:01:23,210 --> 00:01:20,520  
lock of the quest airlock of the

13  
00:01:24,950 --> 00:01:23,220

International Space Station as the two

14

00:01:27,530 --> 00:01:24,960

astronauts who will venture outside the

15

00:01:29,749 --> 00:01:27,540

quest airlock a short time from now Josh

16

00:01:32,090 --> 00:01:29,759

cassida who is on the right side of your

17

00:01:34,190 --> 00:01:32,100

screen wearing the suit bearing the red

18

00:01:36,350 --> 00:01:34,200

stripes and just hidden from the field

19

00:01:39,770 --> 00:01:36,360

of view Frank Rubio who's on the left

20

00:01:41,630 --> 00:01:39,780

side being attended to by koichiwakata

21

00:01:44,569 --> 00:01:41,640

from the Japan Aerospace Exploration

22

00:01:46,969 --> 00:01:44,579

Agency and NASA astronaut Nicole Mann

23

00:01:49,010 --> 00:01:46,979

there you see Rubio on the left those

24

00:01:50,810 --> 00:01:49,020

are our two astronauts for today who

25

00:01:53,870 --> 00:01:50,820

will venture outside for a spacewalk

26  
00:01:56,210 --> 00:01:53,880  
expected to last about seven hours the

27  
00:01:58,010 --> 00:01:56,220  
focus of which will be on the starboard

28  
00:02:00,950 --> 00:01:58,020  
Fortress of the International Space

29  
00:02:04,490 --> 00:02:00,960  
Station to install and monitor the

30  
00:02:07,490 --> 00:02:04,500  
deployment of one of the iroses the ISS

31  
00:02:09,650 --> 00:02:07,500  
roll out solar arrays one of two that

32  
00:02:12,470 --> 00:02:09,660  
were delivered on a SpaceX cargo Dragon

33  
00:02:15,890 --> 00:02:12,480  
resupply craft last Sunday to the

34  
00:02:20,930 --> 00:02:19,369  
the spacewalk today is the 256th in

35  
00:02:23,150 --> 00:02:20,940  
support of space station assembly

36  
00:02:25,190 --> 00:02:23,160  
maintenance and upgrades the third

37  
00:02:28,610 --> 00:02:25,200  
spacewalk that is scheduled for

38  
00:02:30,170 --> 00:02:28,620

Expedition 68 so far this year the 11th

39

00:02:34,190 --> 00:02:30,180

out of the International Space Station

40

00:02:36,890 --> 00:02:34,200

in 2022 cassida and Rubio ventured

41

00:02:39,650 --> 00:02:36,900

outside back on November 15th for a

42

00:02:41,990 --> 00:02:39,660

seven hour 11-minute spacewalk in which

43

00:02:45,229 --> 00:02:42,000

they installed a so-called modification

44

00:02:46,610 --> 00:02:45,239

kit basically a series of brackets on

45

00:02:51,530 --> 00:02:46,620

the

46

00:02:54,350 --> 00:02:51,540

International Space Station for a future

47

00:02:56,210 --> 00:02:54,360

spacewalk in which an irosa and ISS

48

00:02:58,970 --> 00:02:56,220

rollout solar array will be installed

49

00:03:01,309 --> 00:02:58,980

for the 1B power channel of the

50

00:03:03,290 --> 00:03:01,319

International Space Station that 1B

51  
00:03:05,449 --> 00:03:03,300  
channel will be a prime factor in

52  
00:03:07,670 --> 00:03:05,459  
today's spacewalk activities we'll be

53  
00:03:12,589 --> 00:03:07,680  
talking more about that in just a second

54  
00:03:15,170 --> 00:03:12,599  
the irosa to be unfurled today to work

55  
00:03:17,809 --> 00:03:15,180  
in concert with its Legacy solar array

56  
00:03:20,869 --> 00:03:17,819  
on the starboard Fortress again

57  
00:03:24,290 --> 00:03:20,879  
delivered last Sunday on a SpaceX cargo

58  
00:03:26,390 --> 00:03:24,300  
Dragon resupply craft will be removed

59  
00:03:29,210 --> 00:03:26,400  
from a Flight Support structure on the

60  
00:03:32,149 --> 00:03:29,220  
truss of the station it will be hand

61  
00:03:36,229 --> 00:03:32,159  
carried by cassida who will be affixed

62  
00:03:38,449 --> 00:03:36,239  
in the manipulator foot restraints on

63  
00:03:42,110 --> 00:03:38,459

the end of the space station robotic arm

64

00:03:44,869 --> 00:03:42,120

the canadarm II and transported from the

65

00:03:47,990 --> 00:03:44,879

stowage position in which the array is

66

00:03:51,350 --> 00:03:48,000

located at the moment over to a bracket

67

00:03:53,330 --> 00:03:51,360

that was installed back in March of the

68

00:03:55,910 --> 00:03:53,340

International Space Station's spacewalk

69

00:03:59,330 --> 00:03:55,920

array to be installed on the starboard

70

00:04:01,670 --> 00:03:59,340

for truss and then unfurled that ISS

71

00:04:04,070 --> 00:04:01,680

solo rollout solar array to work in

72

00:04:05,869 --> 00:04:04,080

concert to augment the electrical output

73

00:04:13,429 --> 00:04:05,879

of the

74

00:04:21,909 --> 00:04:16,969

we are in the two minute first time hold

75

00:04:21,919 --> 00:04:26,450

concur with all two good numbers

76

00:04:31,670 --> 00:04:28,670

Nicole Mann reading out spacesuit

77

00:04:33,890 --> 00:04:31,680

readings uh back to Mission Control here

78

00:04:35,870 --> 00:04:33,900

in Houston the crew is running about 10

79

00:04:37,909 --> 00:04:35,880

minutes ahead of the timeline in their

80

00:04:39,650 --> 00:04:37,919

spacewalk preparations they won't get

81

00:04:42,050 --> 00:04:39,660

too much further ahead of the timeline

82

00:04:44,810 --> 00:04:42,060

though deliberately because all of the

83

00:04:48,290 --> 00:04:44,820

spacewalk work today is going to be

84

00:04:50,930 --> 00:04:48,300

timed out in explicit choreography to

85

00:04:53,330 --> 00:04:50,940

match the time that some of the work has

86

00:04:58,189 --> 00:04:53,340

to be done while we're in darkness or

87

00:05:00,110 --> 00:04:58,199

Eclipse that will match the time for the

88

00:05:01,730 --> 00:05:00,120

mounting of the solar array its

89

00:05:04,550 --> 00:05:01,740

electrical connections and ultimately

90

00:05:06,550 --> 00:05:04,560

the demating of one of four electrical

91

00:05:09,770 --> 00:05:06,560

connectors for the 1B

92

00:05:12,590 --> 00:05:09,780

power Channel solar array that we'll

93

00:05:15,290 --> 00:05:12,600

talk about in just a second just to

94

00:05:18,230 --> 00:05:15,300

recap the bidding on the ISS rollout

95

00:05:20,570 --> 00:05:18,240

solar arrays the current the original

96

00:05:23,270 --> 00:05:20,580

solar arrays called The Legacy arrays

97

00:05:25,430 --> 00:05:23,280

although performing extremely well over

98

00:05:28,430 --> 00:05:25,440

the course of time are showing some

99

00:05:30,409 --> 00:05:28,440

signs of degradation as expected so to

100

00:05:32,930 --> 00:05:30,419

ensure a sufficient power supply is

101  
00:05:35,570 --> 00:05:32,940  
maintained for the International Space

102  
00:05:39,350 --> 00:05:35,580  
Station NASA is in the process of

103  
00:05:41,029 --> 00:05:39,360  
augmenting the existing solar arrays and

104  
00:05:44,390 --> 00:05:41,039  
the power channels for the station

105  
00:05:46,670 --> 00:05:44,400  
accompanied by those new solar arrays

106  
00:05:48,710 --> 00:05:46,680  
ultimately this will provide about a 20

107  
00:05:51,010 --> 00:05:48,720  
to 30 percent increase in power for

108  
00:05:53,930 --> 00:05:51,020  
space station research and operations

109  
00:05:55,969 --> 00:05:53,940  
the new arrays the iroses two of which

110  
00:05:58,550 --> 00:05:55,979  
have already been installed today will

111  
00:06:01,189 --> 00:05:58,560  
be the third of six currently planned

112  
00:06:04,070 --> 00:06:01,199  
for installation these new arrays will

113  
00:06:06,170 --> 00:06:04,080

shade slightly over half of the length

114

00:06:08,210 --> 00:06:06,180  
of the existing arrays and will be

115

00:06:10,969 --> 00:06:08,220  
connected to the same power system again

116

00:06:13,010 --> 00:06:10,979  
augmenting and boosting the existing

117

00:06:15,110 --> 00:06:13,020  
power supply for space station

118

00:06:17,029 --> 00:06:15,120  
operations

119

00:06:19,249 --> 00:06:17,039  
the eight current arrays the original

120

00:06:22,070 --> 00:06:19,259  
arrays are currently capable of

121

00:06:24,230 --> 00:06:22,080  
generating about 160 Watts kilowatts of

122

00:06:27,950 --> 00:06:24,240  
power during orbital daytime when the

123

00:06:29,629 --> 00:06:27,960  
station is flying in daylight half of

124

00:06:31,670 --> 00:06:29,639  
that power is stored in the station's

125

00:06:34,550 --> 00:06:31,680  
batteries for use while the station is

126  
00:06:36,469 --> 00:06:34,560  
in darkness each new solar array the

127  
00:06:38,870 --> 00:06:36,479  
panels will produce more than 20

128  
00:06:40,969 --> 00:06:38,880  
kilowatts of electricity eventually

129  
00:06:43,550 --> 00:06:40,979  
totaling about 120 kilowatts of

130  
00:06:46,730 --> 00:06:43,560  
augmented power during the time the

131  
00:06:48,830 --> 00:06:46,740  
station flies during orbital daylight in

132  
00:06:50,870 --> 00:06:48,840  
addition the remaining uncovered solar

133  
00:06:52,430 --> 00:06:50,880  
arrays and the partially uncovered

134  
00:06:55,969 --> 00:06:52,440  
original arrays will continue to

135  
00:06:58,189 --> 00:06:55,979  
generate about 95 kilowatts of power so

136  
00:07:01,909 --> 00:06:58,199  
ultimately we're going to wind up with

137  
00:07:04,550 --> 00:07:01,919  
some 215 kilowatts or so of power for

138  
00:07:05,629 --> 00:07:04,560

the International Space Station this is

139

00:07:08,270 --> 00:07:05,639

uh

140

00:07:11,090 --> 00:07:08,280

going to enable us to increase the

141

00:07:13,490 --> 00:07:11,100

amount of research and utilization in

142

00:07:17,510 --> 00:07:13,500

the future years of station operations

143

00:07:20,510 --> 00:07:17,520

the ISS rollout solar arrays again this

144

00:07:22,969 --> 00:07:20,520

is the third in the series of six that

145

00:07:25,909 --> 00:07:22,979

are currently planned to be installed

146

00:07:29,330 --> 00:07:25,919

the other two arrays that have already

147

00:07:32,150 --> 00:07:29,340

been installed are on the port side at

148

00:07:33,830 --> 00:07:32,160

the 1A and 1B power channels those are

149

00:07:36,409 --> 00:07:33,840

the ones that have already been

150

00:07:38,589 --> 00:07:36,419

installed today we're operating on the

151  
00:07:41,689 --> 00:07:38,599  
starboard Fortress to install the power

152  
00:07:45,230 --> 00:07:41,699  
the ISS rollout solar array to augment

153  
00:07:47,870 --> 00:07:45,240  
power for the 3A power channel the next

154  
00:07:51,469 --> 00:07:47,880  
spacewalk that is scheduled for Rubio

155  
00:07:54,409 --> 00:07:51,479  
and cassida is planned for December 19th

156  
00:07:56,390 --> 00:07:54,419  
that we'll see them duplicate their

157  
00:07:59,749 --> 00:07:56,400  
efforts that they will undertake today

158  
00:08:01,430 --> 00:07:59,759  
but this time on the port Fortress of

159  
00:08:03,830 --> 00:08:01,440  
the International Space Station on

160  
00:08:07,189 --> 00:08:03,840  
December 19th when they install a

161  
00:08:09,230 --> 00:08:07,199  
rollout solar array for the the 4A power

162  
00:08:12,050 --> 00:08:09,240  
Channel now

163  
00:08:15,110 --> 00:08:12,060

if time permits at the back end of

164

00:08:17,930 --> 00:08:15,120

today's spacewalk Activity The Crew will

165

00:08:19,730 --> 00:08:17,940

conduct one final important task that

166

00:08:22,869 --> 00:08:19,740

being the demating of one of four

167

00:08:25,610 --> 00:08:22,879

electrical connectors on the

168

00:08:28,010 --> 00:08:25,620

neighboring starboard six trust where

169

00:08:30,710 --> 00:08:28,020

the 1B power Channel solar array is

170

00:08:35,449 --> 00:08:33,230

about a week and a half ago there was a

171

00:08:37,430 --> 00:08:35,459

Power Trip on that solar array very

172

00:08:39,709 --> 00:08:37,440

similar to what we saw back in March

173

00:08:43,730 --> 00:08:39,719

that reduced the power augmentation

174

00:08:46,010 --> 00:08:43,740

capability for the 1B solar array last

175

00:08:47,870 --> 00:08:46,020

about 10 days ago in the latest Power

176

00:08:51,829 --> 00:08:47,880

Trip occurred it took down the 1B

177

00:08:53,690 --> 00:08:51,839

Channel altogether the power output for

178

00:08:56,570 --> 00:08:53,700

the systems associated with the 1B

179

00:08:59,509 --> 00:08:56,580

channel are currently being taken over

180

00:09:02,030 --> 00:08:59,519

by the 1A power Channel without any

181

00:09:03,949 --> 00:09:02,040

impact to station operations or any

182

00:09:06,889 --> 00:09:03,959

research activities aboard the station

183

00:09:09,769 --> 00:09:06,899

however in order to get that 1B power

184

00:09:12,769 --> 00:09:09,779

Channel back up and running at some 75

185

00:09:15,530 --> 00:09:12,779

percent of capacity it will be necessary

186

00:09:17,570 --> 00:09:15,540

for Casita and Rubio to demate one of

187

00:09:19,850 --> 00:09:17,580

four electrical connectors very similar

188

00:09:22,190 --> 00:09:19,860

to what they'll be demating for the

189

00:09:25,130 --> 00:09:22,200

installation of the ISS rollout solar

190

00:09:27,710 --> 00:09:25,140

array during today's spacewalk once they

191

00:09:29,690 --> 00:09:27,720

demate that connector the 1B power

192

00:09:31,790 --> 00:09:29,700

channel can be reactivated by the

193

00:09:35,030 --> 00:09:31,800

electrical systems office sir here in

194

00:09:38,150 --> 00:09:35,040

Mission Control to get back to about 75

195

00:09:40,670 --> 00:09:38,160

percent of its augmented capability and

196

00:09:42,769 --> 00:09:40,680

that will bring the 1B power Channel

197

00:09:46,250 --> 00:09:42,779

back online albeit at a slightly

198

00:09:49,730 --> 00:09:46,260

degraded State while it away awaits the

199

00:09:52,190 --> 00:09:49,740

installation of its ISS rollout solar

200

00:09:55,550 --> 00:09:52,200

array to be delivered on a SpaceX cargo

201  
00:10:00,050 --> 00:09:56,690  
if

202  
00:10:04,310 --> 00:10:00,060  
we can't complete either the complete

203  
00:10:06,889 --> 00:10:04,320  
installation and unfurling of the ISS

204  
00:10:09,829 --> 00:10:06,899  
rollout solar array for the 3A power

205  
00:10:12,410 --> 00:10:09,839  
Channel today or if we can't finish the

206  
00:10:15,350 --> 00:10:12,420  
demating of the electrical connector to

207  
00:10:18,110 --> 00:10:15,360  
enable us to reactivate the 1B power

208  
00:10:20,150 --> 00:10:18,120  
Channel then an additional spacewalk

209  
00:10:22,730 --> 00:10:20,160  
likely would be added this coming

210  
00:10:25,490 --> 00:10:22,740  
Wednesday December 7th that would see

211  
00:10:27,470 --> 00:10:25,500  
kasada and Rubio venture outside once

212  
00:10:29,630 --> 00:10:27,480  
again to complete the work that they

213  
00:10:32,269 --> 00:10:29,640

would not be able to complete at the end

214

00:10:34,670 --> 00:10:32,279

of today's Excursion however we're

215

00:10:37,490 --> 00:10:34,680

expecting today's spacewalk to last

216

00:10:40,009 --> 00:10:37,500

about seven hours in duration and at

217

00:10:43,130 --> 00:10:40,019

least the plan going in is to get that

218

00:10:45,290 --> 00:10:43,140

irosa for the 3A power Channel fully

219

00:10:47,389 --> 00:10:45,300

deployed fully installed and deployed

220

00:10:49,670 --> 00:10:47,399

and to demate that one electrical

221

00:10:52,670 --> 00:10:49,680

connector on the 1B power channel on the

222

00:10:55,190 --> 00:10:52,680

starboard 6 truss to enable flight

223

00:10:57,769 --> 00:10:55,200

controllers to reactivate the 1B power

224

00:11:31,150 --> 00:10:57,779

Channel and get it up and running to 75

225

00:11:37,430 --> 00:11:34,430

as you watch koichiwakata of the Japan

226

00:11:40,610 --> 00:11:37,440

Aerospace Exploration Agency attach the

227

00:11:42,410 --> 00:11:40,620

equipment to Josh cassida's spacesuit he

228

00:11:44,269 --> 00:11:42,420

will do the same to Frank Rubio who's on

229

00:11:46,730 --> 00:11:44,279

the left side of your screen a short

230

00:11:50,030 --> 00:11:46,740

time from now this in preparation for

231

00:11:53,269 --> 00:11:50,040

the installation of the safer units the

232

00:11:55,490 --> 00:11:53,279

simplified aid for Eva rescue units jet

233

00:11:57,590 --> 00:11:55,500

powered backpacks that space Walkers

234

00:12:00,829 --> 00:11:57,600

wear when they go out into the vacuum of

235

00:12:02,269 --> 00:12:00,839

space that enables them in the highly

236

00:12:05,150 --> 00:12:02,279

unlikely event they would become

237

00:12:07,069 --> 00:12:05,160

untethered to propel themselves back to

238

00:12:09,710 --> 00:12:07,079

the safety of structure on the

239

00:12:11,329 --> 00:12:09,720

International Space Station both crew

240

00:12:14,150 --> 00:12:11,339

members will have their safer units

241

00:12:17,210 --> 00:12:14,160

attached and then they will be moved one

242

00:12:19,490 --> 00:12:17,220

by one into the back section or the crew

243

00:12:21,530 --> 00:12:19,500

lock section of the International Space

244

00:12:25,370 --> 00:12:21,540

Station's Quest airlock the hatch will

245

00:12:27,710 --> 00:12:25,380

be closed and then plans will begin for

246

00:12:30,470 --> 00:12:27,720

the depressurization of the airlock in a

247

00:12:32,630 --> 00:12:30,480

two-step fashion down to vacuum first

248

00:12:35,210 --> 00:12:32,640

down to five pounds per square inch of

249

00:12:36,889 --> 00:12:35,220

pressure then down to vacuum prior to

250

00:12:39,170 --> 00:12:36,899

the time the crew had placed their suits

251  
00:12:42,530 --> 00:12:39,180  
on battery power to Mark the official

252  
00:12:44,990 --> 00:12:42,540  
start of today's spacewalk a U.S based

253  
00:12:46,730 --> 00:12:45,000  
spacewalk out of the quest airlock its

254  
00:12:48,889 --> 00:12:46,740  
elapsed time is measured from battery

255  
00:12:50,810 --> 00:12:48,899  
power on for the crew on their

256  
00:12:53,290 --> 00:12:50,820  
spacesuits to the top time they're back

257  
00:12:57,110 --> 00:12:53,300  
inside and repressurize begin the

258  
00:12:59,449 --> 00:12:57,120  
repressurization of the airlock

259  
00:13:02,690 --> 00:12:59,459  
today's spacewalk again very intricate

260  
00:13:05,750 --> 00:13:02,700  
and very well choreographed to see the

261  
00:13:10,850 --> 00:13:05,760  
installation and unfurling of one of the

262  
00:13:13,490 --> 00:13:10,860  
two ISS rollout solar arrays on the 3 8

263  
00:13:15,470 --> 00:13:13,500

power Channel or the starboard Fortress

264

00:13:17,509 --> 00:13:15,480  
of the International Space Station to

265

00:13:20,329 --> 00:13:17,519  
boost the power capability for that

266

00:13:22,310 --> 00:13:20,339  
power Channel we have an animation that

267

00:13:24,769 --> 00:13:22,320  
is narrated by the lead spacewalk

268

00:13:26,629 --> 00:13:24,779  
officer today Chris Mundy in which he

269

00:13:28,970 --> 00:13:26,639  
will explain all of the work to be

270

00:13:32,750 --> 00:13:28,980  
performed outside by Josh cassida and

271

00:13:37,790 --> 00:13:36,350  
as the Eva begins Josh cassida as ev1

272

00:13:40,430 --> 00:13:37,800  
and the red stripes will egress the

273

00:13:42,829 --> 00:13:40,440  
airlock first followed by ev2 Frank

274

00:13:44,569 --> 00:13:42,839  
Rubio with the White Stripes they will

275

00:13:45,769 --> 00:13:44,579  
each grab a bag and then both crew

276  
00:13:50,569 --> 00:13:45,779  
members will translate out to a location

277  
00:13:54,410 --> 00:13:52,790  
ev1 will head to the irosa carrier that

278  
00:13:56,389 --> 00:13:54,420  
has the stowed solar arrays to begin

279  
00:13:58,129 --> 00:13:56,399  
setting up that work site by snowing his

280  
00:14:04,490 --> 00:13:58,139  
crew lock bag on a handrail and

281  
00:14:09,769 --> 00:14:06,110  
one will then release the first

282  
00:14:13,569 --> 00:14:09,779  
restraint bolt on the irosa

283  
00:14:17,750 --> 00:14:15,710  
will head outboard to drop off their

284  
00:14:30,170 --> 00:14:17,760  
cable bag then retrieve and Stow their

285  
00:14:34,790 --> 00:14:32,870  
get the irosa carrier ev1 will retrieve

286  
00:14:36,530 --> 00:14:34,800  
an articulating portable foot restraint

287  
00:14:40,490 --> 00:14:36,540  
and install it on the end of the Space

288  
00:14:40,500 --> 00:14:47,350

foreign

289

00:14:51,710 --> 00:14:49,550

ingresses that foot restraint providing

290

00:14:53,150 --> 00:14:51,720

a stable platform to allow the irosa to

291

00:14:56,590 --> 00:14:53,160

be carried from the carrier out to the

292

00:15:01,129 --> 00:14:59,210

once complete at the mod kit ev2

293

00:15:02,990 --> 00:15:01,139

translates inboard and begins preparing

294

00:15:06,170 --> 00:15:03,000

the irosa for removal from the carrier

295

00:15:08,689 --> 00:15:06,180

first ev2 will release two anti-rotation

296

00:15:10,430 --> 00:15:08,699

devices from the carrier these devices

297

00:15:11,990 --> 00:15:10,440

secure the primary restraint bolts

298

00:15:16,790 --> 00:15:12,000

during the high vibration load seen

299

00:15:21,110 --> 00:15:19,009

ev2 will then partially release the

300

00:15:22,610 --> 00:15:21,120

primary restraint bolts and install the

301  
00:15:24,949 --> 00:15:22,620  
first of two handling Gates called

302  
00:15:27,360 --> 00:15:24,959  
Scoops in preparation for removing the

303  
00:15:40,910 --> 00:15:27,370  
Arosa from the carrier

304  
00:15:44,150 --> 00:15:40,920  
[Music]

305  
00:15:46,189 --> 00:15:44,160  
on the robotic arm ev1 will fly over to

306  
00:15:48,710 --> 00:15:46,199  
access two sets of bolts on the boom end

307  
00:15:50,629 --> 00:15:48,720  
of the irosa the first two bolts will

308  
00:15:53,210 --> 00:15:50,639  
allow the boom deployment system rollers

309  
00:15:55,310 --> 00:15:53,220  
to be moved into place later helping the

310  
00:15:57,470 --> 00:15:55,320  
arrays during deployment

311  
00:15:59,689 --> 00:15:57,480  
the second two bolts will release two of

312  
00:16:03,170 --> 00:15:59,699  
four mechanisms holding the Arosa in its

313  
00:16:08,090 --> 00:16:05,810

the robotic arm will then fly ev1 over

314

00:16:09,530 --> 00:16:08,100

to the other side of the irosa and both

315

00:16:11,629 --> 00:16:09,540

crew members will work together to

316

00:16:15,230 --> 00:16:11,639

release the final bolt holding Arosa to

317

00:16:27,530 --> 00:16:17,329

they will then install a second scoop

318

00:16:27,540 --> 00:16:33,129

foreign

319

00:16:37,970 --> 00:16:36,050

Maneuvers on the robotic arm ev1 will

320

00:16:53,810 --> 00:16:37,980

arrive at the mod kit work site during

321

00:16:59,329 --> 00:16:57,170

Surplus on the thermal cover

322

00:17:03,290 --> 00:16:59,339

good news yeah so your go to open the

323

00:17:03,300 --> 00:17:06,590

[Applause]

324

00:17:10,130 --> 00:17:08,210

and for both of you I wanted to let you

325

00:17:11,809 --> 00:17:10,140

know we're seeing good suit data here on

326

00:17:17,809 --> 00:17:11,819

the ground uh only thing we want to

327

00:17:24,049 --> 00:17:21,770

they want to show on 4.2

328

00:17:27,289 --> 00:17:24,059

4 decimal three

329

00:17:27,299 --> 00:17:31,789

and Josh your go to egress

330

00:17:31,799 --> 00:17:36,049

egress

331

00:17:40,909 --> 00:17:38,450

let's go install them Josh Casado will

332

00:17:43,970 --> 00:17:40,919

be first out of the quest airlock then

333

00:17:46,190 --> 00:17:43,980

we'll be joined by Frank Rubio as they

334

00:17:47,810 --> 00:17:46,200

gather all of their equipment before

335

00:18:01,909 --> 00:17:47,820

making their way over to the starboard

336

00:18:01,919 --> 00:18:06,350

all right

337

00:18:11,390 --> 00:18:09,470

did you cover uh

338

00:18:13,070 --> 00:18:11,400

did you copied my transformation about I

339

00:18:29,450 --> 00:18:13,080

see you is on the pouch

340

00:18:32,210 --> 00:18:30,890

and Josh as you're coming out you're

341

00:18:36,890 --> 00:18:32,220

looking to throw down your anchor hook

342

00:18:36,900 --> 00:19:13,190

okay

343

00:19:19,070 --> 00:19:16,310

Josh cassador now outside of the quest

344

00:19:21,409 --> 00:19:19,080

airlock he is ev1 or extra vehicular

345

00:19:23,990 --> 00:19:21,419

crew member number one wearing the suit

346

00:19:26,570 --> 00:19:24,000

bearing the red stripes

347

00:19:29,330 --> 00:19:26,580

Frank Rubio will wear the unmarked suit

348

00:19:35,930 --> 00:19:29,340

both the crew members embarking on the

349

00:19:40,850 --> 00:19:37,850

five four for

350

00:19:42,770 --> 00:19:40,860

right coffee Josh okay close cider lock

351  
00:19:44,570 --> 00:19:42,780  
for your anchor you'll just want to

352  
00:19:45,590 --> 00:19:44,580  
check your reels are unlocked at some

353  
00:19:47,330 --> 00:19:45,600  
point we can get that in the Buddy

354  
00:19:49,789 --> 00:19:47,340  
checks you're looking to put Frank's

355  
00:19:53,330 --> 00:19:49,799  
anchor hook on that Port stanchion of

356  
00:20:19,730 --> 00:19:56,210  
copy that didn't work and both reels are

357  
00:20:25,789 --> 00:20:22,310  
these two's anchor Hook is getting close

358  
00:20:29,090 --> 00:20:25,799  
sorry to lock black on black port

359  
00:20:32,870 --> 00:20:29,100  
another pointer on the

360  
00:20:37,070 --> 00:20:35,270  
Josh that's a good config so Frank your

361  
00:20:38,330 --> 00:20:37,080  
go to release your waste tether and

362  
00:20:45,169 --> 00:20:38,340  
you'll want to check that your reels are

363  
00:20:45,179 --> 00:20:50,570

we just thought

364

00:20:55,430 --> 00:20:53,330

okay unfortunately it was stuck between

365

00:21:38,149 --> 00:20:55,440

my left side

366

00:21:41,930 --> 00:21:39,890

Nick do you want me to go ahead and turn

367

00:21:44,630 --> 00:21:41,940

on my hecca

368

00:21:49,669 --> 00:21:44,640

that's for maybe one sir

369

00:21:56,149 --> 00:21:51,770

and I'm ready for the Tango bag when

370

00:22:01,130 --> 00:21:57,649

and Josh you've got to go to turn on

371

00:22:05,390 --> 00:22:03,110

I understand if I could only right now

372

00:22:21,110 --> 00:22:05,400

for ub1

373

00:22:21,120 --> 00:22:30,890

feather

374

00:22:35,210 --> 00:22:32,870

and Rebecca is on for easy one I've got

375

00:22:36,830 --> 00:22:35,220

a green light

376

00:22:45,950 --> 00:22:36,840

happy Josh good green line on your

377

00:22:50,090 --> 00:22:48,529

precaution here is the rectangle bag all

378

00:22:51,950 --> 00:22:50,100

right

379

00:22:55,130 --> 00:22:51,960

give me one second and I'll get a red on

380

00:22:57,049 --> 00:22:55,140

it and I'm uh station ass if there's any

381

00:23:09,010 --> 00:22:57,059

way you can persuade it this way

382

00:23:14,470 --> 00:23:11,570

this is Mission Control Houston uh just

383

00:23:16,970 --> 00:23:14,480

to recap the uh

384

00:23:18,409 --> 00:23:16,980

256th spacewalk in support of space

385

00:23:20,210 --> 00:23:18,419

station assembly maintenance and

386

00:23:23,930 --> 00:23:20,220

upgrades underway

387

00:23:26,870 --> 00:23:23,940

with the uh battery power on call from

388

00:23:30,830 --> 00:23:26,880

Cassidy and Rubio coming at 6 16 a.m

389

00:23:32,510 --> 00:23:30,840

Central Time 7 16 a.m eastern time the

390

00:23:36,470 --> 00:23:32,520

two crew members in the process of

391

00:23:41,750 --> 00:23:38,870

once outside they will make their way to

392

00:23:44,450 --> 00:23:41,760

the starboard Fortress to begin setting

393

00:23:49,010 --> 00:23:44,460

up all of their equipment and begin the

394

00:23:52,970 --> 00:23:49,020

work to detach the next in the series of

395

00:23:56,270 --> 00:23:52,980

ISS rollout solar arrays or iroses

396

00:23:58,730 --> 00:23:56,280

from a support structure on the truss of

397

00:24:01,130 --> 00:23:58,740

the station and then manually move it

398

00:24:03,529 --> 00:24:01,140

over to the S4 truss to which it will be

399

00:24:06,230 --> 00:24:03,539

installed on a mounting bracket bolted

400

00:24:09,289 --> 00:24:06,240

into place electrically connected and

401  
00:24:11,690 --> 00:24:09,299  
unfurled to begin the augmentation of

402  
00:24:16,730 --> 00:24:11,700  
power for the 3A power channel on the

403  
00:24:22,190 --> 00:24:19,850  
this is again the third in a series of

404  
00:24:25,669 --> 00:24:22,200  
six currently planned solar arrays

405  
00:24:28,010 --> 00:24:25,679  
augmented ISS rollout solar arrays to be

406  
00:24:31,850 --> 00:24:28,020  
installed on the station next step will

407  
00:24:37,310 --> 00:24:34,730  
one additional task on tap for the two

408  
00:24:39,649 --> 00:24:37,320  
space Walkers should time permit

409  
00:24:41,450 --> 00:24:39,659  
will be the disconnection at the end of

410  
00:24:43,730 --> 00:24:41,460  
today's spacewalk of one of four

411  
00:24:46,850 --> 00:24:43,740  
electrical cables on the neighboring

412  
00:24:48,890 --> 00:24:46,860  
starboard six truss for the 1B power

413  
00:24:51,350 --> 00:24:48,900

channel that incurred a power trip about

414

00:24:53,149 --> 00:24:51,360

a week and a half ago taking down some

415

00:24:55,789 --> 00:24:53,159

of the functionality of that array and

416

00:24:58,310 --> 00:24:55,799

placing the 1B power Channel out of

417

00:25:00,470 --> 00:24:58,320

commission for the moment those loads

418

00:25:03,169 --> 00:25:00,480

being assumed by the 1A power channel

419

00:25:05,210 --> 00:25:03,179

for station systems without any

420

00:25:06,710 --> 00:25:05,220

Interruption to station operations or

421

00:25:10,310 --> 00:25:06,720

research

422

00:25:12,049 --> 00:25:10,320

however to regain about 75 percent of

423

00:25:14,630 --> 00:25:12,059

the functionality of the 1B power

424

00:25:16,250 --> 00:25:14,640

channel the one power connector at the

425

00:25:19,250 --> 00:25:16,260

end of today's spacewalk will be

426

00:25:22,549 --> 00:25:19,260  
disconnected and isolated it'll be

427

00:25:26,510 --> 00:25:22,559  
capped off basically to isolate the

428

00:25:30,049 --> 00:25:26,520  
affected area of the solar array for the

429

00:25:32,830 --> 00:25:30,059  
1B channel on the starboard 6 Truss

430

00:25:35,990 --> 00:25:32,840  
electrical systems officers will then

431

00:25:39,409 --> 00:25:36,000  
reactivate the 1B power Channel

432

00:25:42,529 --> 00:25:39,419  
it in of itself will receive an ISS

433

00:25:44,930 --> 00:25:42,539  
rollout solar array next year

434

00:25:48,649 --> 00:25:44,940  
on the next pair of arrays that will be

435

00:25:51,409 --> 00:25:48,659  
delivered on a SpaceX resupply mission

436

00:25:53,510 --> 00:25:51,419  
if time does not permit the two space

437

00:25:56,630 --> 00:25:53,520  
Walkers today to complete all of their

438

00:25:58,250 --> 00:25:56,640

work then an additional spacewalk will

439

00:26:02,210 --> 00:25:58,260

be scheduled for this coming Wednesday

440

00:26:04,970 --> 00:26:02,220

December 7th to finish up either the

441

00:26:07,190 --> 00:26:04,980

deployment and activation of the ISS

442

00:26:08,690 --> 00:26:07,200

rollouts solar array for the 3A power

443

00:26:10,789 --> 00:26:08,700

Channel or

444

00:26:13,010 --> 00:26:10,799

the disconnection of that one electrical

445

00:26:22,789 --> 00:26:13,020

cable to bring the 1B power Channel back

446

00:26:28,130 --> 00:26:25,070

Nick is uh Frank is getting set up there

447

00:26:34,370 --> 00:26:28,140

I do see his wvf is on and I do not

448

00:26:34,380 --> 00:26:37,789

okay copy that Josh

449

00:26:41,510 --> 00:26:39,230

you can try to turn it on if you got a

450

00:26:51,649 --> 00:26:41,520

free hand

451  
00:27:13,630 --> 00:26:55,750  
I stand corrected I got two green lights

452  
00:27:18,890 --> 00:27:16,190  
whether or not an additional spacewalk

453  
00:27:20,690 --> 00:27:18,900  
on December 7th is required and again we

454  
00:27:23,029 --> 00:27:20,700  
won't know that until we're done with

455  
00:27:24,830 --> 00:27:23,039  
the work today

456  
00:27:26,210 --> 00:27:24,840  
cassid and Rubio will venture back

457  
00:27:29,450 --> 00:27:26,220  
outside

458  
00:27:31,610 --> 00:27:29,460  
on December 19th to replicate the work

459  
00:27:33,409 --> 00:27:31,620  
they're doing today but this time on the

460  
00:27:36,350 --> 00:27:33,419  
other side of the backbone of the

461  
00:27:38,149 --> 00:27:36,360  
station on the port Fortress of the

462  
00:27:41,390 --> 00:27:38,159  
International Space Station taking yet

463  
00:27:42,950 --> 00:27:41,400

another ISS rollout solar array from a

464

00:27:46,610 --> 00:27:42,960

parking place on the truss of the

465

00:27:50,090 --> 00:27:46,620

station and installing it uh on the 4A

466

00:27:53,110 --> 00:27:50,100

power Channel original solar array on

467

00:27:58,190 --> 00:27:56,390

okay and I'm feeling a slight pull but

468

00:28:01,190 --> 00:27:58,200

I'm not seeing anything like into the

469

00:28:01,200 --> 00:28:05,169

[Applause]

470

00:28:05,179 --> 00:28:09,230

you're completely clear okay

471

00:28:14,210 --> 00:28:12,049

see water resistance

472

00:28:16,130 --> 00:28:14,220

Frank Rubio at the top of your screen

473

00:28:18,289 --> 00:28:16,140

Josh cassida

474

00:28:20,750 --> 00:28:18,299

on the bottom of your screen still at

475

00:28:22,130 --> 00:28:20,760

the hatchway to the quest airlock as the

476

00:28:24,110 --> 00:28:22,140

two crew members

477

00:28:25,789 --> 00:28:24,120

check and double check to make sure they

478

00:28:27,529 --> 00:28:25,799

have all their equipment before making

479

00:28:29,530 --> 00:28:27,539

their way over to the work site on the

480

00:28:31,130 --> 00:28:29,540

starboard Fortress

481

00:28:34,730 --> 00:28:31,140

[Music]

482

00:28:35,690 --> 00:28:34,740

and your right one is done okay thank

483

00:28:37,190 --> 00:28:35,700

you

484

00:28:39,409 --> 00:28:37,200

all right with that Nick we've got

485

00:28:42,289 --> 00:28:39,419

everything except for hat check so uh my

486

00:28:45,830 --> 00:28:42,299

half is dry for easy one

487

00:28:48,350 --> 00:28:45,840

and my app is also dry for ev2

488

00:28:55,210 --> 00:28:48,360

yep you guys good buddy check

489

00:29:02,510 --> 00:28:57,950

s there and work and I'll clear those

490

00:29:07,570 --> 00:29:02,520

out okay and um push back nice

491

00:29:13,310 --> 00:29:10,789

the hap that you heard referred to by

492

00:29:16,610 --> 00:29:13,320

spacecraft Communicator Nick Hague is

493

00:29:18,529 --> 00:29:16,620

the helmet absorption pad making sure

494

00:29:21,310 --> 00:29:18,539

periodically throughout the spacewalk

495

00:29:23,510 --> 00:29:21,320

that there is no accumulation of

496

00:29:25,010 --> 00:29:23,520

condensation in the helmet everything

497

00:29:28,370 --> 00:29:25,020

looks good

498

00:29:30,110 --> 00:29:28,380

the crew will now begin to translate or

499

00:29:33,230 --> 00:29:30,120

make their way over to the work site on

500

00:29:38,149 --> 00:29:33,240

the starboard for truss otherwise all

501

00:29:38,159 --> 00:29:42,830

I see good checks

502

00:29:48,289 --> 00:29:46,210

hey guys Okay so

503

00:29:50,330 --> 00:29:48,299

you're good Frank you're going to lead

504

00:29:52,909 --> 00:29:50,340

out to translate to the green hook

505

00:29:56,090 --> 00:29:52,919

location uh just remind you to put in a

506

00:30:01,730 --> 00:29:56,100

fair lead on handrail 500 and fair lead

507

00:30:01,740 --> 00:30:09,889

I got off my locals oh Josh what's up

508

00:30:09,899 --> 00:30:22,930

all right

509

00:30:26,690 --> 00:30:25,310

guys as you're translating now just want

510

00:30:29,990 --> 00:30:26,700

to let you know that was an on-time

511

00:30:35,510 --> 00:30:32,269

all right great job

512

00:30:37,010 --> 00:30:35,520

guys yep both on the team down on the

513

00:30:41,210 --> 00:30:37,020

ground and the one up here absolutely

514

00:30:41,220 --> 00:31:11,350

foreign

515

00:31:19,970 --> 00:31:14,040

okay thank you you got it

516

00:31:23,630 --> 00:31:21,529

copy Frank you're going up to see the

517

00:31:28,370 --> 00:31:23,640

spur uh for both of you just a caution

518

00:31:28,380 --> 00:31:45,110

thanks mate

519

00:31:52,070 --> 00:31:47,630

I may come out the top of the field for

520

00:31:52,080 --> 00:32:12,889

happy Frank

521

00:32:16,370 --> 00:32:14,930

happy copy Frank you're heading

522

00:32:17,630 --> 00:32:16,380

starboard as you go out there the

523

00:32:19,970 --> 00:32:17,640

handrail you're going to be looking for

524

00:32:22,909 --> 00:32:19,980

your green Hook is three two one five

525

00:33:02,090 --> 00:32:22,919

thirty two fifteen

526  
00:33:02,100 --> 00:33:11,870  
foreign

527  
00:33:17,870 --> 00:33:14,029  
[Music]

528  
00:33:17,880 --> 00:33:26,029  
at the airport

529  
00:33:26,039 --> 00:33:36,610  
okay

530  
00:33:45,289 --> 00:33:40,549  
and Nick understand mile marker 6300 is

531  
00:33:45,299 --> 00:33:49,970  
and we're checking

532  
00:33:49,980 --> 00:34:08,750  
that's okay

533  
00:34:08,760 --> 00:34:15,230  
there's 6300

534  
00:34:20,030 --> 00:34:18,169  
and 6300 should be uh just above those

535  
00:34:22,190 --> 00:34:20,040  
handrails that are down on the Nader

536  
00:34:22,200 --> 00:34:37,669  
okay thank you

537  
00:34:41,089 --> 00:34:39,649  
and Josh your green hook I didn't give

538  
00:34:44,710 --> 00:34:41,099

you your handrail yet but you know it's

539

00:34:58,670 --> 00:34:47,270

32-47 great that's where I am appreciate

540

00:34:58,680 --> 00:35:02,210

and making sure I Stay

541

00:35:02,220 --> 00:35:05,270

yes

542

00:35:05,280 --> 00:35:32,210

thanks

543

00:35:40,430 --> 00:35:34,910

agree with that Nick keep my take each

544

00:35:40,440 --> 00:35:49,550

yep copy Josh

545

00:35:55,730 --> 00:35:53,329

and look how about the uh

546

00:35:57,650 --> 00:35:55,740

the end of S1

547

00:35:59,870 --> 00:35:57,660

and can you think I'm the hand rabbit

548

00:36:02,270 --> 00:35:59,880

I'm looking for

549

00:36:10,370 --> 00:36:02,280

yeah it's three two one five thirty two

550

00:36:20,510 --> 00:36:12,589

hey hold on screen hooking down um uh

551  
00:36:20,520 --> 00:36:42,230  
foreign

552  
00:36:48,170 --> 00:36:44,569  
yeah Frank if you uh if you look at the

553  
00:36:50,630 --> 00:36:48,180  
the outboard edge of the feta cart your

554  
00:36:55,609 --> 00:36:50,640  
handrail is going to be Zenith uh kind

555  
00:36:55,619 --> 00:36:59,510  
probably

556  
00:37:02,750 --> 00:37:02,030  
EV ones continue not starboard a little

557  
00:37:04,550 --> 00:37:02,760  
bit

558  
00:37:08,030 --> 00:37:04,560  
Frank I will be

559  
00:37:17,990 --> 00:37:08,040  
somewhere near you when I

560  
00:37:21,530 --> 00:37:19,550  
the end of my

561  
00:37:22,530 --> 00:37:21,540  
thank you cutter here

562  
00:37:23,710 --> 00:37:22,540  
yeah yeah

563  
00:37:26,210 --> 00:37:23,720

[Music]

564

00:37:30,050 --> 00:37:26,220

Frank copy so you're a little too far

565

00:37:31,670 --> 00:37:30,060

outboard so the Port City carts is what

566

00:37:33,710 --> 00:37:31,680

your target is you're going to be on the

567

00:37:35,030 --> 00:37:33,720

the starboard side of that Port Cedar

568

00:37:37,849 --> 00:37:35,040

cart so you'll have to go back under the

569

00:37:40,190 --> 00:37:37,859

empty when you get to that Port Theta

570

00:37:44,870 --> 00:37:40,200

cart uh your handrail is going to just

571

00:37:44,880 --> 00:38:07,010

probably

572

00:38:12,470 --> 00:38:09,530

because I'm sorry about that geez no

573

00:38:15,890 --> 00:38:14,210

I don't know why I'm Doug I could afford

574

00:38:17,690 --> 00:38:15,900

it was uh underneath the starboard

575

00:38:20,030 --> 00:38:17,700

[Applause]

576  
00:38:38,660 --> 00:38:20,040  
yeah

577  
00:38:41,150 --> 00:38:39,140  
[Applause]

578  
00:38:44,990 --> 00:38:41,160  
[Music]

579  
00:38:49,130 --> 00:38:45,000  
right Mike I am on the later dancing or

580  
00:38:49,140 --> 00:38:54,910  
foreign

581  
00:38:54,920 --> 00:38:59,030  
copy Frank can you say that again

582  
00:39:11,089 --> 00:39:01,370  
I am a native dancer of three two one

583  
00:39:16,730 --> 00:39:14,210  
yeah copy that Frank we

584  
00:39:18,589 --> 00:39:16,740  
three two one five is a little bit more

585  
00:39:22,329 --> 00:39:18,599  
Nader of that it's the long handrail

586  
00:39:22,339 --> 00:39:32,810  
okay copy

587  
00:39:36,170 --> 00:39:34,910  
and while you guys are working in the

588  
00:39:38,030 --> 00:39:36,180

position I'm going to read a couple of

589

00:39:41,210 --> 00:39:38,040

warnings and cautions real quick so

590

00:39:42,650 --> 00:39:41,220

warning to avoid the grapple shafts and

591

00:39:44,750 --> 00:39:42,660

cervix teeth

592

00:39:47,569 --> 00:39:44,760

um they're no touch and then caution for

593

00:39:49,910 --> 00:39:47,579

no aggressive movements on the FSC so

594

00:39:52,730 --> 00:39:49,920

less than uh four inches per second

595

00:39:54,470 --> 00:39:52,740

translation speed wait until any kind of

596

00:39:56,150 --> 00:39:54,480

motion dampens out before I'm parting

597

00:39:57,730 --> 00:39:56,160

loads and you shouldn't impart load

598

00:40:01,010 --> 00:39:57,740

simultaneously

599

00:40:05,530 --> 00:40:01,020

and do not contact the irosa blankets or

600

00:40:05,540 --> 00:40:10,440

easy one copy maybe two copies

601  
00:40:20,270 --> 00:40:13,460

[Applause]

602  
00:40:26,390 --> 00:40:22,370

and Kathy Josh you're translating toward

603  
00:40:28,849 --> 00:40:26,400

the FSC Tower handrail to Stow the bag

604  
00:40:30,790 --> 00:40:28,859

38 minutes into uh today's space walk

605  
00:40:34,730 --> 00:40:30,800

cassid and Rubio making their way

606  
00:40:37,849 --> 00:40:34,740

towards the ISS rollout solar array that

607  
00:40:39,829 --> 00:40:37,859

is temporarily parked on a payload

608  
00:40:42,190 --> 00:40:39,839

attachment device on the truss of the

609  
00:40:45,650 --> 00:40:42,200

International Space Station

610  
00:40:48,349 --> 00:40:45,660

Rubio will be using a pistol grip tool

611  
00:40:51,349 --> 00:40:48,359

to uh unbolt

612  
00:40:52,329 --> 00:40:51,359

the first of a number of bolts that are

613  
00:40:55,550 --> 00:40:52,339

available

614

00:40:57,950 --> 00:40:55,560

holding the irosa in place

615

00:41:00,250 --> 00:40:57,960

the release of the first of these Bolts

616

00:41:03,349 --> 00:41:00,260

Plus the release of what are called

617

00:41:06,470 --> 00:41:03,359

anti-rotation devices that were designed

618

00:41:09,050 --> 00:41:06,480

to minimize the loads on the solar

619

00:41:11,690 --> 00:41:09,060

arrays in the trunk of the SpaceX cargo

620

00:41:16,250 --> 00:41:11,700

Dragon carrier craft the resupply

621

00:41:18,230 --> 00:41:16,260

vehicle that delivered this I irosa and

622

00:41:21,589 --> 00:41:18,240

a second irosa to be installed on

623

00:41:23,109 --> 00:41:21,599

December 19th on the port Fortress solar

624

00:41:25,790 --> 00:41:23,119

array of the International Space Station

625

00:41:28,910 --> 00:41:25,800

these anti-rotation devices will be

626  
00:41:31,250 --> 00:41:28,920  
released all part of the initial work to

627  
00:41:33,410 --> 00:41:31,260  
remove the irosa from its support

628  
00:41:35,510 --> 00:41:33,420  
structure its parking place on the truss

629  
00:41:38,450 --> 00:41:35,520  
of the station prior to the time that

630  
00:41:41,210 --> 00:41:38,460  
Josh cassida will then manually ride at

631  
00:41:43,849 --> 00:41:41,220  
the end of the canadarm 2 robotic arm to

632  
00:41:46,310 --> 00:41:43,859  
move the irosa over to the starboard

633  
00:41:48,650 --> 00:41:46,320  
Fortress work site where it is to be

634  
00:41:51,230 --> 00:41:48,660  
installed on a mounting bracket for its

635  
00:41:56,320 --> 00:41:51,240  
installation and deployment

636  
00:41:56,330 --> 00:42:00,890  
[Applause]

637  
00:42:00,900 --> 00:42:18,849  
[Music]

638  
00:42:18,859 --> 00:42:23,329

cycle wvs

639

00:42:23,339 --> 00:42:31,329

foreign

640

00:42:31,339 --> 00:42:38,530

we're seeing wvs

641

00:42:43,089 --> 00:42:41,530

uh can I continue through the

642

00:42:45,589 --> 00:42:43,099

photography

643

00:42:49,190 --> 00:42:45,599

paper uh you're gonna Stow that cable

644

00:43:13,630 --> 00:42:49,200

bag on the uh Square grid Alpha uh using

645

00:43:20,690 --> 00:43:17,349

while uh cassid and Rubio are getting uh

646

00:43:24,530 --> 00:43:20,700

situated uh making their way towards the

647

00:43:27,050 --> 00:43:24,540

irosa that will be removed from its uh

648

00:43:29,109 --> 00:43:27,060

payload attachment device parking place

649

00:43:32,630 --> 00:43:29,119

on the truss of the station

650

00:43:35,210 --> 00:43:32,640

koichiwakada and Nicole Manor at the

651  
00:43:39,109 --> 00:43:35,220  
destiny laboratory robotic workstation

652  
00:43:41,690 --> 00:43:39,119  
as they begin to set up shop there okada

653  
00:43:44,930 --> 00:43:41,700  
will be the arm operator driving Josh

654  
00:43:46,849 --> 00:43:44,940  
cassida with the irosa to the starboard

655  
00:43:58,490 --> 00:43:46,859  
4 work site for its ultimate

656  
00:44:50,480 --> 00:44:24,109  
foreign

657  
00:44:50,490 --> 00:45:08,390  
[Applause]

658  
00:45:12,109 --> 00:45:10,309  
yeah we see it and that's a great config

659  
00:45:15,410 --> 00:45:12,119  
Josh uh we'll take a glove and half

660  
00:45:15,420 --> 00:45:23,400  
okay

661  
00:45:23,410 --> 00:45:37,360  
[Applause]

662  
00:45:51,550 --> 00:45:44,110  
[Music]

663  
00:45:51,560 --> 00:46:04,750

thank you

664

00:46:08,690 --> 00:46:06,350

[Applause]

665

00:46:17,690 --> 00:46:08,700

[Music]

666

00:46:23,870 --> 00:46:20,750

see no changes but I'll hold them up to

667

00:46:23,880 --> 00:46:28,309

and Josh we don't need the views

668

00:46:28,319 --> 00:46:32,990

okay

669

00:46:36,349 --> 00:46:34,430

all right uh

670

00:46:39,710 --> 00:46:36,359

in this drive so with that I am ready

671

00:46:42,230 --> 00:46:39,720

for settings for R5

672

00:46:43,309 --> 00:46:42,240

okay copy that Josh good gloves good

673

00:46:46,970 --> 00:46:43,319

half

674

00:46:51,200 --> 00:46:46,980

your settings for the R5 bolts are going

675

00:46:52,690 --> 00:46:51,210

to be Bravo 2 counter clockwise too

676

00:46:54,290 --> 00:46:52,700

[Music]

677

00:47:01,790 --> 00:46:54,300

all right

678

00:47:01,800 --> 00:47:05,990

that's a good read back

679

00:47:12,109 --> 00:47:09,589

thanks where are you these days I am

680

00:47:14,390 --> 00:47:12,119

over on the

681

00:47:17,870 --> 00:47:14,400

cover see the clothes dropping off the

682

00:47:17,880 --> 00:47:21,010

foreign

683

00:47:25,550 --> 00:47:24,410

once you get that cable bag tied down on

684

00:47:27,710 --> 00:47:25,560

the starboard seat of carts you're going

685

00:47:32,690 --> 00:47:27,720

to retrieve trulock bag M plus that

686

00:47:32,700 --> 00:47:51,170

okay

687

00:47:51,180 --> 00:47:57,640

foreign

688

00:48:20,170 --> 00:48:05,010

[Music]

689

00:48:27,890 --> 00:48:23,690

46 minutes into the spacewalk Rubio and

690

00:48:32,329 --> 00:48:27,900

cassida soon to begin the first in a

691

00:48:36,170 --> 00:48:32,339

series of ongoing bolt turning

692

00:48:39,550 --> 00:48:36,180

procedures first to release the first of

693

00:48:43,069 --> 00:48:39,560

a series of bolts called R5 on the lower

694

00:48:45,430 --> 00:48:43,079

portion of the ISS rollout solar array

695

00:48:49,069 --> 00:48:45,440

that you see at the top of your screen

696

00:48:51,230 --> 00:48:49,079

it is mounted on a

697

00:48:52,790 --> 00:48:51,240

attachment structure on the truss of the

698

00:48:55,010 --> 00:48:52,800

International Space Station after having

699

00:48:57,290 --> 00:48:55,020

been delivered to the station last

700

00:49:00,109 --> 00:48:57,300

Sunday on the SpaceX

701  
00:49:02,030 --> 00:49:00,119  
cargo Dragon resupply flight to the

702  
00:49:04,670 --> 00:49:02,040  
international Outpost

703  
00:49:07,190 --> 00:49:04,680  
the crew will also release the top

704  
00:49:11,750 --> 00:49:07,200  
portion of what are called anti-rotation

705  
00:49:15,470 --> 00:49:11,760  
devices these are basically uh

706  
00:49:18,650 --> 00:49:15,480  
bolts that prevented any uh inadvertent

707  
00:49:21,290 --> 00:49:18,660  
movement of the iroses while they sat in

708  
00:49:24,410 --> 00:49:21,300  
the trunk of cargo Dragon during its

709  
00:49:25,910 --> 00:49:24,420  
launch from the Kennedy Space Center

710  
00:49:27,290 --> 00:49:25,920  
with that large wall rest and you're

711  
00:49:29,030 --> 00:49:27,300  
heading over to the mod kit now you'll

712  
00:49:57,410 --> 00:49:29,040  
want to check that your gauntlets are in

713  
00:50:06,349 --> 00:49:59,470

okay

714

00:50:09,109 --> 00:50:06,359

Bravo 2 honors clockwise two is set and

715

00:50:11,809 --> 00:50:09,119

uh we had a good chance

716

00:50:13,910 --> 00:50:11,819

okay Josh those are good settings uh so

717

00:50:16,069 --> 00:50:13,920

you're going to release R5 expecting 18

718

00:50:17,870 --> 00:50:16,079

to 20 turns that Bolt's gonna spring out

719

00:50:20,870 --> 00:50:17,880

when released and there should be a

720

00:50:25,190 --> 00:50:22,490

I'll be looking for the white line thank

721

00:50:27,890 --> 00:50:25,200

you reminder 18 to 20 turns starting

722

00:50:32,210 --> 00:50:30,170

and the crew uh beginning uh the

723

00:50:34,309 --> 00:50:32,220

procedures and the release of the first

724

00:50:36,770 --> 00:50:34,319

of a number of bolts

725

00:50:39,650 --> 00:50:36,780

there are some three dozen bolts in all

726

00:50:41,630 --> 00:50:39,660

at a variety of areas along the ISS

727

00:50:44,809 --> 00:50:41,640

rollout solar array that must be

728

00:50:50,150 --> 00:50:47,750

both uh on the Flight Support equipment

729

00:50:52,910 --> 00:50:50,160

uh parking place on the truss of the

730

00:50:55,490 --> 00:50:52,920

station on the irosa itself and then

731

00:50:58,309 --> 00:50:55,500

ultimately to bolt the irosa in place on

732

00:51:00,290 --> 00:50:58,319

its modification kit or bracket to which

733

00:51:08,210 --> 00:51:00,300

it will be affixed on the starboard

734

00:51:08,220 --> 00:51:12,710

and

735

00:51:12,720 --> 00:51:28,609

the white line yet okay

736

00:51:33,049 --> 00:51:31,490

you know it is popped out is there a

737

00:51:35,329 --> 00:51:33,059

chance this white lion is fairly subtle

738

00:51:36,650 --> 00:51:35,339

and hard to see from uh from my vantage

739

00:51:39,950 --> 00:51:36,660

point

740

00:51:42,770 --> 00:51:39,960

okay Josh copy you got 18 turns and that

741

00:51:47,510 --> 00:51:45,410

I'm negative I got a total of 20 now I

742

00:51:49,549 --> 00:51:47,520

get two additional and I can see you

743

00:51:52,370 --> 00:51:49,559

guys see my fan right here

744

00:51:55,549 --> 00:51:52,380

this is

745

00:51:57,349 --> 00:51:55,559

popping out and I just

746

00:52:06,670 --> 00:51:57,359

a little hard with the sun here to see

747

00:52:06,680 --> 00:52:09,790

Josh

748

00:52:14,329 --> 00:52:13,230

if you're a good video on it

749

00:52:16,430 --> 00:52:14,339

[Applause]

750

00:52:20,770 --> 00:52:16,440

and and negative we don't have KU right

751  
00:52:24,710 --> 00:52:23,030  
but Josh the you've got the number of

752  
00:52:26,990 --> 00:52:24,720  
turns and if it popped out we're good to

753  
00:52:30,530 --> 00:52:28,849  
okay I think the white line was pretty

754  
00:52:32,690 --> 00:52:30,540  
subtle I see it at the face I believe

755  
00:52:37,370 --> 00:52:32,700  
it's slightly different than the uh the

756  
00:52:44,870 --> 00:52:39,290  
copy Josh we're go to press everybody's

757  
00:52:51,950 --> 00:52:48,890  
all right Nick I am at the mountain and

758  
00:52:53,020 --> 00:52:51,960  
I have the large small reps to the left

759  
00:52:55,250 --> 00:52:53,030  
uh

760  
00:52:58,040 --> 00:52:55,260  
[Music]

761  
00:53:06,230 --> 00:52:58,050  
rotation

762  
00:53:11,450 --> 00:53:08,390  
[Music]

763  
00:53:24,890 --> 00:53:11,460

yeah copy that uh Frank and we'll take a

764

00:53:28,250 --> 00:53:26,750

guys well I've got a second I'm gonna

765

00:53:30,290 --> 00:53:28,260

give you some cautions for the mod kids

766

00:53:32,450 --> 00:53:30,300

no sudden movements on the mass canister

767

00:53:35,270 --> 00:53:32,460

or mod kit less than four inches a

768

00:53:38,030 --> 00:53:35,280

second on the BGA to translate slow

769

00:53:41,210 --> 00:53:38,040

avoid stick like loading and uh be

770

00:53:42,770 --> 00:53:41,220

mindful that the iea battery AP cables

771

00:53:45,349 --> 00:53:42,780

are a snag hazard

772

00:53:53,870 --> 00:53:45,359

yeah

773

00:53:57,790 --> 00:53:56,630

I understand I'm going back to the

774

00:54:00,410 --> 00:53:57,800

future

775

00:54:03,650 --> 00:54:00,420

that's a firm Josh when you're ready

776  
00:54:07,130 --> 00:54:03,660  
you're gonna move to the Port City cart

777  
00:54:07,140 --> 00:54:13,370  
four three

778  
00:54:16,970 --> 00:54:15,069  
foreign

779  
00:54:21,109 --> 00:54:16,980  
out here

780  
00:54:26,210 --> 00:54:23,750  
pocket looks good we have our three top

781  
00:54:29,089 --> 00:54:26,220  
captures in the right position and uh no

782  
00:54:31,069 --> 00:54:29,099  
fraud on the platform

783  
00:54:32,329 --> 00:54:31,079  
that's awesome thanks appreciate the

784  
00:54:33,950 --> 00:54:32,339  
check

785  
00:54:37,430 --> 00:54:33,960  
um next uh step is going to be

786  
00:54:37,440 --> 00:54:49,730  
ope

787  
00:54:49,740 --> 00:55:05,589  
foreign

788  
00:55:11,150 --> 00:55:07,970

flying from Southwest to Northeast

789

00:55:13,609 --> 00:55:11,160

across the Pacific soon to cross

790

00:55:15,170 --> 00:55:13,619

the west coast of South America the

791

00:55:17,690 --> 00:55:15,180

International Space Station flies

792

00:55:20,390 --> 00:55:17,700

smoothly on 53 minutes into today's

793

00:55:23,210 --> 00:55:20,400

spacewalk by Josh cassida and Frank

794

00:55:25,670 --> 00:55:23,220

Rubio running about 15 minutes ahead of

795

00:55:28,790 --> 00:55:25,680

the timeline so far having begun the

796

00:55:31,490 --> 00:55:28,800

spacewalk at 6 16 a.m Central Time 7 16

797

00:55:33,720 --> 00:55:31,500

a.m Eastern Time

798

00:56:03,530 --> 00:55:33,730

okay

799

00:56:03,540 --> 00:56:16,370

foreign

800

00:56:16,380 --> 00:56:34,250

[Applause]

801  
00:56:39,470 --> 00:56:38,030  
okay see you

802  
00:56:42,049 --> 00:56:39,480  
um

803  
00:56:46,730 --> 00:56:42,059  
are you about to head out in concert I'm

804  
00:57:02,930 --> 00:56:47,710  
okay

805  
00:57:08,569 --> 00:57:04,790  
all right Nick I'm currently showing

806  
00:57:13,670 --> 00:57:11,210  
and

807  
00:57:15,890 --> 00:57:13,680  
Craig must be sucks

808  
00:57:17,569 --> 00:57:15,900  
already so it's just approximate loss of

809  
00:57:20,569 --> 00:57:17,579  
change

810  
00:57:22,309 --> 00:57:20,579  
yeah your current uh setting up foxtrot

811  
00:57:23,809 --> 00:57:22,319  
six is what you're going to install uh

812  
00:57:35,950 --> 00:57:23,819  
when you do the install it's clocking

813  
00:57:35,960 --> 00:57:41,950

if I have seen it here I

814

00:57:46,130 --> 00:57:44,750

affecting each other will

815

00:57:53,690 --> 00:57:46,140

open up

816

00:57:57,290 --> 00:57:55,609

hey Frank uh understanding we've got a

817

00:57:59,030 --> 00:57:57,300

good view of kind of the bottleneck that

818

00:58:01,190 --> 00:57:59,040

we've got going on big picture for you

819

00:58:03,470 --> 00:58:01,200

guys uh we're over seven hours on

820

00:58:05,329 --> 00:58:03,480

consumables we're up 15 minutes on the

821

00:58:06,589 --> 00:58:05,339

timeline you guys are going great so

822

00:58:07,730 --> 00:58:06,599

Frank if you just want to hold position

823

00:58:10,370 --> 00:58:07,740

while

824

00:58:12,710 --> 00:58:10,380

well Josh works this and and then we'll

825

00:58:14,870 --> 00:58:12,720

let you pass through

826

00:58:17,270 --> 00:58:14,880

okay sounds great

827

00:58:18,349 --> 00:58:17,280

while you're hanging out there uh if you

828

00:58:22,910 --> 00:58:18,359

want to give us a glove and half check

829

00:58:39,049 --> 00:58:24,410

[Applause]

830

00:58:45,109 --> 00:58:42,770

get my uh gloves

831

00:58:47,270 --> 00:58:45,119

I have a couple of tiny uh Nicks on the

832

00:58:51,109 --> 00:58:47,280

rubber part but absolutely uh

833

00:58:53,089 --> 00:58:51,119

superficial otherwise Baseline and uh

834

00:58:56,450 --> 00:58:53,099

draw

835

00:58:58,750 --> 00:58:56,460

a good rep to the atfr and

836

00:59:02,030 --> 00:58:58,760

put it on my VRT

837

00:59:05,089 --> 00:59:02,040

copy Frank uh understand good glove in

838

00:59:05,099 --> 00:59:29,569

perfect

839

00:59:29,579 --> 00:59:35,990

white on black and removing

840

00:59:36,000 --> 01:00:04,370

CFR is uninstalled

841

01:00:04,380 --> 01:00:12,840

foreign

842

01:00:35,809 --> 01:00:31,260

[Applause]

843

01:00:36,950 --> 01:00:35,819

be a little bit more inboard just to

844

01:00:38,750 --> 01:00:36,960

keep it from Catching there you go

845

01:00:43,970 --> 01:00:38,760

you're good

846

01:00:47,329 --> 01:00:45,650

and

847

01:00:49,309 --> 01:00:47,339

it's like you are clear of the brake

848

01:00:54,650 --> 01:00:49,319

handle awesome thank you that was super

849

01:00:59,750 --> 01:00:56,690

all right that is your departure front

850

01:01:03,890 --> 01:01:01,849

any of the FSC so I'm out of your way

851  
01:01:05,569 --> 01:01:03,900  
now

852  
01:01:07,849 --> 01:01:05,579  
thank you

853  
01:01:10,609 --> 01:01:07,859  
and Josh as you head in board toward

854  
01:01:13,970 --> 01:01:10,619  
fhrc you're looking for mile marker 6300

855  
01:01:13,980 --> 01:01:26,750  
that one's my favorite

856  
01:01:31,130 --> 01:01:28,370  
and Frank you're going to translate up

857  
01:01:33,770 --> 01:01:31,140  
to the tower handrail uh you're going to

858  
01:01:37,069 --> 01:01:33,780  
go stanchions alpha bravo charlie to the

859  
01:01:37,079 --> 01:01:51,309  
thank you foreign

860  
01:01:51,319 --> 01:01:56,410  
around here

861  
01:01:56,420 --> 01:02:01,490  
that's the one

862  
01:02:06,829 --> 01:02:04,730  
all right Frank you need comps

863  
01:02:10,789 --> 01:02:06,839

thank you thank you

864

01:02:14,150 --> 01:02:10,799

M1 M2 on 371

865

01:02:18,170 --> 01:02:14,160

hello ev1 we have a GCA to published

866

01:02:21,370 --> 01:02:18,180

apfr install position on your go

867

01:02:21,380 --> 01:02:35,030

install positions

868

01:02:40,309 --> 01:02:38,329

with the first of the numerous bolts

869

01:02:43,430 --> 01:02:40,319

having been released

870

01:02:47,030 --> 01:02:43,440

by the crew at the one hour mark into

871

01:02:49,910 --> 01:02:47,040

today's spacewalk bolts holding the

872

01:02:50,809 --> 01:02:49,920

irosa or the ISS rollout solar array in

873

01:02:53,569 --> 01:02:50,819

place

874

01:02:55,190 --> 01:02:53,579

on the attachment device on the truss of

875

01:02:58,309 --> 01:02:55,200

the International Space Station Josh

876

01:03:00,109 --> 01:02:58,319

cassida will soon retrieve an

877

01:03:02,870 --> 01:03:00,119

articulating portable foot restraint

878

01:03:05,210 --> 01:03:02,880

that he will attach to the end of the

879

01:03:07,670 --> 01:03:05,220

station's robotic arm that will be

880

01:03:09,589 --> 01:03:07,680

operated by koichiwakada from the

881

01:03:12,410 --> 01:03:09,599

robotic workstation with the assistance

882

01:03:14,329 --> 01:03:12,420

of Nicole Mann in the destiny laboratory

883

01:03:17,210 --> 01:03:14,339

of the complex

884

01:03:20,030 --> 01:03:17,220

Casita will plant his feet in that

885

01:03:21,370 --> 01:03:20,040

articulating portable foot restraint he

886

01:03:25,309 --> 01:03:21,380

will ultimately

887

01:03:28,490 --> 01:03:25,319

carry the irosa over to the starboard 4

888

01:03:30,170 --> 01:03:28,500

work site like a telephone repairman at

889

01:03:32,809 --> 01:03:30,180

the end of a cherry picker

890

01:03:35,930 --> 01:03:32,819

and he and Rubio will then begin the

891

01:03:37,250 --> 01:03:35,940

work to install the irosa bolt it into

892

01:03:39,410 --> 01:03:37,260

place

893

01:03:42,109 --> 01:03:39,420

and prepare it for its ultimate

894

01:03:47,930 --> 01:03:42,119

unfurling

895

01:03:51,410 --> 01:03:49,730

okay

896

01:03:53,150 --> 01:03:51,420

I think that's gonna work let's call it

897

01:04:03,910 --> 01:03:53,160

GCA complete and I'll let you know if I

898

01:04:09,589 --> 01:04:07,549

and I am going to put my anchor over on

899

01:04:11,870 --> 01:04:09,599

the

900

01:04:13,670 --> 01:04:11,880

access all of us handrail and that's a

901  
01:04:15,670 --> 01:04:13,680  
multiple just making this I'll do the

902  
01:04:22,270 --> 01:04:15,680  
FedEx operator

903  
01:04:26,809 --> 01:04:24,410  
and Frank you're going to retrieve that

904  
01:04:28,130 --> 01:04:26,819  
PGT from crew lock bag Tango and put

905  
01:04:34,549 --> 01:04:28,140  
that on your swing arm and head over to

906  
01:04:38,990 --> 01:04:36,950  
and Nick can you copy uh I'm just going

907  
01:04:41,329 --> 01:04:39,000  
to local to the arm itself for the

908  
01:04:46,430 --> 01:04:44,930  
while cassid is uh in the process of uh

909  
01:04:48,230 --> 01:04:46,440  
retrieving and installing the

910  
01:04:50,569 --> 01:04:48,240  
articulating portable foot restraint at

911  
01:04:53,630 --> 01:04:50,579  
the end of the robotic arm Frank Rubio

912  
01:04:56,990 --> 01:04:53,640  
will begin to release the anti-rotation

913  
01:05:00,170 --> 01:04:57,000

devices again these are devices that

914

01:05:03,170 --> 01:05:00,180

prevented any inadvertent motion by the

915

01:05:05,150 --> 01:05:03,180

delicate ISS rollout solar arrays while

916

01:05:07,190 --> 01:05:05,160

they were in the trunk of the cargo

917

01:05:08,990 --> 01:05:07,200

Dragon the SpaceX cargo dragon that

918

01:05:11,089 --> 01:05:09,000

delivered the arrays to the

919

01:05:13,670 --> 01:05:11,099

International Space Station preventing

920

01:05:16,190 --> 01:05:13,680

any inadvertent loads to be placed on

921

01:05:18,530 --> 01:05:16,200

the iroses during their Transit during

922

01:05:19,970 --> 01:05:18,540

launch and ascent

923

01:05:22,430 --> 01:05:19,980

if you want to check it before you stick

924

01:05:22,440 --> 01:05:50,030

copy that thank you

925

01:05:50,040 --> 01:05:54,490

all right Nick I have um

926

01:06:01,609 --> 01:05:58,069

I have one right now to my

927

01:06:03,710 --> 01:06:01,619

how many workstation to cover the pgp to

928

01:06:05,450 --> 01:06:03,720

move can I release the other one to the

929

01:06:07,910 --> 01:06:05,460

guide

930

01:06:10,069 --> 01:06:07,920

yeah Frank uh the plan is to leave that

931

01:06:14,569 --> 01:06:10,079

Red external to the back so yeah you can

932

01:06:14,579 --> 01:06:27,410

thank you

933

01:06:27,420 --> 01:06:33,349

[Applause]

934

01:06:33,359 --> 01:06:52,510

foreign

935

01:07:07,130 --> 01:06:58,400

[Applause]

936

01:07:07,140 --> 01:07:33,010

foreign

937

01:07:47,110 --> 01:07:35,510

[Music]

938

01:07:59,049 --> 01:07:49,190

[Applause]

939

01:07:59,059 --> 01:08:04,010

mqv1 out of here

940

01:08:07,600 --> 01:08:06,770

hey and Josh I've got uh both you and

941

01:08:09,770 --> 01:08:07,610

Frank

942

01:08:12,109 --> 01:08:09,780

[Applause]

943

01:08:14,390 --> 01:08:12,119

okay sounds good okay

944

01:08:16,249 --> 01:08:14,400

did you copy my wife I have the PHD I'm

945

01:08:20,150 --> 01:08:16,259

in Russia Romeo five

946

01:08:25,550 --> 01:08:22,309

okay just being advised uh we didn't

947

01:08:25,560 --> 01:08:32,450

okay copy

948

01:08:32,460 --> 01:08:36,729

that um that's okay

949

01:08:36,739 --> 01:08:41,209

we're hearing him loud and clear

950

01:08:47,990 --> 01:08:43,550

also hasn't won this one out with you as

951  
01:08:59,410 --> 01:08:50,420  
I have more of that Granny call

952  
01:09:04,010 --> 01:09:01,789  
on the right side of your screen wearing

953  
01:09:06,590 --> 01:09:04,020  
the suit bearing the red stripes Josh

954  
01:09:08,809 --> 01:09:06,600  
cassida with the articulating portable

955  
01:09:11,870 --> 01:09:08,819  
foot restraint that he will attach to

956  
01:09:13,809 --> 01:09:11,880  
the end of the station's robotic arm

957  
01:09:15,650 --> 01:09:13,819  
that soon will be operated by

958  
01:09:17,749 --> 01:09:15,660  
koichiwakata with the assistance of

959  
01:09:23,930 --> 01:09:17,759  
Nicole Mann from the robotic workstation

960  
01:09:30,530 --> 01:09:26,450  
a good view in the middle of your screen

961  
01:09:33,050 --> 01:09:30,540  
of the ISS rollout solar array that will

962  
01:09:36,229 --> 01:09:33,060  
be released from its attachment point

963  
01:09:38,570 --> 01:09:36,239

its temporary parking place on the

964

01:09:41,269 --> 01:09:38,580

station and then maneuvered into place

965

01:09:43,249 --> 01:09:41,279

to be installed on a mounting bracket a

966

01:09:45,289 --> 01:09:43,259

mod kit if you will that was installed

967

01:09:46,729 --> 01:09:45,299

on the station during a spacewalk last

968

01:09:53,150 --> 01:09:46,739

March

969

01:09:57,590 --> 01:09:56,150

Bravo Two counter two

970

01:09:59,810 --> 01:09:57,600

that's a good read back you're going to

971

01:10:01,189 --> 01:09:59,820

expect 18 to 20 turns the Bolt's going

972

01:10:06,130 --> 01:10:01,199

to pop out when fully released and there

973

01:10:12,590 --> 01:10:09,290

this is uh the procedure for Rubio to

974

01:10:16,070 --> 01:10:12,600

release the R5 Bolt the first in the

975

01:10:19,310 --> 01:10:16,080

series of bolts holding the irosa

976

01:10:22,430 --> 01:10:19,320

rollout the solar array in place on its

977

01:10:23,689 --> 01:10:22,440

temporary parking spot on the truss of

978

01:10:52,850 --> 01:10:23,699

the station

979

01:10:57,770 --> 01:10:54,649

yeah copy that Josh and can you check

980

01:11:02,810 --> 01:11:00,229

oh yeah

981

01:11:04,490 --> 01:11:02,820

oh this one's better than Marshall it

982

01:11:13,430 --> 01:11:04,500

can be depressed

983

01:11:19,030 --> 01:11:16,729

easy one and we have a GTA to publish

984

01:11:20,750 --> 01:11:19,040

apfr Ingress position when you're ready

985

01:11:23,209 --> 01:11:20,760

copy that

986

01:11:29,990 --> 01:11:23,219

I mean uh maybe five minutes or so we'll

987

01:11:34,610 --> 01:11:32,270

yep copy that Josh that tether swaps the

988

01:11:34,620 --> 01:11:39,110

traffic

989

01:11:44,209 --> 01:11:41,270

all right once I'm ready for that Nick I

990

01:11:45,950 --> 01:11:44,219

was gonna drop the uh left anchor hook I

991

01:11:47,810 --> 01:11:45,960

left the fifth each other first and then

992

01:11:56,450 --> 01:11:47,820

now worked on the bread are you okay

993

01:12:02,209 --> 01:11:58,010

yeah we'd like you to work the arm side

994

01:12:07,669 --> 01:12:03,950

and Josh I think you were just talking

995

01:12:14,149 --> 01:12:09,770

all right no I'm actually talking uh

996

01:12:17,689 --> 01:12:14,159

Next Step here uh I'll put my left face

997

01:12:20,930 --> 01:12:17,699

each other anchor on the FSR most

998

01:12:20,940 --> 01:12:24,229

those are good words

999

01:12:41,270 --> 01:12:27,120

sounds good thank you

1000

01:12:41,280 --> 01:13:13,310

foreign

1001

01:13:28,910 --> 01:13:15,110

so you're good to translate to Charlie

1002

01:13:37,689 --> 01:13:32,450

okay left safety tether is connected to

1003

01:14:02,750 --> 01:13:39,770

uh in fact I'm going to move it to the

1004

01:14:09,470 --> 01:14:05,930

okay well basically anchor is on the

1005

01:14:11,689 --> 01:14:09,480

fsrms uh business end uh handrail

1006

01:14:15,110 --> 01:14:11,699

another point you close fighter Lux

1007

01:14:17,450 --> 01:14:15,120

black on black that 85 foot is unlocked

1008

01:14:20,450 --> 01:14:17,460

and the

1009

01:14:22,130 --> 01:14:20,460

red and white uh true Hook was on my

1010

01:14:24,290 --> 01:14:22,140

Lefty green Synergy close by the left

1011

01:14:31,130 --> 01:14:24,300

lock on black

1012

01:14:35,030 --> 01:14:33,050

I understand next steps are walk the red

1013

01:14:36,410 --> 01:14:35,040

reel and put the Red Hook on the feeder

1014

01:14:38,330 --> 01:14:36,420

rail is that correct

1015

01:14:43,070 --> 01:14:38,340

hey firm you'll just uh want to keep an

1016

01:14:47,149 --> 01:14:45,530

it is meter of me so I'm going to call

1017

01:14:51,770 --> 01:14:47,159

that Spirit but thank you for the

1018

01:15:12,050 --> 01:14:54,290

foreign

1019

01:15:16,610 --> 01:15:15,110

and it is at 6300

1020

01:15:19,910 --> 01:15:16,620

and

1021

01:15:26,810 --> 01:15:19,920

redreal is unlocked

1022

01:15:30,649 --> 01:15:28,250

all right

1023

01:15:33,229 --> 01:15:30,659

I'm gonna grab my locals off of the arm

1024

01:15:34,490 --> 01:15:33,239

and then uh you agreement I think it's

1025

01:15:38,330 --> 01:15:34,500

getting into

1026

01:15:40,430 --> 01:15:38,340

um uh GCA

1027

01:15:43,189 --> 01:15:40,440

hey firm Josh that's the next step is uh

1028

01:15:46,310 --> 01:15:43,199

GCA for the Ingress position

1029

01:15:48,290 --> 01:15:46,320

uh Frank when when you're uh in position

1030

01:15:50,330 --> 01:15:48,300

for Charlie two you're gonna attach the

1031

01:15:54,770 --> 01:15:50,340

adjustable equipment tether from your

1032

01:15:59,689 --> 01:15:56,450

okay that's complete I'm ready for

1033

01:16:04,370 --> 01:15:59,699

settings for ARD challenge here

1034

01:16:08,510 --> 01:16:06,649

four three counter two

1035

01:16:14,120 --> 01:16:08,520

that's a good read back and you'll

1036

01:16:14,130 --> 01:16:19,870

[Music]

1037

01:16:19,880 --> 01:16:25,910

Gonna Come

1038

01:16:29,090 --> 01:16:28,130

he's going to bring the Ingress Aid in a

1039

01:16:32,630 --> 01:16:29,100

little bit to give you a little bit of

1040

01:16:32,640 --> 01:16:44,450

appreciate it

1041

01:16:44,460 --> 01:16:48,050

okay

1042

01:16:53,030 --> 01:16:50,390

if you're good on Prom Frank I am going

1043

01:16:56,090 --> 01:16:53,040

to take it for a GTA because I'm uh

1044

01:16:58,910 --> 01:16:56,100

thank you all right ep one is ready GCA

1045

01:17:00,110 --> 01:16:58,920

and as a heads up everyone looks like

1046

01:17:03,950 --> 01:17:00,120

about

1047

01:17:13,330 --> 01:17:03,960

finches from the front of the apr to

1048

01:17:19,010 --> 01:17:16,250

Rubio now in the process of releasing

1049

01:17:22,970 --> 01:17:19,020

these anti-rotation devices

1050

01:17:25,490 --> 01:17:22,980

the bolts that basically secured the ISS

1051

01:17:29,450 --> 01:17:25,500

roll out solar array in place in the

1052

01:17:33,169 --> 01:17:29,460

trunk of the SpaceX cargo dragon that

1053

01:17:34,790 --> 01:17:33,179

carried this and another ISS roll out a

1054

01:17:39,250 --> 01:17:34,800

solar array to the International Space

1055

01:17:44,810 --> 01:17:42,590

these uh ards are anti-rotation devices

1056

01:17:47,149 --> 01:17:44,820

designed to prevent any inadvertent

1057

01:17:48,950 --> 01:17:47,159

loads being placed on these delicate

1058

01:17:52,189 --> 01:17:48,960

arrays until they arrived at the station

1059

01:17:54,169 --> 01:17:52,199

for their installation in this case

1060

01:17:57,229 --> 01:17:54,179

today were the first of these two solar

1061

01:18:16,669 --> 01:17:57,239

arrays on the starboard Fortress of the

1062

01:18:26,510 --> 01:18:19,850

okay that's our published position

1063

01:18:31,250 --> 01:18:30,290

copy GCA complete breaks on go for atfr

1064

01:18:46,790 --> 01:18:31,260

Ingress

1065

01:18:46,800 --> 01:18:57,850

foreign

1066

01:19:02,450 --> 01:19:00,350

just want to point out the uh the white

1067

01:19:05,030 --> 01:19:02,460

string that's uh across the top of that

1068

01:19:07,669 --> 01:19:05,040

art that large loop it's an it's there

1069

01:19:09,530 --> 01:19:07,679

to help if you need it to to pull

1070

01:19:15,470 --> 01:19:09,540

straight out from the art if you've got

1071

01:19:19,490 --> 01:19:17,450

all kind of keeps um

1072

01:19:20,750 --> 01:19:19,500

floating back into where it's blocking

1073

01:19:22,610 --> 01:19:20,760

it unfortunately

1074

01:19:28,390 --> 01:19:22,620

I put nine turns in so it should have

1075

01:19:32,450 --> 01:19:31,189

yeah if the block rotates then that's

1076

01:19:33,770 --> 01:19:32,460

good as long as we can keep it out of

1077

01:19:38,330 --> 01:19:33,780

the way then the arch should just pull

1078

01:19:47,870 --> 01:19:40,189

it's off

1079

01:19:47,880 --> 01:19:53,530

foreign

1080

01:19:58,970 --> 01:19:56,530

[Music]

1081

01:20:02,990 --> 01:19:58,980

to drive that back it's gonna be Bravo

1082

01:20:07,490 --> 01:20:06,050

number one clockwise two copy yep and

1083

01:20:28,970 --> 01:20:07,500

you're gonna drive that to torque and uh

1084

01:20:28,980 --> 01:20:43,090

foreign

1085

01:20:49,490 --> 01:20:45,530

you're looking over the shoulder of

1086

01:20:51,350 --> 01:20:49,500

Frank Rubio as he uh continues work to

1087

01:20:54,470 --> 01:20:51,360

drive bolts

1088

01:20:57,709 --> 01:20:54,480

that have held the ISS rollout solar

1089

01:20:59,270 --> 01:20:57,719

array in place on an attachment point on

1090

01:21:02,209 --> 01:20:59,280

the truss of the International Space

1091

01:21:04,189 --> 01:21:02,219

Station there are a number of bolts for

1092

01:21:06,470 --> 01:21:04,199

a variety of different mechanisms that

1093

01:21:09,410 --> 01:21:06,480

must be loosened

1094

01:21:12,350 --> 01:21:09,420

and backed out of their installed

1095

01:21:14,750 --> 01:21:12,360

position in order to uh enable Josh

1096

01:21:17,090 --> 01:21:14,760

cassida to move the array to the work

1097

01:21:18,350 --> 01:21:17,100

side of the starboard Fortress for its

1098

01:21:20,209 --> 01:21:18,360

installation

1099

01:21:23,030 --> 01:21:20,219

you want me to drive it back out and

1100

01:21:30,530 --> 01:21:23,040

reset it or leave it as if

1101

01:21:36,890 --> 01:21:33,470

at the current setting I had uh

1102

01:21:40,370 --> 01:21:36,900

the current position I had

1103

01:21:41,209 --> 01:21:40,380

11 decimal eight torque four turns green

1104

01:21:43,610 --> 01:21:41,219

light

1105

01:21:45,830 --> 01:21:43,620

yeah cubby 11 this might on the torque

1106

01:21:48,770 --> 01:21:45,840

uh didn't copy the turns but you got a

1107

01:21:48,780 --> 01:21:54,830

four charts copy four turns checking

1108

01:22:02,750 --> 01:21:57,770

and they're coming for the back off next

1109

01:22:07,790 --> 01:22:05,090

okay we're set up here ev1

1110

01:22:10,790 --> 01:22:07,800

this body out and body down we're coming

1111

01:22:13,189 --> 01:22:10,800

out about a meter and down three and a

1112

01:22:15,350 --> 01:22:13,199

half meters out one and down three

1113

01:22:16,250 --> 01:22:15,360

meters everyone's happy thanks you have

1114

01:22:19,930 --> 01:22:16,260

a go

1115

01:22:22,669 --> 01:22:19,940

starting motion Cole man uh

1116

01:22:25,850 --> 01:22:22,679

orchestrating uh the movement of Josh

1117

01:22:28,669 --> 01:22:25,860

cassadin now who is uh fixed at the end

1118

01:22:36,229 --> 01:22:28,679

of the station's robotic arm to position

1119

01:22:40,310 --> 01:22:37,850

Frank we're happy you can press to the

1120

01:22:40,320 --> 01:22:47,450

okay

1121

01:22:47,460 --> 01:22:51,410

uh

1122

01:22:55,250 --> 01:22:53,510

okay there's your ex and now we're

1123

01:23:44,330 --> 01:22:55,260

coming station later

1124

01:23:44,340 --> 01:23:48,470

foreign

1125

01:23:54,229 --> 01:23:51,050

good view of Josh Cassidy at the end of

1126  
01:23:55,189 --> 01:23:54,239  
the canadarm II robotic arm and a foot

1127  
01:23:59,750 --> 01:23:55,199  
restraint

1128  
01:24:02,689 --> 01:23:59,760  
positioning him at the right orientation

1129  
01:24:05,270 --> 01:24:02,699  
he will be rotating a couple of rollers

1130  
01:24:08,270 --> 01:24:05,280  
called boom deployment system rollers 90

1131  
01:24:12,110 --> 01:24:08,280  
degrees to a deployed position part of

1132  
01:24:14,870 --> 01:24:12,120  
the work in tandem with Frank Rubio to

1133  
01:24:16,729 --> 01:24:14,880  
release the ISS rollout solar array from

1134  
01:24:18,050 --> 01:24:16,739  
its parked position on the truss of the

1135  
01:24:20,990 --> 01:24:18,060  
station

1136  
01:24:23,630 --> 01:24:21,000  
okay ev1 we are at the published back

1137  
01:24:26,630 --> 01:24:23,640  
off position we are setting up for a two

1138  
01:24:34,630 --> 01:24:26,640

and a half a minute bolt access a joint

1139

01:24:39,649 --> 01:24:37,910

and a panoramic view from 260 miles

1140

01:24:41,450 --> 01:24:39,659

above the Earth

1141

01:24:48,770 --> 01:24:41,460

as the International Space Station

1142

01:24:48,780 --> 01:24:53,510

yes okay I'm ready

1143

01:24:53,520 --> 01:25:02,270

motion

1144

01:25:08,689 --> 01:25:04,610

okay maneuver complete sign up for the

1145

01:25:13,850 --> 01:25:11,090

everything you look like uh

1146

01:26:10,189 --> 01:25:13,860

motion on that last one just a heads up

1147

01:26:10,199 --> 01:26:21,950

oh God

1148

01:26:28,189 --> 01:26:25,310

Frank how are those erds working for you

1149

01:26:29,450 --> 01:26:28,199

all right good yeah

1150

01:26:30,770 --> 01:26:29,460

a little more challenging than I

1151

01:26:33,649 --> 01:26:30,780

expected but

1152

01:26:35,810 --> 01:26:33,659

TV one we are ready for the joint ocas

1153

01:26:38,510 --> 01:26:35,820

this is going to put you back 90 degrees

1154

01:26:42,010 --> 01:26:38,520

and bring you underneath irosa

1155

01:26:51,709 --> 01:26:42,020

easy one copies let's go

1156

01:27:05,390 --> 01:26:54,350

I see good motion a little body left and

1157

01:27:09,890 --> 01:27:08,030

I make I am at ard one

1158

01:27:11,390 --> 01:27:09,900

I am ready to it and I'm ready for

1159

01:27:13,970 --> 01:27:11,400

settings

1160

01:27:17,510 --> 01:27:13,980

Kathy we see the same Frank Bravo 3

1161

01:27:17,520 --> 01:27:20,090

three

1162

01:27:24,590 --> 01:27:22,310

that's a good read back again six to ten

1163

01:27:27,110 --> 01:27:24,600

turns until you can rotate that stop

1164

01:27:27,120 --> 01:28:10,870

thank you

1165

01:28:15,770 --> 01:28:13,850

we uh we'll be regaining our downlink

1166

01:28:18,410 --> 01:28:15,780

video from the station momentarily

1167

01:28:20,270 --> 01:28:18,420

handing over Communications between

1168

01:28:26,270 --> 01:28:20,280

satellites on the tracking and data

1169

01:28:32,330 --> 01:28:29,030

it's probably too early to tell

1170

01:28:36,649 --> 01:28:32,340

how much of the uh maneuvering out to S4

1171

01:28:45,770 --> 01:28:38,810

person's ramping up

1172

01:28:49,370 --> 01:28:47,930

yeah just uh we we checked the timeline

1173

01:29:01,970 --> 01:28:49,380

and you should be in a night pass when

1174

01:29:05,750 --> 01:29:04,129

all right Mike unfortunately the uh got

1175

01:29:08,629 --> 01:29:05,760

uh ten turns in there are plenty of

1176

01:29:11,149 --> 01:29:08,639

clearance between the blocks like a

1177

01:29:19,390 --> 01:29:11,159

brand new snap well I was trying to pull

1178

01:29:19,400 --> 01:29:25,669

GCA to publish R1 R2 bolt access

1179

01:29:30,110 --> 01:29:28,129

okay sounds like they might be the Tom

1180

01:29:32,510 --> 01:29:30,120

nickel but you decide on if you wanted

1181

01:29:34,610 --> 01:29:32,520

for GCA here or standby I just got it

1182

01:29:35,750 --> 01:29:34,620

off

1183

01:29:37,850 --> 01:29:35,760

they were

1184

01:29:40,610 --> 01:29:37,860

correct all right I'll just verify

1185

01:29:42,590 --> 01:29:40,620

settings for putting it back in please

1186

01:29:45,110 --> 01:29:42,600

yeah Frank it's gonna be Bravo One

1187

01:29:51,610 --> 01:29:45,120

clockwise two and then we're going to

1188

01:29:57,530 --> 01:29:53,629

thank you

1189

01:29:59,990 --> 01:29:57,540

before we do the GCA for me on R1 R2 is

1190

01:30:02,510 --> 01:30:00,000

it Alpha two current clockwise two

1191

01:30:08,750 --> 01:30:02,520

just to get that set up as we move it's

1192

01:30:15,050 --> 01:30:11,330

four counter two I'll get it set up D1

1193

01:30:18,410 --> 01:30:15,060

is ready uh GCA to published for R1 R2

1194

01:30:23,330 --> 01:30:20,209

okay we are ready this will bring you

1195

01:30:26,810 --> 01:30:23,340

body in about a meter and a half coffee

1196

01:30:26,820 --> 01:30:34,430

starting motion

1197

01:30:40,850 --> 01:30:37,850

approaching the 90 minute Mark in the

1198

01:30:43,790 --> 01:30:40,860

spacewalk Frank Rubio continuing to back

1199

01:30:46,310 --> 01:30:43,800

out bolts to release anti-rotation

1200

01:30:49,790 --> 01:30:46,320

devices basically these are devices

1201  
01:30:51,229 --> 01:30:49,800  
holding the ISS rollout solar array in a

1202  
01:30:52,910 --> 01:30:51,239  
stable position

1203  
01:30:55,970 --> 01:30:52,920  
that's what they were used for during

1204  
01:31:00,410 --> 01:30:55,980  
the launch and Ascent of the arrays in

1205  
01:31:03,410 --> 01:31:00,420  
the trunk of the SpaceX cargo dragon

1206  
01:31:05,990 --> 01:31:03,420  
wow Josh cassett at the end of the

1207  
01:31:08,570 --> 01:31:06,000  
station's robotic arm being carefully

1208  
01:31:10,189 --> 01:31:08,580  
maneuvered by koichiwakata under the

1209  
01:31:12,410 --> 01:31:10,199  
watchful eye of Nicole Mann who's

1210  
01:31:15,050 --> 01:31:12,420  
working with wakata at the robotic

1211  
01:31:17,270 --> 01:31:15,060  
workstation in the destiny laboratory as

1212  
01:31:21,169 --> 01:31:17,280  
he begins work to uh

1213  
01:31:23,689 --> 01:31:21,179

unbolt two bolts for the deployment boom

1214

01:31:24,830 --> 01:31:23,699

deployment system these are restraint

1215

01:31:27,590 --> 01:31:24,840

bolts

1216

01:31:31,970 --> 01:31:27,600

the boom deployment system to be

1217

01:31:35,209 --> 01:31:31,980

employed later as the ISS rollout solar

1218

01:31:38,030 --> 01:31:35,219

array is unfurled to its full length of

1219

01:31:41,990 --> 01:31:38,040

60 feet once it is installed and

1220

01:31:44,149 --> 01:31:42,000

electrically connected to the 3A power

1221

01:31:46,550 --> 01:31:44,159

channel on the starboard Fortress of the

1222

01:31:46,560 --> 01:31:58,430

you want to copy standby

1223

01:32:08,390 --> 01:32:00,169

this Public's position is going to work

1224

01:32:16,490 --> 01:32:11,270

two yeah that's uh Alpha

1225

01:32:19,310 --> 01:32:16,500

or counterclockwise to bet for R1

1226  
01:32:21,050 --> 01:32:19,320  
that that's a good uh good setting 10 to

1227  
01:32:23,330 --> 01:32:21,060  
13 turns and the Bolt's going to Spring

1228  
01:32:25,490 --> 01:32:23,340  
out when fully released just to caution

1229  
01:32:31,550 --> 01:32:25,500  
when you rotate those Booms to do it

1230  
01:32:37,189 --> 01:32:35,450  
copy that 10 to 13 turns Kevin now good

1231  
01:32:40,250 --> 01:32:37,199  
view looking right down the barrel of

1232  
01:32:42,350 --> 01:32:40,260  
the ISS rollout solar array these are

1233  
01:32:44,629 --> 01:32:42,360  
boom deployment restraint bolts that

1234  
01:32:48,229 --> 01:32:44,639  
cassida is backing out

1235  
01:32:51,470 --> 01:32:48,239  
so that there are two rollers that will

1236  
01:32:53,930 --> 01:32:51,480  
be rotated 90 degrees to assist in the

1237  
01:32:56,330 --> 01:32:53,940  
freeing up of the ISS rollout solar

1238  
01:33:03,290 --> 01:32:56,340

array from its parked position

1239

01:33:03,300 --> 01:33:08,209

and verify I'm doing a

1240

01:33:11,149 --> 01:33:09,770

yeah Frank you're going to do the socket

1241

01:33:18,050 --> 01:33:11,159

swap so you're going to grab that socket

1242

01:33:21,590 --> 01:33:20,149

and there's that thing on R2 and then

1243

01:33:22,610 --> 01:33:21,600

swing them out that was 10 turns it's

1244

01:33:26,810 --> 01:33:22,620

popped out

1245

01:33:30,290 --> 01:33:28,790

and Frank the uh the soccer caddy

1246

01:33:32,450 --> 01:33:30,300

there's that red on the external that

1247

01:33:37,370 --> 01:33:32,460

you can use to Stow that socket caddy on

1248

01:33:41,750 --> 01:33:39,590

okay yeah I appreciate it

1249

01:33:46,330 --> 01:33:41,760

looks like it's fine here just want to

1250

01:33:53,990 --> 01:33:49,490

counterclockwise for R2 Alpha 4 counter

1251  
01:34:17,450 --> 01:33:56,030  
you got it found our same direction here

1252  
01:34:17,460 --> 01:34:22,910  
10 turns R2 is popped out

1253  
01:34:42,229 --> 01:34:25,370  
hey Josh we see interns and we see a

1254  
01:34:52,430 --> 01:34:46,189  
and so Josh once you uh Stow your PGT uh

1255  
01:34:52,440 --> 01:34:56,149  
sounds good I'll do it

1256  
01:34:56,159 --> 01:35:01,310  
I think you are looking good over there

1257  
01:35:07,129 --> 01:35:04,510  
pretty view of the Moon up here

1258  
01:35:09,169 --> 01:35:07,139  
and now I saw that that's an incredible

1259  
01:35:10,490 --> 01:35:09,179  
View

1260  
01:35:11,810 --> 01:35:10,500  
hey uh

1261  
01:35:13,370 --> 01:35:11,820  
I don't know if you'll be able to see it

1262  
01:35:15,770 --> 01:35:13,380  
but at some point in this whole process

1263  
01:35:18,470 --> 01:35:15,780

if you're able to get comfortable with

1264

01:35:19,790 --> 01:35:18,480

this aprfr Ingress as I am you can see

1265

01:35:21,830 --> 01:35:19,800

that I'm all the way in that would feel

1266

01:35:24,649 --> 01:35:21,840

really good okay

1267

01:35:27,709 --> 01:35:24,659

all right 10 seconds for 90 degrees on

1268

01:35:27,719 --> 01:35:46,490

hey Josh

1269

01:35:52,010 --> 01:35:49,129

all right make our heavy 12 inch 5 8 on

1270

01:35:56,390 --> 01:35:52,020

my BGC for full test and I have the 7 16

1271

01:35:56,400 --> 01:36:05,750

copy good socket swap thanks Frank

1272

01:36:21,050 --> 01:36:08,209

I'm heading over to Charlie one hey Firm

1273

01:36:26,390 --> 01:36:22,930

head over to the system uh

1274

01:36:28,370 --> 01:36:26,400

Josh I see your right foot I think the

1275

01:36:30,110 --> 01:36:28,380

official term is warm fuzzy yeah that's

1276

01:36:32,390 --> 01:36:30,120

what you're looking for uh you got a

1277

01:36:34,910 --> 01:36:32,400

warm fuzzy on your right okay uh your

1278

01:36:36,830 --> 01:36:34,920

left if you take your heel just a little

1279

01:36:38,629 --> 01:36:36,840

bit outside

1280

01:36:40,790 --> 01:36:38,639

can you turn it anymore

1281

01:36:42,830 --> 01:36:40,800

oh okay then you're in a good position I

1282

01:36:45,590 --> 01:36:42,840

can only see the inside and it's on the

1283

01:36:48,229 --> 01:36:45,600

edge okay I think it's just

1284

01:36:49,850 --> 01:36:48,239

large fields

1285

01:36:51,410 --> 01:36:49,860

sounds good you know what you also have

1286

01:36:54,410 --> 01:36:51,420

a great view in that you're over at the

1287

01:36:59,870 --> 01:36:54,420

C2 okay sounds great

1288

01:37:10,070 --> 01:37:01,490

swung out

1289

01:37:17,689 --> 01:37:12,709

okay for r3r4 I know one of them is the

1290

01:37:23,750 --> 01:37:21,229

yep copy R3 and R4 is going to be uh the

1291

01:37:25,370 --> 01:37:23,760

next step and uh you need to assess your

1292

01:37:31,189 --> 01:37:25,380

position see if you need any GCA to be

1293

01:37:37,010 --> 01:37:34,430

you know what uh M1 do you mind if we

1294

01:37:38,390 --> 01:37:37,020

took a minute and just moved the uh body

1295

01:37:40,669 --> 01:37:38,400

down

1296

01:37:45,530 --> 01:37:40,679

it'll just help since I've got about uh

1297

01:37:51,709 --> 01:37:48,410

one hour 35 minutes into the spacewalk

1298

01:37:53,689 --> 01:37:51,719

Josh Casada has released the first in a

1299

01:37:57,649 --> 01:37:53,699

series of bolts for the boom deployment

1300

01:38:00,830 --> 01:37:57,659

system on the ISS rollout solar array

1301

01:38:02,930 --> 01:38:00,840

the first two bolts to be uh released

1302

01:38:05,810 --> 01:38:02,940

were restraint bolts

1303

01:38:08,050 --> 01:38:05,820

he also manually repositioned uh two

1304

01:38:10,490 --> 01:38:08,060

rollers to get them out of the way

1305

01:38:12,050 --> 01:38:10,500

setting the stage for the release of

1306

01:38:13,850 --> 01:38:12,060

another pair of bolts for the outer

1307

01:38:16,850 --> 01:38:13,860

deployment to restraints

1308

01:38:20,149 --> 01:38:16,860

all part of the mechanisms holding the

1309

01:38:22,610 --> 01:38:20,159

array in its folded position prior to

1310

01:38:26,390 --> 01:38:22,620

the time that it is manually transported

1311

01:38:29,090 --> 01:38:26,400

by cassida over to the starboard for

1312

01:38:30,250 --> 01:38:29,100

truss for the electrical hookup and

1313

01:38:33,970 --> 01:38:30,260

installation

1314

01:38:37,129 --> 01:38:33,980

alongside the Legacy or original array

1315

01:38:40,729 --> 01:38:37,139

that powers the 3A power channel of the

1316

01:38:47,030 --> 01:38:42,950

okay we copy we're going to bring you a

1317

01:38:49,189 --> 01:38:47,040

body down 20 centimeters and with the

1318

01:38:52,250 --> 01:38:49,199

night pass clearances are tough so we'll

1319

01:38:54,350 --> 01:38:52,260

uh take your clearances from the food

1320

01:38:56,930 --> 01:38:54,360

plate and your body sounds good I've got

1321

01:38:59,629 --> 01:38:56,940

uh clear space between me and irisa I

1322

01:39:05,270 --> 01:38:59,639

can maintain this clearance

1323

01:39:05,280 --> 01:39:08,750

my secret motion

1324

01:39:13,370 --> 01:39:12,110

continue Indigo and ramp out motion

1325

01:39:14,930 --> 01:39:13,380

there

1326

01:39:18,950 --> 01:39:14,940

what motion

1327

01:39:20,090 --> 01:39:18,960

okay there is your 20 centimeters well I

1328

01:39:22,669 --> 01:39:20,100

guessed it right

1329

01:39:23,870 --> 01:39:22,679

nailed it

1330

01:39:28,189 --> 01:39:23,880

all right

1331

01:39:34,310 --> 01:39:28,199

private R3 and ready for settings

1332

01:39:47,030 --> 01:39:36,250

hey Josh your settings are alpha three

1333

01:39:51,530 --> 01:39:49,850

all right this is the weird one Alpha

1334

01:39:53,450 --> 01:39:51,540

three

1335

01:40:01,490 --> 01:39:53,460

is set

1336

01:40:07,669 --> 01:40:05,450

and you are 145 ish right that's

1337

01:40:10,490 --> 01:40:07,679

affirmative uh so uh you might want to

1338

01:40:13,250 --> 01:40:10,500

reset your review PGT counter to help

1339

01:40:14,570 --> 01:40:13,260

out you're on R3 you've got good

1340

01:40:20,410 --> 01:40:14,580

settings

1341

01:40:20,420 --> 01:40:34,010

Charlie starting turns clockwise

1342

01:40:40,490 --> 01:40:36,410

was not only did you know at UCA but it

1343

01:40:40,500 --> 01:40:44,390

hold on

1344

01:40:52,610 --> 01:40:46,910

hey Frank uh we've got some choppy calm

1345

01:40:52,620 --> 01:41:05,930

it's okay it was for Josh

1346

01:41:05,940 --> 01:41:16,189

40.

1347

01:41:21,110 --> 01:41:17,990

hey Frank when you get into a stable

1348

01:41:22,250 --> 01:41:21,120

position before you work on Charlie 2 we

1349

01:41:25,430 --> 01:41:22,260

want you to

1350

01:41:32,770 --> 01:41:25,440

try to readjust your cuff checklist so

1351

01:41:38,030 --> 01:41:35,209

I know

1352

01:41:39,950 --> 01:41:38,040

yeah so we can see in the wvs you want

1353

01:41:41,750 --> 01:41:39,960

to get that band back up as high as you

1354

01:41:46,729 --> 01:41:41,760

can on your arm we want the gauntlet to

1355

01:41:46,739 --> 01:42:54,169

and we've got a Handover

1356

01:42:59,149 --> 01:42:55,729

and Frank Josh we're back with you after

1357

01:43:03,250 --> 01:43:01,250

how did that

1358

01:43:04,850 --> 01:43:03,260

hey there guys

1359

01:43:08,450 --> 01:43:04,860

unfortunately it's not completely

1360

01:43:13,070 --> 01:43:10,490

hand I can't really move that

1361

01:43:14,209 --> 01:43:13,080

elastic Loop every time I move one and

1362

01:43:16,070 --> 01:43:14,219

the other end goes back to the

1363

01:43:17,930 --> 01:43:16,080

storyboard

1364

01:43:20,090 --> 01:43:17,940

yeah understand don't know if there's a

1365

01:43:22,310 --> 01:43:20,100

way to to wiggle that uh cuff checklist

1366

01:43:23,810 --> 01:43:22,320

band up towards your elbow as much as

1367

01:43:25,430 --> 01:43:23,820

you can

1368

01:43:27,590 --> 01:43:25,440

um as long as it's still accessible for

1369

01:43:31,609 --> 01:43:27,600

you it doesn't need to be down toward

1370

01:43:35,330 --> 01:43:33,350

yeah unfortunately that's what I'm

1371

01:43:38,870 --> 01:43:35,340

having trouble doing I just can't

1372

01:43:38,880 --> 01:43:48,649

it won't it won't expand enough to

1373

01:43:53,870 --> 01:43:50,390

copy Frank so we're going to have you

1374

01:43:54,950 --> 01:43:53,880

continue to work on the the Charlie II

1375

01:43:56,270 --> 01:43:54,960

um there's gonna be a time in the

1376

01:43:57,830 --> 01:43:56,280

timeline where Josh is going to be close

1377

01:44:01,189 --> 01:43:57,840

to you he might be able to lend a hand

1378

01:44:01,199 --> 01:44:07,129

okay

1379

01:44:07,139 --> 01:44:13,370

I'm ready for settings for Charlie too

1380

01:44:13,380 --> 01:44:20,750

Charlie two is Bravo three counter two

1381

01:44:26,390 --> 01:44:23,030

I have a Bravo

1382

01:44:35,149 --> 01:44:26,400

3D counter two and I understand

1383

01:44:35,159 --> 01:44:38,270

245.

1384

01:44:52,129 --> 01:44:40,970

um Romeo three

1385

01:44:58,090 --> 01:44:54,590

that's affirmative and we've got to copy

1386

01:45:04,750 --> 01:44:58,100

your 245 turns on R3 R4 is Alpha 3

1387

01:45:09,890 --> 01:45:08,030

counter three is set and I'm sorry from

1388

01:45:11,590 --> 01:45:09,900

this thought I cannot see the turkey

1389

01:45:14,270 --> 01:45:11,600

farmer

1390

01:45:21,770 --> 01:45:14,280

no worries we'll have uh Frank confirm

1391

01:45:28,970 --> 01:45:26,270

Casita and Rubio continue work to undo a

1392

01:45:31,250 --> 01:45:28,980

number of bolts holding the ISS rollout

1393

01:45:33,709 --> 01:45:31,260

solar array in place on the Flight

1394

01:45:35,330 --> 01:45:33,719

Support equipment on the truss of the

1395

01:45:38,270 --> 01:45:35,340

station

1396

01:45:40,669 --> 01:45:38,280

prior to its movement by cassida over to

1397

01:45:42,290 --> 01:45:40,679

the starboard Fortress for its

1398

01:45:45,530 --> 01:45:42,300

installation and electrical connection

1399

01:45:47,530 --> 01:45:45,540

to the original solar array system the

1400

01:45:51,350 --> 01:45:47,540

electrical system the integrated

1401  
01:45:54,649 --> 01:45:51,360  
Electronics assembly on the starboard

1402  
01:45:57,350 --> 01:45:54,659  
Fortress for the 3A power Channel

1403  
01:45:59,149 --> 01:45:57,360  
Rubio in the process of releasing a

1404  
01:46:00,229 --> 01:45:59,159  
couple of outer deployment restraint

1405  
01:46:03,830 --> 01:46:00,239  
bolts

1406  
01:46:05,629 --> 01:46:03,840  
on the ISS rollout solar array the crew

1407  
01:46:51,350 --> 01:46:05,639  
continues to operate several minutes

1408  
01:46:56,810 --> 01:46:53,629  
hey Frank um before you head back over

1409  
01:46:58,910 --> 01:46:56,820  
to the crew lock bag we'd like you to

1410  
01:47:00,770 --> 01:46:58,920  
translate over to stanchion Alpha to see

1411  
01:47:04,430 --> 01:47:00,780  
if you can put eyes on the turkey timers

1412  
01:47:04,440 --> 01:47:10,250  
okay so um

1413  
01:47:15,709 --> 01:47:13,010

the turkey timers referenced by a

1414

01:47:17,990 --> 01:47:15,719

spacecraft Communicator Nick Hague are

1415

01:47:20,510 --> 01:47:18,000

basically status indicators to ensure

1416

01:47:24,410 --> 01:47:20,520

that the bolts that are being released

1417

01:47:26,930 --> 01:47:24,420

are fully released just a status uh

1418

01:47:30,169 --> 01:47:26,940

double checking device to ensure that

1419

01:47:32,270 --> 01:47:30,179

the ISS rollout solar array is ready to

1420

01:47:34,510 --> 01:47:32,280

be released and removed from its Flight

1421

01:47:38,750 --> 01:47:34,520

Support equipment

1422

01:47:40,790 --> 01:47:38,760

yeah copy Frank uh you see it good we uh

1423

01:47:41,810 --> 01:47:40,800

we don't have it on the video it's a

1424

01:47:44,149 --> 01:47:41,820

little bit higher up you'd have to

1425

01:47:46,370 --> 01:47:44,159

translate higher up on the stanchion and

1426

01:47:47,870 --> 01:47:46,380

uh we don't need the video

1427

01:47:51,229 --> 01:47:47,880

um but if you want to wait until Josh

1428

01:47:55,370 --> 01:47:51,239

drives the R4 bolt all the way out we'd

1429

01:47:59,090 --> 01:47:57,649

bearing

1430

01:48:02,030 --> 01:47:59,100

hole past the bottom is that full

1431

01:48:07,729 --> 01:48:04,370

if it breaks the surface if you see it

1432

01:48:11,810 --> 01:48:07,739

sticking out at all it's good

1433

01:48:15,410 --> 01:48:11,820

okay it's uh sticking out okay

1434

01:48:29,270 --> 01:48:15,420

between uh a quarter and a half an inch

1435

01:48:33,830 --> 01:48:30,830

I'm going to translate to the other side

1436

01:49:36,830 --> 01:48:33,840

I should be able to see it from the bag

1437

01:49:43,669 --> 01:49:40,729

hey and I see it for shooting from uh

1438

01:49:46,250 --> 01:49:43,679

also Crossing distance one quarter to

1439

01:49:48,470 --> 01:49:46,260

half an inch uh good bearing hole

1440

01:49:52,669 --> 01:49:48,480

visible

1441

01:49:54,770 --> 01:49:52,679

that is 245 turns on this side you can

1442

01:49:55,970 --> 01:49:54,780

let Miranda know that don't wake up

1443

01:50:04,010 --> 01:49:55,980

during the night with a recurring dream

1444

01:50:08,390 --> 01:50:06,649

Josh and uh copy Frankie saw a good

1445

01:50:10,129 --> 01:50:08,400

turkey timer uh you're going to want to

1446

01:50:13,669 --> 01:50:10,139

retrieve the square scoop out of crew

1447

01:50:13,679 --> 01:50:22,490

I do that

1448

01:50:25,390 --> 01:50:23,870

I want to make sure you were paying

1449

01:50:28,189 --> 01:50:25,400

attention

1450

01:50:33,290 --> 01:50:28,199

I wasn't going to let you go too far

1451

01:50:40,070 --> 01:50:36,109

here at our

1452

01:50:44,870 --> 01:50:43,370

yeah so next step I have a maneuver to

1453

01:50:47,709 --> 01:50:44,880

the carrier back off position when

1454

01:50:52,010 --> 01:50:50,330

and guys we want to stand by and hold

1455

01:50:54,890 --> 01:50:52,020

position right here we want to try to

1456

01:50:57,109 --> 01:50:54,900

troubleshoot uh uh The Gauntlet or the

1457

01:51:00,290 --> 01:50:57,119

cuff checklist and his Gauntlet on the

1458

01:51:01,970 --> 01:51:00,300

left hand of uh of Frank

1459

01:51:05,510 --> 01:51:01,980

um you guys are in a close position here

1460

01:51:07,490 --> 01:51:05,520

and so once Frank gets a scoop if he can

1461

01:51:10,129 --> 01:51:07,500

translate over and extend his arm

1462

01:51:13,010 --> 01:51:10,139

towards a Josh what we're what we need

1463

01:51:16,010 --> 01:51:13,020

to accomplish is clear the cuff

1464

01:51:17,330 --> 01:51:16,020

checklist band off high enough up so

1465

01:51:21,530 --> 01:51:17,340

that the gauntlet can cover the wrist

1466

01:51:21,540 --> 01:51:32,090

happy

1467

01:51:40,250 --> 01:51:33,649

actually I think that's going to be hard

1468

01:51:43,310 --> 01:51:41,750

I don't know where a safe spot is for

1469

01:51:44,990 --> 01:51:43,320

you to be friends here I'm gonna have to

1470

01:51:46,970 --> 01:51:45,000

just reach out my arm to you and see if

1471

01:51:53,530 --> 01:51:46,980

you can get it but we got to stay clear

1472

01:51:53,540 --> 01:51:59,629

if that's what you want

1473

01:52:19,970 --> 01:52:01,250

in my word we're talking about it just a

1474

01:52:24,050 --> 01:52:22,790

yeah Josh um we're good with you gcaing

1475

01:52:25,850 --> 01:52:24,060

so that you guys can close the gap

1476

01:52:27,229 --> 01:52:25,860

between you to look at that and we want

1477

01:52:29,450 --> 01:52:27,239

to make sure Josh so that you don't have

1478

01:52:31,070 --> 01:52:29,460

the same issue uh we want to make sure

1479

01:52:34,910 --> 01:52:31,080

that we can keep the gauntlets over the

1480

01:52:36,890 --> 01:52:34,920

wrist Rings that's that's the priority

1481

01:52:39,709 --> 01:52:36,900

we will take care of it we'll uh we'll

1482

01:52:43,430 --> 01:52:39,719

get each other set up here uh Duke if

1483

01:52:46,550 --> 01:52:43,440

you are ready I'm gonna need a GCA to my

1484

01:52:51,590 --> 01:52:46,560

right and end up being about a meter uh

1485

01:52:56,689 --> 01:52:54,470

one hour 50 minutes into the spacewalk

1486

01:53:00,109 --> 01:52:56,699

the crew running about 15-20 minutes

1487

01:53:02,390 --> 01:53:00,119

ahead of the timeline doing very well as

1488

01:53:04,550 --> 01:53:02,400

they are uh

1489

01:53:07,850 --> 01:53:04,560

backing out a number of bolts holding

1490

01:53:09,590 --> 01:53:07,860

the ISS rollout solar array in place on

1491

01:53:11,890 --> 01:53:09,600

Flight Support equipment on the truss of

1492

01:53:14,930 --> 01:53:11,900

the station

1493

01:53:17,990 --> 01:53:14,940

Rubio will soon be breaking torque on a

1494

01:53:21,609 --> 01:53:18,000

number of additional bolts holding irosa

1495

01:53:24,410 --> 01:53:21,619

in place this uh roll out solar array

1496

01:53:25,669 --> 01:53:24,420

will be transported to the starboard

1497

01:53:28,129 --> 01:53:25,679

Fortress

1498

01:53:30,050 --> 01:53:28,139

to uh the integrated Electronics

1499

01:53:32,629 --> 01:53:30,060

assembly to be installed on a mounting

1500

01:53:35,810 --> 01:53:32,639

bracket and electrically connected to

1501

01:53:38,510 --> 01:53:35,820

join forces with the original solar

1502

01:53:52,129 --> 01:53:38,520

array for the 3A power channel on the

1503

01:53:57,649 --> 01:53:54,590

you know 50 centimeters to go okay

1504

01:54:03,830 --> 01:54:01,669

and ramp out in three two one stop

1505

01:54:08,090 --> 01:54:03,840

motion

1506

01:54:08,100 --> 01:54:19,729

like a Michelangelo painting

1507

01:54:28,250 --> 01:54:22,910

Casita now helping uh to adjust the cuff

1508

01:54:28,260 --> 01:54:32,270

great

1509

01:54:32,280 --> 01:54:36,050

spin it around here

1510

01:54:39,649 --> 01:54:37,669

see how I'm doing

1511

01:54:41,209 --> 01:54:39,659

yeah yeah

1512

01:54:44,030 --> 01:54:41,219

you can um

1513

01:54:46,330 --> 01:54:44,040

grab both ends and kind of pull out

1514

01:54:53,209 --> 01:54:46,340

okay yeah

1515

01:54:58,070 --> 01:54:55,550

the International Space Station flying

1516

01:55:00,709 --> 01:54:58,080

directly over Singapore at an altitude

1517

01:55:04,430 --> 01:55:00,719

of 260 statute miles moving from

1518

01:55:10,790 --> 01:55:04,440

Northwest to Southeast

1519

01:55:21,470 --> 01:55:12,790

[Music]

1520

01:55:23,990 --> 01:55:21,480

all right you are good

1521

01:55:25,070 --> 01:55:24,000

I am let's try to get that pulled as far

1522

01:55:26,689 --> 01:55:25,080

back

1523

01:55:30,169 --> 01:55:26,699

hold on man hold on to that many

1524

01:55:35,149 --> 01:55:31,250

all right let me know when you're

1525

01:55:44,810 --> 01:55:38,350

oh it's easy incomplete sorry dude

1526

01:55:48,709 --> 01:55:46,729

okay

1527

01:55:51,169 --> 01:55:48,719

did you probably have to do that in my

1528

01:55:54,470 --> 01:55:51,179

second at least hey Josh we see it in

1529

01:55:59,330 --> 01:55:56,330

all right now can you do something

1530

01:56:05,870 --> 01:55:59,340

similar to me yep let's see

1531

01:56:10,010 --> 01:56:08,090

and you are clear about solar array I'll

1532

01:56:11,689 --> 01:56:10,020

keep you clear just watch your right

1533

01:56:13,729 --> 01:56:11,699

hand on that

1534

01:56:15,830 --> 01:56:13,739

panel and I'll try to keep you stable so

1535

01:56:18,109 --> 01:56:15,840

after a minor wardrobe adjustment for

1536

01:56:19,430 --> 01:56:18,119

Frank Rubio the two spacewalkers

1537

01:56:22,669 --> 01:56:19,440

continue on

1538

01:56:24,950 --> 01:56:22,679

in this 256th spacewalk in support of

1539

01:56:31,250 --> 01:56:24,960

space station assembly maintenance and

1540

01:56:38,090 --> 01:56:33,470

sorry can you do that for him uh that's

1541

01:56:49,990 --> 01:56:39,290

I think there's a way we can affect

1542

01:56:56,030 --> 01:56:53,570

it's not it's the bottom part here I'm

1543

01:56:58,490 --> 01:56:56,040

gonna spin it

1544

01:57:06,229 --> 01:56:58,500

see down here I'm going to turn my hand

1545

01:57:10,310 --> 01:57:07,970

almost there and guys we see you working

1546

01:57:11,750 --> 01:57:10,320

with it just uh watch any of the sharks

1547

01:57:28,370 --> 01:57:11,760

that are on their cuff checklist the

1548

01:57:28,380 --> 01:57:43,590

foreign

1549

01:57:43,600 --> 01:57:47,990

[Music]

1550

01:57:52,250 --> 01:57:50,810

guys uh appreciate the effort on that

1551

01:57:56,570 --> 01:57:52,260

um it looks like the gauntlet's able to

1552

01:58:01,149 --> 01:57:59,149

I agree yeah and I'll be sure because I

1553

01:58:05,089 --> 01:58:01,159

can pull mine back so I think we're good

1554

01:58:07,070 --> 01:58:05,099

appreciate this attention there

1555

01:58:09,229 --> 01:58:07,080

all right uh

1556

01:58:10,669 --> 01:58:09,239

I'll leave it to Nick and M1 to figure

1557

01:58:13,609 --> 01:58:10,679

out the

1558

01:58:15,589 --> 01:58:13,619

where we go from here on robo

1559

01:58:17,270 --> 01:58:15,599

do I have a maneuver to the carrier back

1560

01:58:18,950 --> 01:58:17,280

off position that's going to bring your

1561

01:58:21,109 --> 01:58:18,960

body out about a meter and a half and

1562

01:58:23,450 --> 01:58:21,119

then we'll we can take out the uh y

1563

01:58:25,729 --> 01:58:23,460

during that flight

1564

01:58:27,950 --> 01:58:25,739

I'm good for that and that is not a GPA

1565

01:58:31,129 --> 01:58:27,960

so uh you're at the commas you need a

1566

01:58:33,470 --> 01:58:31,139

break okay doctor thank you

1567

01:58:34,729 --> 01:58:33,480

okay we're bringing your body out

1568

01:58:38,930 --> 01:58:34,739

coffee

1569

01:58:43,250 --> 01:58:40,970

look I'm heading over to

1570

01:58:44,689 --> 01:58:43,260

generally one to release and come on the

1571

01:58:46,910 --> 01:58:44,699

AC

1572

01:58:49,070 --> 01:58:46,920

those are good words Frank uh syncing

1573

01:58:50,570 --> 01:58:49,080

back up we've got Charlie one the full

1574

01:58:53,510 --> 01:58:50,580

release to do over there and then we'll

1575

01:59:12,890 --> 01:58:53,520

get you in position for Charlie to to do

1576

01:59:19,070 --> 01:59:15,770

Frank Rubio will be pressing ahead here

1577

01:59:22,669 --> 01:59:19,080

to release the final pair of bolts

1578

01:59:24,410 --> 01:59:22,679

holding the irosa on the Flight Support

1579

01:59:27,229 --> 01:59:24,420

equipment on the truss of the

1580

01:59:29,990 --> 01:59:27,239

International Space Station

1581

01:59:32,750 --> 01:59:30,000

we are approaching the two hour mark in

1582

01:59:35,510 --> 01:59:32,760

today's spacewalk the two crew members

1583

01:59:37,850 --> 01:59:35,520

outside Josh cassida and Frank Rubio

1584

01:59:40,609 --> 01:59:37,860

began their spacewalk at 6 16 a.m

1585

01:59:43,129 --> 01:59:40,619

central time they're running about 15 to

1586

01:59:45,950 --> 01:59:43,139

20 minutes ahead in the timeline

1587

01:59:47,990 --> 01:59:45,960

back off position we are setting up for

1588

02:00:08,930 --> 01:59:48,000

a three-minute retrieval intermediate

1589

02:00:14,629 --> 02:00:12,709

hi Mike I'm set up for Charlie one

1590

02:00:19,629 --> 02:00:14,639

okay Frank your settings are going to be

1591

02:00:25,550 --> 02:00:22,370

503 counterclockwise three

1592

02:00:38,810 --> 02:00:25,560

yep 51 to 54 turns and the bolts should

1593

02:00:43,250 --> 02:00:40,669

either one we're ready for the joint

1594

02:00:45,050 --> 02:00:43,260

ocas this is going to pitch you forward

1595

02:00:46,430 --> 02:00:45,060

90 degrees and bring you in front of

1596

02:00:48,609 --> 02:00:46,440

irosa

1597

02:00:55,550 --> 02:00:48,619

copies and ready

1598

02:00:55,560 --> 02:01:20,930

say good motion

1599

02:01:31,310 --> 02:01:22,729

and that's how you feeling about the

1600

02:01:35,930 --> 02:01:33,550

foreign

1601  
02:01:37,669 --> 02:01:35,940  
s we were talking about down here we're

1602  
02:01:39,109 --> 02:01:37,679  
on timeline consumables are looking

1603  
02:01:42,410 --> 02:01:39,119  
great looks like we're going to be go

1604  
02:01:45,649 --> 02:01:44,030  
that's awesome news

1605  
02:02:11,030 --> 02:01:45,659  
you guys are put together such an

1606  
02:02:13,669 --> 02:02:12,649  
I thought it might be something in the

1607  
02:02:34,450 --> 02:02:13,679  
cash checklist that would give us

1608  
02:02:39,470 --> 02:02:37,070  
at the two-hour Mark in today's

1609  
02:02:40,970 --> 02:02:39,480  
spacewalk flight controllers here very

1610  
02:02:43,790 --> 02:02:40,980  
comfortable with where the two space

1611  
02:02:46,970 --> 02:02:43,800  
Walkers are in the release of all the

1612  
02:02:48,830 --> 02:02:46,980  
bolts and have given the crew a go to

1613  
02:03:04,850 --> 02:02:48,840

release the irosa from its Flight

1614

02:03:04,860 --> 02:03:27,050

foreign

1615

02:03:27,060 --> 02:04:07,970

everyone's ready

1616

02:04:12,830 --> 02:04:10,729

okay 81 we are set up this is going to

1617

02:04:15,709 --> 02:04:12,840

pitch you forward and bring you up over

1618

02:04:22,189 --> 02:04:15,719

irosa coffee

1619

02:04:22,199 --> 02:04:28,550

secret motion

1620

02:04:28,560 --> 02:04:34,270

uh

1621

02:04:34,280 --> 02:04:38,030

we're with you

1622

02:04:43,729 --> 02:04:40,790

it's all about 54 turns

1623

02:04:45,830 --> 02:04:43,739

um the default is really loose but I

1624

02:04:54,970 --> 02:04:45,840

guess when you say it pops out I

1625

02:04:59,089 --> 02:04:57,350

and Frank that's affirmative you should

1626

02:05:00,830 --> 02:04:59,099

be able to push it back in so if you

1627

02:05:03,530 --> 02:05:00,840

want to add more turns you can go beyond

1628

02:05:06,109 --> 02:05:03,540

54. okay

1629

02:05:07,850 --> 02:05:06,119

yeah super wobbly side to side but I

1630

02:05:25,850 --> 02:05:07,860

don't seem to be able to push it back in

1631

02:05:30,470 --> 02:05:27,470

and Frank we're happy with that bolt it

1632

02:05:42,530 --> 02:05:30,480

looks like it's released

1633

02:05:46,250 --> 02:05:44,629

Ben Frank after you stole that PGT

1634

02:06:55,010 --> 02:05:46,260

you're going to install the square scoop

1635

02:06:55,020 --> 02:07:18,229

foreign

1636

02:07:22,430 --> 02:07:20,450

okay copy that uh did you expect me to

1637

02:07:26,930 --> 02:07:22,440

be yard right body right a little bit

1638

02:07:26,940 --> 02:07:31,129

checking

1639

02:07:34,609 --> 02:07:32,750

could you have a second I'll probably

1640

02:07:36,950 --> 02:07:34,619

have you give a look at the

1641

02:07:46,490 --> 02:07:36,960

TFR make sure nothing changed there sure

1642

02:07:58,550 --> 02:07:50,810

everyone your yaw is uh zero and should

1643

02:08:05,649 --> 02:08:00,530

let me bring you in it's just body in

1644

02:08:12,250 --> 02:08:08,570

I have that scoop on Charlie one it is

1645

02:08:15,229 --> 02:08:12,260

in lock position 45 degrees uh angles

1646

02:08:17,810 --> 02:08:15,239

towards the bottom operation

1647

02:08:24,470 --> 02:08:17,820

copy Frank uh can we get a quick glove

1648

02:08:27,950 --> 02:08:25,729

uh

1649

02:08:30,169 --> 02:08:27,960

and I feel the calm after your Hatchet

1650

02:08:34,490 --> 02:08:30,179

yes and I have uh

1651

02:08:34,500 --> 02:08:38,149

copy good gloves good hats

1652

02:08:42,589 --> 02:08:39,890

did you see the published if you could

1653

02:08:44,629 --> 02:08:42,599

give a look at maybe why I'm yard just

1654

02:08:50,030 --> 02:08:44,639

slightly to the right

1655

02:08:53,870 --> 02:08:50,040

and uh M1 easy one is ready for a GCA to

1656

02:09:06,530 --> 02:08:53,880

be publish for uh the retrieval position

1657

02:09:10,250 --> 02:09:07,850

um his yard

1658

02:09:13,550 --> 02:09:10,260

finally towards your

1659

02:09:19,970 --> 02:09:15,589

but it's the plate it's not

1660

02:09:25,910 --> 02:09:22,370

okay that looks better the plate looks

1661

02:09:46,430 --> 02:09:27,709

yeah all right dude ready GCA no need

1662

02:09:50,270 --> 02:09:47,870

in fact I'm going to retrieve the other

1663

02:09:52,070 --> 02:09:50,280

scoop for Charlie puth

1664

02:09:53,450 --> 02:09:52,080

affirmative and you're going to get the

1665

02:09:59,270 --> 02:09:53,460

square scoop with the long duration

1666

02:10:03,109 --> 02:10:01,370

okay we're ready for the G save the

1667

02:10:06,290 --> 02:10:03,119

publish this is going to bring you body

1668

02:10:08,030 --> 02:10:06,300

in 80 centimeters and we still have

1669

02:10:09,649 --> 02:10:08,040

challenging views with the camera so if

1670

02:10:12,589 --> 02:10:09,659

you can help us out

1671

02:10:21,350 --> 02:10:12,599

coffee and I'll keep you clear

1672

02:10:21,360 --> 02:10:42,890

pretty good motion

1673

02:10:46,510 --> 02:10:44,870

20 centimeters

1674

02:10:56,810 --> 02:10:46,520

okay

1675

02:11:02,089 --> 02:10:58,729

I'm gonna need

1676  
02:11:04,250 --> 02:11:02,099  
15 centimeters body in

1677  
02:11:08,450 --> 02:11:04,260  
and the sun is coming out and I Aquarius

1678  
02:11:20,570 --> 02:11:11,930  
copy 15 centimeters of body in starting

1679  
02:11:20,580 --> 02:11:23,629  
any good motion

1680  
02:11:23,639 --> 02:11:29,689  
ramping out

1681  
02:11:33,709 --> 02:11:31,850  
two hours nine minutes into uh the

1682  
02:11:36,050 --> 02:11:33,719  
spacewalk at the top of your screen Josh

1683  
02:11:39,350 --> 02:11:36,060  
cassida his feet planted at the end of

1684  
02:11:42,530 --> 02:11:39,360  
the the canadarm 2 robotic arm ready to

1685  
02:11:44,689 --> 02:11:42,540  
remove the ISS roll out solar array from

1686  
02:11:48,189 --> 02:11:44,699  
its Flight Support equipment

1687  
02:11:51,890 --> 02:11:48,199  
after Frank Rubio drives two final bolts

1688  
02:11:52,850 --> 02:11:51,900

that are holding uh the array in its

1689

02:11:55,729 --> 02:11:52,860

place

1690

02:11:59,270 --> 02:11:55,739

catheter then will bring the array over

1691

02:12:02,390 --> 02:11:59,280

to the starboard for trust work site to

1692

02:12:05,810 --> 02:12:02,400

Begin work with Rubio to install it

1693

02:12:08,209 --> 02:12:05,820

at the appropriate position adjacent to

1694

02:12:10,550 --> 02:12:08,219

the original solar array on the

1695

02:12:12,410 --> 02:12:10,560

starboard Fortress that governs the

1696

02:12:17,510 --> 02:12:12,420

electrical output for the 3A power

1697

02:12:28,129 --> 02:12:21,530

five centimeters body in

1698

02:12:32,209 --> 02:12:30,350

all right five more centimeters thought

1699

02:12:34,790 --> 02:12:32,219

again and that'll be it

1700

02:12:45,950 --> 02:12:34,800

Bobby's having five centimeters body in

1701

02:12:50,990 --> 02:12:47,689

okay that's an additional five

1702

02:12:54,589 --> 02:12:53,149

I didn't call it because I didn't see it

1703

02:12:58,609 --> 02:12:54,599

um

1704

02:13:01,970 --> 02:12:58,619

we will call that good uh GCA complete

1705

02:13:04,430 --> 02:13:01,980

we see you our Smooth Operator

1706

02:13:06,589 --> 02:13:04,440

okay that's GCA complete you have go for

1707

02:13:08,750 --> 02:13:06,599

irosa retrieval

1708

02:13:10,729 --> 02:13:08,760

V1 copies

1709

02:13:14,089 --> 02:13:10,739

I think I've got a

1710

02:13:16,129 --> 02:13:14,099

rent on the scoop here on the right it

1711

02:13:18,530 --> 02:13:16,139

is uh from my anywhere station on the

1712

02:13:23,870 --> 02:13:20,990

copy that and we uh we see that so I've

1713

02:13:28,669 --> 02:13:23,880

got a lot of checks that we can uh we

1714

02:13:32,089 --> 02:13:30,109

the first time my hands have gotten a

1715

02:13:34,310 --> 02:13:32,099

little chilly I've never used the glove

1716

02:13:35,870 --> 02:13:34,320

heaters before

1717

02:13:37,189 --> 02:13:35,880

um if you've got any advice on it I'll

1718

02:13:38,930 --> 02:13:37,199

take it but I might have to turn them on

1719

02:13:46,069 --> 02:13:38,940

to this uh

1720

02:13:49,250 --> 02:13:48,229

in fact they are on now and I'll let you

1721

02:13:51,229 --> 02:13:49,260

know if I need to turn them off before

1722

02:13:53,330 --> 02:13:51,239

we go

1723

02:13:56,089 --> 02:13:53,340

I'll do that and uh just for your essay

1724

02:14:00,050 --> 02:13:56,099

you should be in in the Sun for most of

1725

02:14:04,430 --> 02:14:01,010

okay

1726

02:14:06,770 --> 02:14:04,440

yeah it wasn't for they weren't cold

1727

02:14:09,950 --> 02:14:06,780

earlier Frank you could have a problem

1728

02:14:13,310 --> 02:14:09,960

if you need it okay I am uh uh listen to

1729

02:14:16,550 --> 02:14:15,350

yeah and uh Frank we're gonna hold right

1730

02:14:17,990 --> 02:14:16,560

here because we're gonna run through all

1731

02:14:19,970 --> 02:14:18,000

these buddy checks because as soon as we

1732

02:14:23,330 --> 02:14:19,980

release that it's uh it's going to get

1733

02:14:25,550 --> 02:14:23,340

free from the FSE and uh just uh we've

1734

02:14:27,649 --> 02:14:25,560

got a great view on your hecca

1735

02:14:28,669 --> 02:14:27,659

um just lots of delicate stuff below

1736

02:14:31,490 --> 02:14:28,679

where you're trying to drive that so

1737

02:14:31,500 --> 02:14:35,330

yep

1738

02:14:35,340 --> 02:14:44,209

okay so let's do uh glove and hat checks

1739

02:14:50,629 --> 02:14:46,790

hey son found a great spot for me on

1740

02:15:04,850 --> 02:14:53,810

no Deltas for the gloves for easy one

1741

02:15:08,990 --> 02:15:07,490

okay and so let's uh Josh you want to

1742

02:15:13,089 --> 02:15:09,000

make sure your tools and tethers are

1743

02:15:20,209 --> 02:15:16,550

if you would free this eye looks great

1744

02:15:22,189 --> 02:15:20,219

and I see you right into the square

1745

02:15:23,870 --> 02:15:22,199

scoop

1746

02:15:25,430 --> 02:15:23,880

um and

1747

02:15:28,069 --> 02:15:25,440

the side of the footprint that I can see

1748

02:15:29,810 --> 02:15:28,079

looks good real quick sounds good

1749

02:15:32,810 --> 02:15:29,820

we are prayer

1750

02:15:35,149 --> 02:15:32,820

copy um so then visors glove heaters

1751

02:15:36,530 --> 02:15:35,159

cooling uh just uh like we said you're

1752

02:15:39,350 --> 02:15:36,540

going to be in the Sun for most of this

1753

02:15:44,270 --> 02:15:41,390

any risk if I have getting too hot with

1754

02:15:49,490 --> 02:15:44,280

the gloves on glove heaters on

1755

02:15:55,910 --> 02:15:51,350

not do that

1756

02:16:01,490 --> 02:15:58,729

copy let's open them now do water checks

1757

02:16:03,050 --> 02:16:01,500

and then visors will come back down

1758

02:16:05,149 --> 02:16:03,060

if you bring your visor up so I can see

1759

02:16:09,410 --> 02:16:05,159

if you've got water two hours 13 minutes

1760

02:16:11,629 --> 02:16:09,420

in Josh Casada about to uh pull the ISS

1761

02:16:13,250 --> 02:16:11,639

roll out solar array away from the

1762

02:16:16,310 --> 02:16:13,260

Flight Support equipment

1763

02:16:18,290 --> 02:16:16,320

to move it toward the starboard 4 truss

1764

02:16:19,609 --> 02:16:18,300

work site for its installation Josh you

1765

02:16:23,450 --> 02:16:19,619

want to make sure that your heels are

1766

02:16:27,069 --> 02:16:24,950

let me give me one more second amount

1767

02:16:29,330 --> 02:16:27,079

they feel secure to me

1768

02:16:30,649 --> 02:16:29,340

the left one was the one you think you

1769

02:16:32,209 --> 02:16:30,659

were

1770

02:16:34,669 --> 02:16:32,219

looking at earlier

1771

02:16:37,669 --> 02:16:34,679

picture from here okay

1772

02:16:43,549 --> 02:16:37,679

the old Air secure mix

1773

02:16:43,559 --> 02:16:53,209

I am closed uh left and right

1774

02:16:57,770 --> 02:16:55,310

and for you to do

1775

02:17:00,589 --> 02:16:57,780

okay and so uh Josh you're going to

1776

02:17:02,030 --> 02:17:00,599

maintain control the irosa in the FSC uh

1777

02:17:04,009 --> 02:17:02,040

Frank you're going to release the bolt

1778

02:17:06,469 --> 02:17:04,019

and then install the scoop with that

1779

02:17:08,270 --> 02:17:06,479

long duration tie-down tether on it uh

1780

02:17:10,370 --> 02:17:08,280

Josh when you're ready you're going to

1781

02:17:16,370 --> 02:17:10,380

give the go to Frank Frank your settings

1782

02:17:21,410 --> 02:17:19,250

level three counter three

1783

02:17:22,490 --> 02:17:21,420

and stand by for one second after you're

1784

02:17:24,349 --> 02:17:22,500

set

1785

02:17:26,509 --> 02:17:24,359

and Frank those are good Frank Rubio

1786

02:17:28,549 --> 02:17:26,519

about to release the final two bolts

1787

02:17:30,830 --> 02:17:28,559

holding the array in place on the Flight

1788

02:17:34,250 --> 02:17:30,840

Support equipment cassador ready to pull

1789

02:17:35,929 --> 02:17:34,260

that array out of the FSE to begin uh

1790

02:17:39,310 --> 02:17:35,939

movement over to the starboard Ford

1791

02:17:44,150 --> 02:17:42,589

we'll be back uh momentarily with our

1792

02:17:47,089 --> 02:17:44,160

video capability from the International

1793

02:17:49,009 --> 02:17:47,099

Space Station just now passing between

1794

02:17:51,230 --> 02:17:49,019

satellites on the tracking and data

1795

02:17:53,750 --> 02:17:51,240

relay satellite system

1796

02:17:55,370 --> 02:17:53,760

to push it away for me once you get it

1797

02:17:56,750 --> 02:17:55,380

on there if you can confirm that I just

1798

02:17:58,429 --> 02:17:56,760

want to plan ahead

1799

02:18:00,290 --> 02:17:58,439

or you're going to be a little harder to

1800

02:18:02,750 --> 02:18:00,300

get off when we get over there to the

1801  
02:18:06,290 --> 02:18:05,389  
okay uh with that uh you've got my go

1802  
02:18:08,270 --> 02:18:06,300  
for sure

1803  
02:18:11,570 --> 02:18:08,280  
and guys we're 10 seconds from a 20

1804  
02:18:16,969 --> 02:18:14,030  
if I ever go to the release YouTube

1805  
02:18:16,979 --> 02:18:35,570  
okay all right let's do it three

1806  
02:18:42,530 --> 02:18:38,270  
wow it's really cool

1807  
02:18:42,540 --> 02:18:46,570  
that's funny

1808  
02:19:07,680 --> 02:18:49,370  
it is quick this one's really trying to

1809  
02:19:07,690 --> 02:19:28,129  
[Applause]

1810  
02:19:28,139 --> 02:19:41,270  
uh

1811  
02:19:41,280 --> 02:19:46,089  
watch that okay Rosa

1812  
02:19:56,570 --> 02:19:50,030  
are the wheels on this uh

1813  
02:20:02,570 --> 02:19:59,990

the upper arm or arm

1814

02:20:05,570 --> 02:20:02,580

um don't uh it's trying to get away here

1815

02:20:14,510 --> 02:20:05,580

right okay hold on I gotta put it on

1816

02:20:19,510 --> 02:20:16,370

all right get ready for me to go to walk

1817

02:20:25,550 --> 02:20:23,110

coaching okay

1818

02:20:30,550 --> 02:20:25,560

can you get my rat and put it on the

1819

02:20:34,610 --> 02:20:33,170

all right I got the scoop all right I

1820

02:20:36,170 --> 02:20:34,620

got both Scoops if you can get my rent

1821

02:20:38,030 --> 02:20:36,180

and put it on the longeration tie down

1822

02:20:39,650 --> 02:20:38,040

together we're good

1823

02:20:41,150 --> 02:20:39,660

it's uh

1824

02:20:43,670 --> 02:20:41,160

maybe a bit of a reach for you

1825

02:20:45,950 --> 02:20:43,680

unfortunately but I can hold the scoop

1826  
02:20:54,670 --> 02:20:45,960  
how would you hold this uh hold it in

1827  
02:21:04,429 --> 02:20:56,100  
all right

1828  
02:21:07,429 --> 02:21:04,439  
um

1829  
02:21:15,170 --> 02:21:10,150  
we have this let me have the right okay

1830  
02:21:22,450 --> 02:21:18,530  
two hours 19 minutes into the spacewalk

1831  
02:21:26,990 --> 02:21:22,460  
Rubio and cassida working in tandem

1832  
02:21:29,150 --> 02:21:27,000  
as they begin to move the ISS roll out

1833  
02:21:30,349 --> 02:21:29,160  
solar array away from the Flight Support

1834  
02:21:33,410 --> 02:21:30,359  
equipment

1835  
02:21:37,790 --> 02:21:33,420  
upon which it was launched in the trunk

1836  
02:21:41,389 --> 02:21:40,070  
you can see behind the array that cassid

1837  
02:21:44,809 --> 02:21:41,399  
is about to move to the starboard

1838  
02:21:47,330 --> 02:21:44,819

Fortress the second of the two ISS

1839

02:21:49,309 --> 02:21:47,340

rollout solar arrays that these two

1840

02:21:52,070 --> 02:21:49,319

spacewalkers will install on the other

1841

02:21:57,910 --> 02:21:52,080

side of the backbone of the station onto

1842

02:22:03,469 --> 02:22:00,469

that's great

1843

02:22:07,490 --> 02:22:03,479

first of all I'm sorry towards my head

1844

02:22:10,610 --> 02:22:07,500

yes correct okay sorry upside down here

1845

02:22:11,990 --> 02:22:10,620

hey Nick we got it uh it's on there it

1846

02:22:13,429 --> 02:22:12,000

was pushing pretty hard to get off and

1847

02:22:15,710 --> 02:22:13,439

now it no longer is

1848

02:22:18,650 --> 02:22:15,720

so we are uh we're in a good

1849

02:22:22,910 --> 02:22:20,690

good news uh nice work together on that

1850

02:22:25,190 --> 02:22:22,920

one and so uh

1851

02:22:26,990 --> 02:22:25,200

I've been here not to release the irosa

1852

02:22:29,809 --> 02:22:27,000

or prior to releasing the iro so make

1853

02:22:35,270 --> 02:22:29,819

sure the FSC is not moving uh so when

1854

02:22:42,420 --> 02:22:37,910

you'll be able to slide the aerosa Nader

1855

02:23:17,870 --> 02:22:44,809

[Music]

1856

02:23:22,250 --> 02:23:20,750

and Duke you understand that uh Frank is

1857

02:23:41,750 --> 02:23:22,260

making his way to

1858

02:23:47,210 --> 02:23:44,150

I heard you Josh okay sounds good okay

1859

02:23:48,950 --> 02:23:47,220

so Frank I see in a decent position

1860

02:23:51,290 --> 02:23:48,960

um and so if you're good with it then

1861

02:23:53,510 --> 02:23:51,300

Josh you're able to slide the irosa

1862

02:23:55,550 --> 02:23:53,520

Nader and that should slide off of those

1863

02:23:58,130 --> 02:23:55,560

pins that are on the FSC then you'll

1864

02:24:01,130 --> 02:23:59,990

copyright we're going to get a hold of

1865

02:24:03,590 --> 02:24:01,140

uh

1866

02:24:06,469 --> 02:24:03,600

dudes here first

1867

02:24:08,270 --> 02:24:06,479

okay we are standing by and ready for

1868

02:24:11,210 --> 02:24:08,280

the maneuver to publish

1869

02:24:13,190 --> 02:24:11,220

a removal on your bill all right gonna

1870

02:24:15,410 --> 02:24:13,200

release from FSC first and if

1871

02:24:17,270 --> 02:24:15,420

everybody's goes Frank are you go you're

1872

02:24:19,730 --> 02:24:17,280

a ghost all right so we're gonna go

1873

02:24:25,429 --> 02:24:19,740

Nader slightly and you can help guys out

1874

02:24:31,190 --> 02:24:26,710

yeah

1875

02:24:34,250 --> 02:24:31,200

okay all right now pull there we go okay

1876

02:24:37,429 --> 02:24:34,260

and the ISS rollout solar array the

1877

02:24:39,530 --> 02:24:37,439

third in the series of uh upgraded uh

1878

02:24:42,349 --> 02:24:39,540

augmenting arrays for the station is

1879

02:24:45,950 --> 02:24:42,359

free from its Flight Support structure

1880

02:24:48,650 --> 02:24:45,960

all right Frank you've got the calm for

1881

02:24:51,110 --> 02:24:48,660

the robo okay and uh dude because you

1882

02:24:52,910 --> 02:24:51,120

have a go for GCA to published uh Rosa

1883

02:24:55,309 --> 02:24:52,920

removal

1884

02:24:58,969 --> 02:24:55,319

okay this is going to bring easy one

1885

02:25:04,070 --> 02:24:58,979

body down four meters

1886

02:25:09,770 --> 02:25:06,230

if you have about three inches of

1887

02:25:09,780 --> 02:25:12,950

okay

1888

02:25:12,960 --> 02:25:20,150

let's see motion good motion

1889

02:25:25,610 --> 02:25:23,210

before the gravel fixture

1890

02:25:27,830 --> 02:25:25,620

in about 10 inches

1891

02:25:29,630 --> 02:25:27,840

are you putting any Force into irisa oh

1892

02:25:40,849 --> 02:25:29,640

yeah I'm trying to just uh

1893

02:25:40,859 --> 02:25:48,710

about two inches of Gray

1894

02:25:54,110 --> 02:25:50,990

okay you are clear of

1895

02:25:54,120 --> 02:26:00,230

can you copy

1896

02:26:00,240 --> 02:26:05,870

somehow heavy and light at the same time

1897

02:26:15,530 --> 02:26:08,030

okay you are completely clear from this

1898

02:26:15,540 --> 02:26:18,889

all right

1899

02:26:26,750 --> 02:26:21,050

again how many meters

1900

02:26:34,370 --> 02:26:30,250

smooth as glass Josh cassida

1901  
02:26:37,429 --> 02:26:34,380  
moves with the ISS rollout solar away

1902  
02:27:03,910 --> 02:26:37,439  
from the Flight Support equipment on the

1903  
02:27:07,730 --> 02:27:05,630  
foreign

1904  
02:27:09,770 --> 02:27:07,740  
big picture here you're going to put

1905  
02:27:11,450 --> 02:27:09,780  
that 12 inch on the Saka caddy the

1906  
02:27:12,710 --> 02:27:11,460  
socket Caddy's going to end up in the

1907  
02:27:14,030 --> 02:27:12,720  
crew lock bag and then you're going to

1908  
02:27:20,929 --> 02:27:14,040  
install your two inch from your trash

1909  
02:27:20,939 --> 02:27:46,510  
we have one meter to go

1910  
02:27:46,520 --> 02:27:58,429  
ramping out motion property

1911  
02:28:02,990 --> 02:28:01,550  
okay that is our published position we

1912  
02:28:30,670 --> 02:28:03,000  
are setting up for the two and a half

1913  
02:28:36,610 --> 02:28:34,130

a good view of uh Josh cassida with the

1914

02:28:40,309 --> 02:28:36,620

ISS rollout solar array

1915

02:28:43,730 --> 02:28:40,319

on Earth that has a mass of about 750

1916

02:28:46,969 --> 02:28:43,740

pounds once unfurled

1917

02:28:49,910 --> 02:28:46,979

it will measure 60 feet long by 20 feet

1918

02:28:53,110 --> 02:28:49,920

wide attached to the integrated

1919

02:28:55,730 --> 02:28:53,120

Electronics assembly alongside the

1920

02:28:58,670 --> 02:28:55,740

original solar array on the starboard

1921

02:29:32,330 --> 02:28:58,680

Fortress producing power for the 3A

1922

02:29:32,340 --> 02:29:59,560

foreign

1923

02:29:59,570 --> 02:30:14,030

[Music]

1924

02:30:18,290 --> 02:30:16,670

and that's copy good socket swap Frank

1925

02:30:19,790 --> 02:30:18,300

uh what we want you to do is put

1926

02:30:21,950 --> 02:30:19,800

everything inside that bag we're

1927

02:30:24,710 --> 02:30:21,960

cleaning it up and uh if you want to

1928

02:30:26,389 --> 02:30:24,720

close it up with everything inside uh

1929

02:30:27,889 --> 02:30:26,399

turn the doors facing the tower and

1930

02:30:32,750 --> 02:30:27,899

cinch down the straps That's How we'll

1931

02:30:36,770 --> 02:30:34,849

can I leave the

1932

02:30:39,530 --> 02:30:36,780

Fireside I was holding the PT on the

1933

02:30:39,540 --> 02:31:21,410

that's affirmative

1934

02:31:27,590 --> 02:31:23,809

okay easy one we are set up for the

1935

02:31:31,010 --> 02:31:27,600

joints okay this is going to pick you up

1936

02:31:34,070 --> 02:31:31,020

and bring you in front of the FSE

1937

02:31:34,910 --> 02:31:34,080

okay I copied just a heads up I'm having

1938

02:33:37,210 --> 02:31:34,920

a

1939

02:33:37,220 --> 02:33:53,270

three two one

1940

02:33:59,929 --> 02:33:55,550

all right I've got the hang of it now

1941

02:33:59,939 --> 02:34:09,889

man you guys are smooth crappy

1942

02:34:09,899 --> 02:34:14,450

outward

1943

02:34:14,460 --> 02:34:27,770

81 is ready

1944

02:34:27,780 --> 02:34:32,330

Frank let me get a picture of you

1945

02:34:32,340 --> 02:34:49,270

I don't even know where you are though

1946

02:34:54,590 --> 02:34:51,830

81 we are set this is going to bring you

1947

02:34:56,270 --> 02:34:54,600

a body left and body down a little bit

1948

02:35:00,110 --> 02:34:56,280

okay

1949

02:35:06,710 --> 02:35:00,120

down V1 is ready

1950

02:35:11,510 --> 02:35:09,530

I think it motion

1951

02:35:48,070 --> 02:35:11,520

oh this one's faster

1952

02:35:55,010 --> 02:35:50,690

flying toward the west coast of South

1953

02:35:57,830 --> 02:35:55,020

America Josh Casada holding the ISS roll

1954

02:36:01,429 --> 02:35:57,840

out solar array being maneuvered toward

1955

02:36:02,809 --> 02:36:01,439

the starboard 4 truss work site for its

1956

02:36:05,870 --> 02:36:02,819

installation

1957

02:36:07,670 --> 02:36:05,880

to augment a power capability for the 3A

1958

02:36:09,230 --> 02:36:07,680

power channel on the International Space

1959

02:36:12,290 --> 02:36:09,240

Station

1960

02:36:14,929 --> 02:36:12,300

we are two hours 34 minutes into the

1961

02:36:17,030 --> 02:36:14,939

spacewalk everything going very smoothly

1962

02:37:04,090 --> 02:36:17,040

the crew running ahead of the timeline

1963

02:37:09,530 --> 02:37:07,370

and his Hook is unlocked

1964

02:37:10,730 --> 02:37:09,540

okay Frank we copy that check your

1965

02:37:12,590 --> 02:37:10,740

gauntlets down and then you're heading

1966

02:37:13,670 --> 02:37:12,600

out to the S4 iea and you're gonna be

1967

02:37:22,910 --> 02:37:13,680

throwing the right hook near the

1968

02:37:22,920 --> 02:37:30,710

hey we are wrapping out

1969

02:37:35,389 --> 02:37:32,929

okay that's five homes and we are

1970

02:37:38,570 --> 02:37:35,399

setting up for the next it'll be a three

1971

02:38:50,150 --> 02:37:38,580

minute iea lineup for okay

1972

02:38:57,530 --> 02:38:53,030

okay ev1 we are set this will bring you

1973

02:39:01,070 --> 02:38:57,540

body in and up under the iea

1974

02:39:19,790 --> 02:39:01,080

you need one copies and I'm ready

1975

02:39:19,800 --> 02:39:33,349

of course I see good motion

1976

02:39:33,359 --> 02:39:48,670

foreign

1977

02:39:52,969 --> 02:39:50,870

got a caution here about the Red Hook

1978

02:39:55,130 --> 02:39:52,979

locations going to be near an idea of

1979

02:39:57,230 --> 02:39:55,140

radiator so just be aware of that the

1980

02:39:59,809 --> 02:39:57,240

handrail you're looking for is two two

1981

02:39:59,819 --> 02:40:39,110

on there

1982

02:40:42,710 --> 02:40:41,330

and you are clear there also but I don't

1983

02:40:44,690 --> 02:40:42,720

think

1984

02:40:46,610 --> 02:40:44,700

realize how close we are we're only

1985

02:40:53,929 --> 02:40:46,620

three feet away from each other when you

1986

02:40:53,939 --> 02:41:25,010

it looks just like that

1987

02:41:25,020 --> 02:41:40,809

ramping off motion copy

1988

02:41:47,870 --> 02:41:42,650

Red Hook

1989

02:41:50,450 --> 02:41:47,880

on two two one seven the inboard engine

1990

02:41:52,130 --> 02:41:50,460

yeah copy uh Frank two two one seven you

1991

02:41:53,510 --> 02:41:52,140

got that down just on the edge of our

1992

02:41:55,610 --> 02:41:53,520

view here looks like you might be

1993

02:41:56,990 --> 02:41:55,620

crossed back at the uh just right where

1994

02:41:58,250 --> 02:41:57,000

the sarge is at

1995

02:42:04,990 --> 02:41:58,260

just wanted to have you double check

1996

02:42:09,050 --> 02:42:06,710

real quick

1997

02:42:11,809 --> 02:42:09,060

thanks okay we are

1998

02:42:13,969 --> 02:42:11,819

pop and setting up for the GCA to

1999

02:42:15,170 --> 02:42:13,979

publish I wrote the info

2000

02:42:17,809 --> 02:42:15,180

okay

2001

02:42:22,010 --> 02:42:17,819

I think we can do that without strength

2002

02:42:26,990 --> 02:42:23,929

the public position

2003

02:42:29,630 --> 02:42:27,000

I I've got good clearance I can see

2004

02:42:32,870 --> 02:42:29,640

um on this side of the irocess of uh so

2005

02:42:34,730 --> 02:42:32,880

station Venus I can see just fine

2006

02:42:46,309 --> 02:42:34,740

a copy and we have good views as well

2007

02:42:50,389 --> 02:42:48,889

and Josh we chatted over if you if

2008

02:42:53,389 --> 02:42:50,399

you've got good clearance uh we're good

2009

02:42:56,929 --> 02:42:53,399

to press with the uh the the GCA for the

2010

02:43:03,349 --> 02:42:59,809

I certainly got good clearance uh it's

2011

02:43:08,090 --> 02:43:03,359

been writing forward and uh from my GM

2012

02:43:13,370 --> 02:43:09,320

interrupt

2013

02:43:17,630 --> 02:43:16,010

okay copy that to Frank and uh you're

2014

02:43:27,290 --> 02:43:17,640

gonna head out then to the left side of

2015

02:43:35,210 --> 02:43:31,130

yeah do you need to call anymore Frank

2016

02:43:38,690 --> 02:43:35,220

okay easy one is a ready GCA to uh

2017

02:43:42,230 --> 02:43:38,700

publish install positions I'll let you

2018

02:43:42,240 --> 02:43:47,630

hey we copy and we're setting

2019

02:43:47,640 --> 02:43:50,570

up

2020

02:43:50,580 --> 02:43:56,150

30 seconds away that was good

2021

02:43:56,160 --> 02:44:06,730

I can see you translating

2022

02:44:06,740 --> 02:44:14,150

we are ready GCA

2023

02:44:14,160 --> 02:44:20,710

laughs

2024

02:44:23,990 --> 02:44:22,910

hey guys I've got some cautions and

2025

02:44:25,730 --> 02:44:24,000

warnings on the read up real quick while

2026

02:44:27,710 --> 02:44:25,740

Frank gets in the final position so

2027

02:44:30,170 --> 02:44:27,720

don't put your fingers in the iris of 10

2028

02:44:31,730 --> 02:44:30,180

slots on the inside or an outside of the

2029

02:44:33,770 --> 02:44:31,740

root beam structure and then went on the

2030

02:44:35,809 --> 02:44:33,780

outside of the mod kit avoid contacting

2031

02:44:36,830 --> 02:44:35,819

the Legacy blanket boxes treating

2032

02:44:39,349 --> 02:44:36,840

trunions

2033

02:44:42,170 --> 02:44:39,359

also you're going to want to win on the

2034

02:44:44,450 --> 02:44:42,180

mod kit not impart load simultaneously

2035

02:44:47,090 --> 02:44:44,460

that's translation unfolding bolt dots

2036

02:44:49,429 --> 02:44:47,100

connectors so don't move simultaneously

2037

02:44:51,530 --> 02:44:49,439

sudden stops and quick drives are not

2038

02:44:54,050 --> 02:44:51,540

allowed on the mod kit so translate slow

2039

02:44:57,530 --> 02:44:54,060

and 30 pounds Max lateral force on the

2040

02:45:00,349 --> 02:44:57,540

mod kit during and after irosis soft

2041

02:45:00,359 --> 02:45:06,050

do you want coffee Mr copies

2042

02:45:10,250 --> 02:45:08,570

81 we are all set up this is going to

2043

02:45:12,349 --> 02:45:10,260

bring you a body

2044

02:45:14,330 --> 02:45:12,359

about two and a half meters okay and I'm

2045

02:45:27,250 --> 02:45:14,340

going to turn the GCU over to Frank so

2046

02:45:27,260 --> 02:45:33,730

starting motion

2047

02:45:39,650 --> 02:45:37,190

two hours 43 minutes into today's space

2048

02:45:42,650 --> 02:45:39,660

walk Josh cassida and Frank Rubio about

2049

02:45:44,570 --> 02:45:42,660

to begin work to install the ISS roll

2050

02:45:45,590 --> 02:45:44,580

out to solar array onto its mounting

2051

02:45:47,690 --> 02:45:45,600

bracket

2052

02:45:57,849 --> 02:45:47,700

on the starboard four truss of the

2053

02:46:01,730 --> 02:46:00,290

wearing the suit with the red stripes

2054

02:46:05,630 --> 02:46:01,740

along the legs

2055

02:46:06,770 --> 02:46:05,640

holding the irosa as it is called by its

2056

02:46:10,309 --> 02:46:06,780

acronym

2057

02:46:11,750 --> 02:46:10,319

again these are 750 pounds a piece in

2058

02:46:14,510 --> 02:46:11,760

Mass

2059

02:46:17,870 --> 02:46:14,520

once unfurled after their installation

2060

02:46:21,170 --> 02:46:17,880

will be 60 feet long and 20 feet wide to

2061

02:46:22,790 --> 02:46:21,180

augment the electrical capability of the

2062

02:46:25,730 --> 02:46:22,800

3A power channel of the International

2063

02:46:28,790 --> 02:46:25,740

Space Station this is the third in a

2064

02:46:30,410 --> 02:46:28,800

series of at least six high-rosas to be

2065

02:46:39,650 --> 02:46:30,420

installed on the International Space

2066

02:46:39,660 --> 02:46:48,370

we are ramping out motion

2067

02:46:53,270 --> 02:46:50,929

okay friends that is the published

2068

02:46:54,590 --> 02:46:53,280

position okay that's a great position I

2069

02:46:57,230 --> 02:46:54,600

think I think we're going to need a

2070

02:46:58,910 --> 02:46:57,240

little bit more body left for me we're

2071

02:47:01,370 --> 02:46:58,920

getting closer to you

2072

02:47:03,110 --> 02:47:01,380

the plug-in okay just because I'll be at

2073

02:47:06,710 --> 02:47:03,120

the far end

2074

02:47:10,790 --> 02:47:08,450

the inches

2075

02:47:13,190 --> 02:47:10,800

clearance the bracket do you want to

2076

02:47:16,010 --> 02:47:13,200

remove that first I see it uh why don't

2077

02:47:18,889 --> 02:47:16,020

we do why don't we do it this way

2078

02:47:20,809 --> 02:47:18,899

um we'll move this way

2079

02:47:23,510 --> 02:47:20,819

that's GCA

2080

02:47:25,849 --> 02:47:23,520

and then take off the scoop terrible

2081

02:47:26,570 --> 02:47:25,859

careful careful let's see

2082

02:47:28,790 --> 02:47:26,580

um

2083

02:47:35,030 --> 02:47:28,800

hey one second it's just it's hard the

2084

02:47:35,040 --> 02:47:39,050

all right

2085

02:47:41,210 --> 02:47:40,010

okay

2086

02:47:43,130 --> 02:47:41,220

um

2087

02:47:44,809 --> 02:47:43,140

let's go TCA

2088

02:47:48,309 --> 02:47:44,819

10 centimeters

2089

02:47:51,349 --> 02:47:48,319

body left towards the mass canister

2090

02:47:53,330 --> 02:47:51,359

that's copy 10 centimeters body left

2091

02:47:58,309 --> 02:47:53,340

towards the mass canister starting

2092

02:47:58,319 --> 02:48:01,849

to motion good motion

2093

02:48:08,690 --> 02:48:05,990

about in three two one

2094

02:48:10,010 --> 02:48:08,700

all right Josh unfortunately only has

2095

02:48:12,349 --> 02:48:10,020

about an inch of clearance yep I'm

2096

02:48:14,270 --> 02:48:12,359

watching it I can see my shoulder we're

2097

02:48:15,950 --> 02:48:14,280

good here just watch your helmet on the

2098

02:48:17,630 --> 02:48:15,960

bottom there okay so we don't push it

2099

02:48:18,410 --> 02:48:17,640

away

2100

02:48:21,110 --> 02:48:18,420

um

2101

02:48:22,670 --> 02:48:21,120

when if you want a skill co-ready or

2102

02:48:26,929 --> 02:48:22,680

with the uh

2103

02:48:31,070 --> 02:48:28,370

if you put your feet wherever you want

2104

02:48:34,010 --> 02:48:31,080

yeah I'll turn it over to you and I'll

2105

02:48:37,429 --> 02:48:34,020

fix it the one hand rail there and then

2106

02:48:44,090 --> 02:48:38,990

I don't know if you're done with the GCI

2107

02:48:48,830 --> 02:48:46,130

he's got a hand on it I'm gonna take off

2108

02:48:53,410 --> 02:48:48,840

the scoop in my left hand and do my best

2109

02:48:59,469 --> 02:48:55,370

thank you dude

2110

02:49:05,210 --> 02:49:01,969

all right thank you I'm gonna take my

2111

02:49:07,070 --> 02:49:05,220

left hand off I've got through some you

2112

02:49:09,349 --> 02:49:07,080

probably want to just not if you can not

2113

02:49:12,469 --> 02:49:09,359

put any portions in because it

2114

02:49:18,349 --> 02:49:14,510

you are gonna have to put a fair amount

2115

02:49:18,359 --> 02:49:26,450

that's unfortunate

2116

02:49:31,309 --> 02:49:29,630

I might go straight off

2117

02:49:39,530 --> 02:49:31,319

yeah through capturing all the way to

2118

02:49:39,540 --> 02:49:46,490

them

2119

02:49:57,670 --> 02:49:48,889

and look at your accounts capture

2120

02:50:03,290 --> 02:50:00,170

I'm not going to put this in my mini

2121

02:50:09,290 --> 02:50:07,070

okay uh let's go bring it towards me to

2122

02:50:14,270 --> 02:50:09,300

align laterally first

2123

02:50:22,309 --> 02:50:17,990

translate short year correct

2124

02:50:22,319 --> 02:50:26,030

watch your hand

2125

02:50:31,550 --> 02:50:28,849

I want to do the pitch let's see my goal

2126  
02:50:33,170 --> 02:50:31,560  
for our prayer reference okay I'm Gonna

2127  
02:50:38,150 --> 02:50:33,180  
Roll It

2128  
02:50:42,469 --> 02:50:40,130  
cassette and Rubio in the process of

2129  
02:50:44,410 --> 02:50:42,479  
installing the irosa on a mounting

2130  
02:50:46,969 --> 02:50:44,420  
bracket on the starboard Fortress

2131  
02:50:50,389 --> 02:50:46,979  
there'll be two soft captured features

2132  
02:50:53,270 --> 02:50:50,399  
properly engaged when the irosa itself

2133  
02:50:57,410 --> 02:50:53,280  
is correctly aligned on the mounting

2134  
02:51:01,610 --> 02:50:59,510  
and we are on the platform and aligned

2135  
02:51:03,469 --> 02:51:01,620  
we just kind of bring it towards

2136  
02:51:05,809 --> 02:51:03,479  
the soft capture features all right

2137  
02:51:07,309 --> 02:51:05,819  
perfect we'll stick it in the hole first

2138  
02:51:10,849 --> 02:51:07,319

and then go to the soft catcher yeah

2139

02:51:14,510 --> 02:51:10,859

okay yep Ready yep continue push again

2140

02:51:16,389 --> 02:51:14,520

continue four yep all right

2141

02:51:18,230 --> 02:51:16,399

that's it for

2142

02:51:20,570 --> 02:51:18,240

CES

2143

02:51:23,150 --> 02:51:20,580

I'll bring it up maybe a centimeter

2144

02:51:26,030 --> 02:51:23,160

towards me translate yep and now keep

2145

02:51:35,150 --> 02:51:26,040

pushing towards the mass canister

2146

02:51:39,710 --> 02:51:37,670

we seem to want to go I need to probably

2147

02:51:43,190 --> 02:51:39,720

check the soft caps for features I can

2148

02:51:45,770 --> 02:51:43,200

see they're the same and they are cops

2149

02:51:48,050 --> 02:51:45,780

and locked so they say I'm not triggered

2150

02:51:50,750 --> 02:51:48,060

okay we're aligned I see the tabs are

2151  
02:51:56,110 --> 02:51:50,760  
almost perfectly centered so maybe

2152  
02:52:01,190 --> 02:51:58,670  
that just feels like we're in the slot

2153  
02:52:04,910 --> 02:52:01,200  
no we're not in the spot uh we're just

2154  
02:52:07,910 --> 02:52:04,920  
we're aligned but we need to bring it um

2155  
02:52:11,030 --> 02:52:07,920  
back towards the back canister okay two

2156  
02:52:11,040 --> 02:52:18,830  
um there we go

2157  
02:52:22,610 --> 02:52:21,050  
all right Frank real let's go down just

2158  
02:52:23,269 --> 02:52:22,620  
for one second

2159  
02:52:25,730 --> 02:52:23,279  
um

2160  
02:52:27,950 --> 02:52:25,740  
I can't go any closer to the mod kit I'm

2161  
02:52:29,690 --> 02:52:27,960  
taking my right hand and pushing yep so

2162  
02:52:32,870 --> 02:52:29,700  
there's something blocking it okay and

2163  
02:52:41,630 --> 02:52:32,880

when you pull yours we yeah

2164

02:52:41,640 --> 02:53:05,750

foreign

2165

02:53:10,250 --> 02:53:07,490

uh so they should not be the ones

2166

02:53:10,260 --> 02:53:17,030

right and you can see the slot yeah

2167

02:53:22,370 --> 02:53:20,330

and there's nothing uh okay well now

2168

02:53:27,290 --> 02:53:22,380

we're at come back towards me another

2169

02:53:30,950 --> 02:53:28,730

in our

2170

02:53:33,290 --> 02:53:30,960

once again we're aligned we are flat

2171

02:53:37,610 --> 02:53:33,300

against the platform but not flat right

2172

02:53:37,620 --> 02:53:41,870

uh

2173

02:53:41,880 --> 02:53:45,710

okay we're aligned

2174

02:53:51,110 --> 02:53:48,530

all right can we go straight out

2175

02:53:55,070 --> 02:53:51,120

uh towards the runway towards the

2176  
02:53:55,080 --> 02:54:07,550  
something's keeping it from going

2177  
02:54:11,950 --> 02:54:09,349  
um both of the tabs are slightly in

2178  
02:54:15,710 --> 02:54:13,849  
different

2179  
02:54:18,650 --> 02:54:15,720  
is it an angle thing where we're not

2180  
02:54:19,670 --> 02:54:18,660  
flat enough uh my side looks perfectly

2181  
02:54:23,809 --> 02:54:19,680  
flat

2182  
02:54:23,819 --> 02:54:28,250  
it is

2183  
02:54:28,260 --> 02:54:35,950  
flat and flush yeah

2184  
02:54:40,910 --> 02:54:38,870  
hold on for one second

2185  
02:54:42,650 --> 02:54:40,920  
getting away from me

2186  
02:54:51,290 --> 02:54:42,660  
hey Nick you got a question about the

2187  
02:54:51,300 --> 02:54:56,630  
thank you man

2188  
02:54:56,640 --> 02:55:01,190

good for you there yeah I got you Josh

2189

02:55:05,690 --> 02:55:03,410

all right so on the market there's an

2190

02:55:08,210 --> 02:55:05,700

arrow but I think it's the very center

2191

02:55:10,490 --> 02:55:08,220

of the market

2192

02:55:12,710 --> 02:55:10,500

there's a it's a label and there's a

2193

02:55:16,130 --> 02:55:12,720

left label and a right label can you

2194

02:55:17,269 --> 02:55:16,140

confirm that the hinge we wind up with

2195

02:55:21,110 --> 02:55:17,279

that Arrow

2196

02:55:24,590 --> 02:55:22,790

that's the case Frank we're going to

2197

02:55:26,570 --> 02:55:24,600

need to translate your way about a half

2198

02:55:27,830 --> 02:55:26,580

inch I don't know how that makes sense

2199

02:55:28,969 --> 02:55:27,840

with your

2200

02:55:30,950 --> 02:55:28,979

spot

2201  
02:55:32,210 --> 02:55:30,960  
all right well right now that would make

2202  
02:55:33,650 --> 02:55:32,220  
sense actually we translate it back

2203  
02:55:40,610 --> 02:55:33,660  
towards you a little bit okay so let's

2204  
02:55:47,870 --> 02:55:43,969  
continue about okay right there okay so

2205  
02:55:50,389 --> 02:55:47,880  
that if that arrow is not at the hinge

2206  
02:55:51,590 --> 02:55:50,399  
pinch is going to be about an inch by

2207  
02:55:53,630 --> 02:55:51,600  
Direction

2208  
02:55:55,190 --> 02:55:53,640  
on that Arrow

2209  
02:55:56,570 --> 02:55:55,200  
okay

2210  
02:55:57,650 --> 02:55:56,580  
I would have thought that the hands

2211  
02:56:05,330 --> 02:55:57,660  
would have lined up right with that

2212  
02:56:13,130 --> 02:56:08,510  
yeah Josh that Arrow should line up dead

2213  
02:56:19,670 --> 02:56:15,889

okay Miss and uh I'm sure you can't see

2214

02:56:22,010 --> 02:56:19,680

very well my hecca the problem is

2215

02:56:24,410 --> 02:56:22,020

thanks that's a slot

2216

02:56:26,269 --> 02:56:24,420

aligned

2217

02:56:28,610 --> 02:56:26,279

but

2218

02:56:30,650 --> 02:56:28,620

that Arrow

2219

02:56:32,450 --> 02:56:30,660

is not where the hinge is going to be

2220

02:56:35,389 --> 02:56:32,460

that arrow is about

2221

02:56:38,450 --> 02:56:35,399

right now a half inch for Tim meaning

2222

02:56:40,130 --> 02:56:38,460

the hinge will be a half inch uh match

2223

02:56:41,990 --> 02:56:40,140

it right

2224

02:56:44,750 --> 02:56:42,000

from the arrow

2225

02:56:46,730 --> 02:56:44,760

if we were able to open it yeah copy

2226

02:56:54,290 --> 02:56:46,740

Josh and and we can see it in the wvs

2227

02:57:02,929 --> 02:56:56,510

real quick just to realign my body got

2228

02:57:16,610 --> 02:57:04,610

that's why if you don't get there real

2229

02:57:19,550 --> 02:57:18,650

all right so right now our yard is off a

2230

02:57:23,210 --> 02:57:19,560

little bit

2231

02:57:24,830 --> 02:57:23,220

uh the tabs are aligned to my tab

2232

02:57:26,570 --> 02:57:24,840

is uh

2233

02:57:33,050 --> 02:57:26,580

no longer

2234

02:57:33,060 --> 02:57:36,710

thanks

2235

02:57:40,370 --> 02:57:38,150

so

2236

02:57:42,950 --> 02:57:40,380

you gotta go your way and but yeah you

2237

02:57:44,450 --> 02:57:42,960

said yeah give me a second losing my

2238

02:57:46,969 --> 02:57:44,460

position here

2239

02:57:49,190 --> 02:57:46,979

and Frank Josh our recommendation here

2240

02:57:51,530 --> 02:57:49,200

is Frank if you could cycle the soft

2241

02:57:57,710 --> 02:57:51,540

dock the t-handles just to let them

2242

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

uh stand right for one second I have it

2243

02:58:03,769 --> 02:58:01,920

do you think that's really what's

2244

02:58:06,769 --> 02:58:03,779

happening see if I can see the soft rock

2245

02:58:09,889 --> 02:58:06,779

or the soft capture features just barely

2246

02:58:11,750 --> 02:58:09,899

sticking out of the surface

2247

02:58:14,090 --> 02:58:11,760

but I can see that they're both in the J

2248

02:58:15,710 --> 02:58:14,100

Hooks

2249

02:58:18,110 --> 02:58:15,720

you'll know that those are keeping it

2250

02:58:21,110 --> 02:58:18,120

from installing

2251

02:58:23,450 --> 02:58:21,120

I'm pretty sure it's not but yeah

2252

02:58:28,250 --> 02:58:23,460

so they're just not cold stuck in in the

2253

02:58:28,260 --> 02:58:44,570

oh I see I see okay

2254

02:58:57,790 --> 02:58:46,910

not your helmet on the iris okay thank

2255

02:59:01,070 --> 02:59:00,230

and it's definitely some restriction to

2256

02:59:03,110 --> 02:59:01,080

these

2257

02:59:04,790 --> 02:59:03,120

yeah and Frank what we'd like you to do

2258

02:59:06,410 --> 02:59:04,800

is have them full deploy if you can

2259

02:59:08,030 --> 02:59:06,420

fully extend them so that they would be

2260

02:59:16,190 --> 02:59:08,040

in the deployed position and then reset

2261

02:59:18,889 --> 02:59:17,690

I don't know if you see that but it just

2262

02:59:20,510 --> 02:59:18,899

takes a lot of force there's a lot of

2263

02:59:29,750 --> 02:59:20,520

fiction

2264

02:59:33,650 --> 02:59:32,210

there they are Cycles okay several

2265

02:59:37,929 --> 02:59:33,660

pounds and they are in the chase the

2266

02:59:44,510 --> 02:59:42,469

and then manually uh release the uh

2267

02:59:45,950 --> 02:59:44,520

soft captures correct

2268

02:59:47,269 --> 02:59:45,960

yeah if you've got it lined up and

2269

02:59:51,410 --> 02:59:47,279

they're not extending that's an option

2270

02:59:55,969 --> 02:59:54,110

we try that mix of all right should we

2271

02:59:57,469 --> 02:59:55,979

do that Mark I'll do my best to hold it

2272

02:59:59,150 --> 02:59:57,479

in stock let me see if I can get you

2273

03:00:00,530 --> 02:59:59,160

aligned and then uh

2274

03:00:05,030 --> 03:00:00,540

looks like it's gonna need to translate

2275

03:00:05,040 --> 03:00:13,490

and then I'll start and towards you

2276  
03:00:13,500 --> 03:00:25,269  
it come towards me maybe two inches but

2277  
03:00:30,830 --> 03:00:27,769  
approaching the three hour mark in the

2278  
03:00:33,590 --> 03:00:30,840  
spacewalk Josh cassida Frank Rubio are

2279  
03:00:35,690 --> 03:00:33,600  
fine-tuning the alignment of the ISS

2280  
03:00:40,550 --> 03:00:35,700  
rollout solar array onto its mounting

2281  
03:00:45,590 --> 03:00:43,849  
okay we are flat we're aligned okay if

2282  
03:00:47,929 --> 03:00:45,600  
you want I'll hold it there and you get

2283  
03:00:49,790 --> 03:00:47,939  
one of those J Hooks In

2284  
03:00:54,010 --> 03:00:49,800  
although we're not in yet we have to

2285  
03:00:58,730 --> 03:00:57,050  
's gonna go out we can't see what's

2286  
03:01:01,490 --> 03:00:58,740  
keeping us from going down if you can

2287  
03:01:04,010 --> 03:01:01,500  
hold this yeah yeah I'll go down and I

2288  
03:01:06,710 --> 03:01:04,020

can actually push on the theme also

2289

03:01:10,490 --> 03:01:06,720

can you hold it here I can okay you got

2290

03:01:10,500 --> 03:01:16,969

be real careful not to bump it yep

2291

03:01:20,570 --> 03:01:19,370

and I can see our yaw is off from this

2292

03:01:22,309 --> 03:01:20,580

angle

2293

03:01:26,929 --> 03:01:22,319

unfortunately the sun is right in my

2294

03:01:26,939 --> 03:01:32,450

angles

2295

03:01:36,110 --> 03:01:34,490

and Frank Josh just looking at your

2296

03:01:37,969 --> 03:01:36,120

looking at your helmet cam it looks like

2297

03:01:39,590 --> 03:01:37,979

one of the soft dock captures did go

2298

03:01:43,429 --> 03:01:39,600

down I don't know if it's engaged or if

2299

03:01:55,849 --> 03:01:46,250

is not engaged

2300

03:01:59,570 --> 03:01:57,710

I can actually kind of line this up from

2301  
03:02:02,450 --> 03:01:59,580  
this end because

2302  
03:02:03,590 --> 03:02:02,460  
over right there that's great I guess we

2303  
03:02:05,450 --> 03:02:03,600  
gotta figure out what's keeping up from

2304  
03:02:08,090 --> 03:02:05,460  
getting through

2305  
03:02:09,710 --> 03:02:08,100  
right there we should be lined up I'm

2306  
03:02:13,309 --> 03:02:09,720  
gonna pull the uh

2307  
03:02:13,319 --> 03:02:19,130  
we have a third hand right now

2308  
03:02:24,230 --> 03:02:20,690  
that's good yep

2309  
03:02:27,469 --> 03:02:25,849  
I can't wait to hear that lesson

2310  
03:02:32,929 --> 03:02:27,479  
learning to be brief

2311  
03:02:44,950 --> 03:02:34,790  
your helmet

2312  
03:02:44,960 --> 03:02:50,150  
no kidding there's a huge side down here

2313  
03:02:54,230 --> 03:02:52,610

well done

2314

03:02:57,769 --> 03:02:54,240

it's not that's not the way it was

2315

03:03:02,510 --> 03:02:59,690

all right nice job Josh I know you've

2316

03:03:05,389 --> 03:03:02,520

been muscling through that no it's okay

2317

03:03:06,830 --> 03:03:05,399

I'm just trying to point the sweat out

2318

03:03:09,950 --> 03:03:06,840

of my eyes yeah

2319

03:03:13,190 --> 03:03:09,960

at the three hour mark the irosa is now

2320

03:03:15,950 --> 03:03:13,200

uh engaged and mounted on the mounting

2321

03:03:17,990 --> 03:03:15,960

bracket on the modification kit on the

2322

03:03:21,170 --> 03:03:18,000

starboard 4 truss a little elbow grease

2323

03:03:23,690 --> 03:03:21,180

required but nonetheless herosa is on

2324

03:03:24,950 --> 03:03:23,700

its mounting bracket on the S4 truss a

2325

03:03:26,330 --> 03:03:24,960

couple second breather here after

2326

03:03:29,690 --> 03:03:26,340

struggling with that that's more than

2327

03:03:34,190 --> 03:03:32,110

the sun setting

2328

03:03:37,070 --> 03:03:34,200

is gonna help

2329

03:03:38,990 --> 03:03:37,080

all right uh my rut is off we are saying

2330

03:03:40,370 --> 03:03:39,000

we're installed because we've got two

2331

03:03:41,750 --> 03:03:40,380

staff captures

2332

03:03:43,610 --> 03:03:41,760

is off

2333

03:03:45,370 --> 03:03:43,620

the scoop is going to stay on for now

2334

03:03:52,389 --> 03:03:45,380

okay

2335

03:03:58,309 --> 03:03:56,990

we are installed and ready for the back

2336

03:04:00,590 --> 03:03:58,319

off maneuver

2337

03:04:08,570 --> 03:04:00,600

Bobby we are setting up for the irosa

2338

03:04:13,309 --> 03:04:10,309

feels weird not to be holding on to

2339

03:04:14,750 --> 03:04:13,319

another grocer now I know it also feels

2340

03:04:17,990 --> 03:04:14,760

weird to have the Earth completely above

2341

03:04:18,000 --> 03:04:22,550

guys big big picture big picture

2342

03:04:26,570 --> 03:04:24,190

starting rep guys just big picture

2343

03:04:28,670 --> 03:04:26,580

you're well ahead of timeline you're

2344

03:04:30,050 --> 03:04:28,680

going to see an eclipse come this is not

2345

03:04:32,090 --> 03:04:30,060

the one we're targeting for the cable

2346

03:04:34,610 --> 03:04:32,100

mate we're working on the next eclipse

2347

03:04:37,670 --> 03:04:34,620

after this one so when it gets dark

2348

03:04:37,680 --> 03:04:42,290

got it thank you awesome thank you

2349

03:04:48,290 --> 03:04:45,650

okay ev1 we are set up this is going to

2350

03:04:50,690 --> 03:04:48,300

bring you a body right about two and a

2351  
03:04:53,690 --> 03:04:50,700  
half meters with the irosa installed on

2352  
03:04:56,870 --> 03:04:53,700  
its mounting bracket The Next Step uh

2353  
03:04:59,710 --> 03:04:56,880  
once cassida is uh backed away at the

2354  
03:05:03,110 --> 03:04:59,720  
end of the uh station's robotic arm

2355  
03:05:06,650 --> 03:05:03,120  
from the work site to provide clearance

2356  
03:05:08,150 --> 03:05:06,660  
will be the release of final hinge

2357  
03:05:10,670 --> 03:05:08,160  
restraint bolts

2358  
03:05:13,550 --> 03:05:10,680  
that will enable the irosa to unfold

2359  
03:05:24,650 --> 03:05:13,560  
like a flip phone to its uh

2360  
03:05:29,929 --> 03:05:27,530  
I cannot wait to hear what it was

2361  
03:05:32,210 --> 03:05:29,939  
it was just the the outside soft after

2362  
03:05:34,370 --> 03:05:32,220  
one just wasn't uh

2363  
03:05:40,910 --> 03:05:34,380

so I just pulled it all the way down and

2364

03:05:50,990 --> 03:05:43,250

I think it just wasn't sliding past or

2365

03:05:55,969 --> 03:05:53,929

holy cow

2366

03:05:57,830 --> 03:05:55,979

we're having out motion

2367

03:06:00,290 --> 03:05:57,840

meanwhile the space station is about to

2368

03:06:03,469 --> 03:06:00,300

fly into an orbital Sunset over cologne

2369

03:06:06,050 --> 03:06:03,479

the home of the Columbus control center

2370

03:06:09,170 --> 03:06:06,060

and setting up for a two and a half

2371

03:06:39,730 --> 03:06:09,180

minute R6 back off joint ocas

2372

03:06:44,570 --> 03:06:43,130

hey Frank we see in position uh waiting

2373

03:06:47,630 --> 03:06:44,580

for Josh to get in position through

2374

03:06:49,490 --> 03:06:47,640

these uh uh Joe castes if you can go

2375

03:06:50,750 --> 03:06:49,500

over to that third soft capture the one

2376

03:06:52,790 --> 03:06:50,760

we're going to use when we unfold it

2377

03:06:54,650 --> 03:06:52,800

we'd like you to try to cycle that one

2378

03:07:01,849 --> 03:06:54,660

as well to see if we can get ahead of

2379

03:07:01,859 --> 03:07:54,830

and 10 seconds to a Handover

2380

03:08:00,889 --> 03:07:57,349

okay ev1 we are set up for the joint

2381

03:08:03,050 --> 03:08:00,899

ocas this is their basically body yaw

2382

03:08:05,450 --> 03:08:03,060

you left 90 degrees and bring you over

2383

03:08:06,889 --> 03:08:05,460

to face irisa you can go on copies and

2384

03:08:34,250 --> 03:08:06,899

I'm ready

2385

03:08:41,450 --> 03:08:36,349

Nick can we start talking about settings

2386

03:08:47,030 --> 03:08:44,150

yeah Josh uh those settings are going to

2387

03:08:55,150 --> 03:08:47,040

be Bravo 2 clockwise I'm sorry counter

2388

03:08:55,160 --> 03:08:59,769

also clockwise too traffic

2389

03:09:07,250 --> 03:09:04,550

the abduction and uh before we drive R6

2390

03:09:13,730 --> 03:09:07,260

we're gonna daisy chain those Scoops

2391

03:09:13,740 --> 03:09:32,870

that sounds great

2392

03:09:37,010 --> 03:09:34,370

all right

2393

03:09:40,610 --> 03:09:37,020

happy that we're gonna uh

2394

03:09:43,429 --> 03:09:40,620

tattoo well with the long duration card

2395

03:09:48,530 --> 03:09:43,439

on feather get that other scoop off

2396

03:09:52,630 --> 03:09:48,540

and then I've got Bravo to R2 step

2397

03:09:52,640 --> 03:10:02,389

those are good words guys

2398

03:10:25,610 --> 03:10:04,250

sure haven't gone very far for a whole

2399

03:10:31,250 --> 03:10:27,910

you feel the same thing with that right

2400

03:10:35,090 --> 03:10:31,260

uh dog catcher no that one seems to be a

2401

03:10:37,429 --> 03:10:35,100

lot easier to move oh okay great

2402

03:10:39,650 --> 03:10:37,439

okay that's the end of the Joe cast we

2403

03:10:43,610 --> 03:10:39,660

are set up for a GCA to publish our

2404

03:10:48,710 --> 03:10:43,620

sixth approach ev1 is ready for if you

2405

03:10:48,720 --> 03:11:11,570

there she's here

2406

03:11:15,969 --> 03:11:14,269

okay eb1 we are set this will bring you

2407

03:11:17,929 --> 03:11:15,979

body in

2408

03:11:25,370 --> 03:11:17,939

120 centimeters

2409

03:11:25,380 --> 03:11:33,650

copy starting motion

2410

03:11:38,510 --> 03:11:35,809

I see good motion

2411

03:11:39,950 --> 03:11:38,520

okay our cameras are degrading if you

2412

03:11:52,130 --> 03:11:39,960

can watch your boot plate and your

2413

03:11:52,140 --> 03:12:02,150

50 centimeters okay we're clear

2414

03:12:02,160 --> 03:12:09,590

ramping out concur

2415

03:12:15,610 --> 03:12:12,830

okay that is our published position

2416

03:12:21,349 --> 03:12:15,620

I'm free

2417

03:12:26,090 --> 03:12:23,269

I think I've got the other end of the

2418

03:12:29,809 --> 03:12:26,100

long duration tight end tether on uh the

2419

03:12:34,070 --> 03:12:32,870

hey copy Josh you've got those uh on

2420

03:12:39,950 --> 03:12:34,080

each end of that long duration you're

2421

03:12:43,210 --> 03:12:41,150

sure

2422

03:12:47,450 --> 03:12:43,220

you want me to give you the rest

2423

03:12:48,650 --> 03:12:47,460

I've read it right now to uh both I'll

2424

03:12:57,170 --> 03:12:48,660

pass them both to you and then we'll do

2425

03:13:01,490 --> 03:12:58,910

okay

2426

03:13:14,690 --> 03:13:01,500

I'll just take it I can solve it

2427

03:13:14,700 --> 03:13:23,950

slowly catch you on

2428

03:13:28,610 --> 03:13:26,330

this is Mission Control Houston three

2429

03:13:32,030 --> 03:13:28,620

hours 11 minutes into today's space walk

2430

03:13:33,410 --> 03:13:32,040

by Josh cassida and Frank Rubio

2431

03:13:36,889 --> 03:13:33,420

and frankly you're just going to Temp

2432

03:13:41,030 --> 03:13:36,899

Stow those on the exterior bags okay

2433

03:13:42,769 --> 03:13:41,040

the two space Walkers began the 256th

2434

03:13:44,929 --> 03:13:42,779

spacewalk in support of space station

2435

03:13:47,750 --> 03:13:44,939

assembly maintenance and upgrades at 6

2436

03:13:49,730 --> 03:13:47,760

16 a.m Central Time moving out of the

2437

03:13:52,849 --> 03:13:49,740

quest airlock after placing their suits

2438

03:13:57,230 --> 03:13:52,859

on battery power and working extremely

2439

03:13:59,389 --> 03:13:57,240

efficiently have removed the ISS rollout

2440

03:14:02,990 --> 03:13:59,399

solar array one of two delivered last

2441

03:14:05,389 --> 03:14:03,000

week on the SpaceX cargo Dragon free

2442

03:14:07,070 --> 03:14:05,399

Supply craft to the International Space

2443

03:14:09,170 --> 03:14:07,080

Station removing it from its Flight

2444

03:14:11,809 --> 03:14:09,180

Support equipment Casita then

2445

03:14:13,969 --> 03:14:11,819

transported the array over to the

2446

03:14:17,510 --> 03:14:13,979

starboard Fortress where he and Rubio

2447

03:14:20,230 --> 03:14:17,520

moments ago installed the array on its

2448

03:14:24,130 --> 03:14:20,240

mounting bracket The Next Step will be

2449

03:14:26,990 --> 03:14:24,140

to begin the process of releasing hinges

2450

03:14:29,090 --> 03:14:27,000

basically hinge restraint bolts that

2451  
03:14:32,410 --> 03:14:29,100  
will enable the array to unfold like a

2452  
03:14:35,269 --> 03:14:32,420  
flip phone into an unstowed position

2453  
03:14:37,969 --> 03:14:35,279  
prior to the time that the array itself

2454  
03:14:39,410 --> 03:14:37,979  
would be bolted in place on the

2455  
03:14:41,510 --> 03:14:39,420  
integrated Electronics assembly

2456  
03:14:44,450 --> 03:14:41,520  
electrically connected to the same

2457  
03:14:47,090 --> 03:14:44,460  
electrical system currently powering the

2458  
03:14:49,010 --> 03:14:47,100  
Legacy array or the original solar array

2459  
03:14:51,889 --> 03:14:49,020  
that was delivered on the space shuttle

2460  
03:14:55,490 --> 03:14:51,899  
Atlantis on the sts-117 mission in June

2461  
03:14:57,290 --> 03:14:55,500  
of 2007 to augment power for the 3A

2462  
03:15:02,470 --> 03:14:57,300  
power channel on the International Space

2463  
03:15:02,480 --> 03:15:48,190

[Music]

2464

03:15:48,200 --> 03:15:52,610

this one does have a white line

2465

03:15:57,170 --> 03:15:54,469

copy and we see the white line as well

2466

03:15:59,330 --> 03:15:57,180

so you can Stow the PGT and then you'll

2467

03:16:00,889 --> 03:15:59,340

work with the Duke to go through some

2468

03:16:18,590 --> 03:16:00,899

Maneuvers to get in position for the

2469

03:16:18,600 --> 03:16:24,170

just make sure I didn't miss anything

2470

03:16:28,849 --> 03:16:26,450

yeah affirmative it's uh you're going to

2471

03:16:36,650 --> 03:16:28,859

go to a R6 back off position and then

2472

03:16:36,660 --> 03:16:40,309

sounds good

2473

03:16:44,090 --> 03:16:42,230

okay and we have a maneuver to the RC's

2474

03:16:48,730 --> 03:16:44,100

back off when you're ready all right

2475

03:16:53,870 --> 03:16:52,490

all right ev1 is ready for the R6 back

2476

03:16:58,730 --> 03:16:53,880

off

2477

03:17:00,410 --> 03:16:58,740

will be body out 120 centimeters

2478

03:17:07,550 --> 03:17:00,420

for 20 centimeters

2479

03:17:07,560 --> 03:17:39,050

I see good motion

2480

03:17:39,060 --> 03:17:52,550

50 centimeters office

2481

03:17:52,560 --> 03:17:59,389

ramping out motion

2482

03:18:04,670 --> 03:18:02,090

okay that's our published position we

2483

03:18:08,150 --> 03:18:04,680

are setting up for a three-minute apfr

2484

03:18:10,670 --> 03:18:08,160

egress yogas okay stand by

2485

03:18:13,250 --> 03:18:10,680

Frank I'm seeing you pure safety teller

2486

03:18:14,450 --> 03:18:13,260

go right over my head

2487

03:18:19,570 --> 03:18:14,460

um

2488

03:18:21,889 --> 03:18:19,580

in in my helmet

2489

03:18:24,230 --> 03:18:21,899

[Applause]

2490

03:18:27,230 --> 03:18:24,240

unfortunately but with your lights

2491

03:18:32,450 --> 03:18:27,240

turning right on me I can't

2492

03:18:36,170 --> 03:18:34,370

it looks like it's going straight and

2493

03:18:37,730 --> 03:18:36,180

not hung up on me yeah I know it's only

2494

03:18:40,429 --> 03:18:37,740

three and it was going straight when I

2495

03:18:43,190 --> 03:18:40,439

came here okay and

2496

03:18:54,710 --> 03:18:43,200

you know if uh we're moving towards my

2497

03:18:59,450 --> 03:18:56,929

it's uh either one for a big picture

2498

03:19:01,910 --> 03:18:59,460

here first we're gonna yeah you right 90

2499

03:19:04,490 --> 03:19:01,920

degrees and then we're gonna move you

2500

03:19:07,250 --> 03:19:04,500

body left back towards irosa and that's

2501

03:19:08,750 --> 03:19:07,260

your egress position

2502

03:19:11,990 --> 03:19:08,760

okay

2503

03:19:14,210 --> 03:19:12,000

um just for your essay of that strength

2504

03:19:17,210 --> 03:19:14,220

right over my head like I can almost

2505

03:19:20,210 --> 03:19:17,220

touch it with my hand

2506

03:19:22,550 --> 03:19:20,220

um is it a problem just to give me uh

2507

03:19:32,929 --> 03:19:22,560

10 centimeters towards my feet and then

2508

03:19:39,349 --> 03:19:36,050

okay checking it's a joint ocas

2509

03:19:43,969 --> 03:19:39,359

um so I don't think it'll keep you

2510

03:19:46,610 --> 03:19:45,650

I think we gotta send this one over to

2511

03:19:47,269 --> 03:19:46,620

Robo

2512

03:19:49,130 --> 03:19:47,279

um

2513

03:19:50,510 --> 03:19:49,140

I can't say for sure that I'm not going

2514

03:19:54,830 --> 03:19:50,520

to go right through

2515

03:19:57,590 --> 03:19:54,840

the safety tether other final cast

2516

03:19:59,809 --> 03:19:57,600

hey Josh we were chatting about it uh in

2517

03:20:01,190 --> 03:19:59,819

this next maneuver there's no body up

2518

03:20:02,990 --> 03:20:01,200

motion

2519

03:20:05,389 --> 03:20:03,000

um if we do go body down we'll need to

2520

03:20:07,670 --> 03:20:05,399

change up some modes but uh you

2521

03:20:12,050 --> 03:20:07,680

shouldn't go body up at all in this next

2522

03:20:16,910 --> 03:20:15,110

perfect thank you so much Nick Fat Duke

2523

03:20:19,309 --> 03:20:16,920

I ever go and I'll keep an eye on the

2524

03:20:29,269 --> 03:20:19,319

safety feather as best I can

2525

03:20:34,370 --> 03:20:32,090

before the bolts are driven uh to

2526

03:20:38,030 --> 03:20:34,380

basically free up the hinge restraints

2527

03:20:41,090 --> 03:20:38,040

on the ISS rollout solar array Josh

2528

03:20:43,670 --> 03:20:41,100

cassido will be placed in a position to

2529

03:20:45,950 --> 03:20:43,680

leave the articulating portable foot

2530

03:20:47,690 --> 03:20:45,960

restraint that he's been mounted on at

2531

03:20:49,210 --> 03:20:47,700

the end of the canadarm II robotic arm

2532

03:20:52,250 --> 03:20:49,220

which has been driven

2533

03:20:54,349 --> 03:20:52,260

by koichiwakata with the assistance of

2534

03:20:56,750 --> 03:20:54,359

Nicole Mann from the robotics

2535

03:20:59,929 --> 03:20:56,760

workstation in the destiny laboratory of

2536

03:21:05,030 --> 03:20:59,939

the International Space Station

2537

03:21:10,130 --> 03:21:07,130

and I am opening from the safety tether

2538

03:22:06,889 --> 03:21:10,140

with that motion so that's great

2539

03:22:14,210 --> 03:22:09,170

you're doing okay yeah doing great how

2540

03:22:14,220 --> 03:22:51,889

job

2541

03:22:55,370 --> 03:22:53,570

it's amazing how quickly your brain

2542

03:22:57,469 --> 03:22:55,380

adapts uh you know like I see myself

2543

03:23:01,610 --> 03:22:57,479

being right side up and I'm sure you see

2544

03:23:06,889 --> 03:23:03,830

yeah

2545

03:23:09,530 --> 03:23:06,899

join me here shortly

2546

03:23:11,690 --> 03:23:09,540

well go slow when you get off because

2547

03:23:23,809 --> 03:23:11,700

it'll be a little disorienting yeah

2548

03:23:29,450 --> 03:23:26,210

okay that's the end of a

2549

03:23:32,330 --> 03:23:29,460

joecast we are setting up for GCA the

2550

03:23:36,590 --> 03:23:32,340

published apfr egress position

2551  
03:23:38,030 --> 03:23:36,600  
copy and a year ago and ready GCA to be

2552  
03:23:42,350 --> 03:23:38,040  
published

2553  
03:23:42,360 --> 03:24:45,010  
[Music]

2554  
03:24:52,070 --> 03:24:47,809  
kev1 we are set up this is going to

2555  
03:24:54,050 --> 03:24:52,080  
bring you body it left 1.5 meters and we

2556  
03:24:56,450 --> 03:24:54,060  
have degraded cameras so if you can help

2557  
03:24:58,490 --> 03:24:56,460  
us with clearance from your body and the

2558  
03:25:00,290 --> 03:24:58,500  
apfr toy Rosa

2559  
03:25:02,870 --> 03:25:00,300  
okay that's gonna be hard because we're

2560  
03:25:05,750 --> 03:25:02,880  
moving towards my left shoulder

2561  
03:25:08,150 --> 03:25:05,760  
um so I can see right now all of irosa

2562  
03:25:10,670 --> 03:25:08,160  
we are currently clear

2563  
03:25:13,190 --> 03:25:10,680

okay if any point you lose irosa let us

2564

03:25:28,010 --> 03:25:13,200

know and we will pause

2565

03:25:28,020 --> 03:25:31,250

it's clear

2566

03:25:31,260 --> 03:25:40,190

I need one meter to go copy

2567

03:25:40,200 --> 03:25:46,929

real clear

2568

03:26:02,929 --> 03:25:49,670

vibration I cannot seem like this place

2569

03:26:02,939 --> 03:26:06,769

Foreign Service

2570

03:26:13,250 --> 03:26:10,190

okay copy body out 20 centimeters that's

2571

03:26:16,840 --> 03:26:13,260

right and you confirm you have clearance

2572

03:26:18,050 --> 03:26:16,850

uh in front of me yes behind me though

2573

03:26:19,969 --> 03:26:18,060

[Applause]

2574

03:26:29,870 --> 03:26:19,979

okay we're coming body out 20

2575

03:26:35,809 --> 03:26:32,929

second Russian

2576

03:26:44,929 --> 03:26:35,819

time to go can you

2577

03:26:49,910 --> 03:26:47,210

told me

2578

03:26:54,590 --> 03:26:49,920

left and I have good clearance for the

2579

03:26:54,600 --> 03:26:58,490

okay confirm 4

2580

03:26:58,500 --> 03:27:02,389

affirmative 45 years

2581

03:27:02,399 --> 03:27:23,929

okay

2582

03:27:34,450 --> 03:27:29,210

three two one ramp up

2583

03:27:44,150 --> 03:27:38,030

copy GCS complete brakes are on go for

2584

03:27:46,670 --> 03:27:44,160

apfr egress copy go for apfr egress

2585

03:27:49,130 --> 03:27:46,680

and Josh you'll uh want to just use that

2586

03:27:50,870 --> 03:27:49,140

in Grace Aid only when you're egressing

2587

03:27:52,729 --> 03:27:50,880

under the mounting bracket might be uh

2588

03:27:54,050 --> 03:27:52,739

in Easy reach but uh just use the

2589

03:28:02,469 --> 03:27:54,060

Ingress Aid and when you're done with it

2590

03:28:08,510 --> 03:28:04,849

my understanding is

2591

03:28:12,349 --> 03:28:10,729

a firm uh understand your egress do you

2592

03:28:21,650 --> 03:28:12,359

want to Stow the Ingress Aid in a low

2593

03:28:27,650 --> 03:28:24,050

I made a bad decision on that GCA

2594

03:28:27,660 --> 03:28:46,190

length of an interest rate

2595

03:28:51,050 --> 03:28:48,410

this is Mission Control Houston three

2596

03:28:52,790 --> 03:28:51,060

hours 26 minutes into the spacewalk by

2597

03:28:58,849 --> 03:28:52,800

cassida and Rubio

2598

03:29:01,250 --> 03:28:58,859

about uh 26 minutes ago the ISS rollout

2599

03:29:03,229 --> 03:29:01,260

solar array the first of two delivered

2600

03:29:08,590 --> 03:29:03,239

last week on the SpaceX cargo dragon

2601  
03:29:14,150 --> 03:29:11,389  
was installed on its mounting bracket on

2602  
03:29:16,729 --> 03:29:14,160  
the starboard Fortress Josh Casada who

2603  
03:29:18,830 --> 03:29:16,739  
had spent the last couple of hours at

2604  
03:29:21,650 --> 03:29:18,840  
the end of the station's robotic arm and

2605  
03:29:23,809 --> 03:29:21,660  
a portable foot restraint first hauling

2606  
03:29:25,790 --> 03:29:23,819  
the array over from its Flight Support

2607  
03:29:28,429 --> 03:29:25,800  
equipment to the mounting position on

2608  
03:29:30,349 --> 03:29:28,439  
the starboard Fortress has now exited

2609  
03:29:33,170 --> 03:29:30,359  
the foot restraint at the end of the

2610  
03:29:36,769 --> 03:29:33,180  
robotic arm and he will set up shop with

2611  
03:29:38,990 --> 03:29:36,779  
Rubio to drive a couple of bolts to

2612  
03:29:48,410 --> 03:29:39,000  
release the final hinge restraint that

2613  
03:29:48,420 --> 03:30:05,650

nothing

2614

03:30:17,450 --> 03:30:09,889

disregard we will not meet the GTA

2615

03:30:55,570 --> 03:30:19,790

okay it breaks your back on

2616

03:31:03,349 --> 03:30:59,450

once the array is folded open

2617

03:31:05,630 --> 03:31:03,359

then catheter will be working to drive a

2618

03:31:07,729 --> 03:31:05,640

series of bolts

2619

03:31:11,210 --> 03:31:07,739

that will uh

2620

03:31:12,889 --> 03:31:11,220

affix the array to the integrated

2621

03:31:14,870 --> 03:31:12,899

Electronics assembly on the

2622

03:31:17,570 --> 03:31:14,880

International Space Station

2623

03:31:21,110 --> 03:31:17,580

electrical connections will be hooked up

2624

03:31:24,710 --> 03:31:21,120

that basically meets the arrays

2625

03:31:27,769 --> 03:31:24,720

electrical system to the original array

2626  
03:31:30,530 --> 03:31:27,779  
that sits on the starboard 4 starboard 3

2627  
03:31:32,349 --> 03:31:30,540  
truss that was delivered 15 years ago to

2628  
03:31:35,690 --> 03:31:32,359  
the station on the

2629  
03:31:38,330 --> 03:31:35,700  
sts-117 mission of the shuttle Atlantis

2630  
03:31:43,450 --> 03:31:38,340  
profile the two spacewalkers will then

2631  
03:31:45,710 --> 03:31:43,460  
monitor the unfolding basically the

2632  
03:31:48,410 --> 03:31:45,720  
unfurling of the array to its full

2633  
03:31:50,750 --> 03:31:48,420  
length of 60 feet following the

2634  
03:31:53,690 --> 03:31:50,760  
tensioning of that array to its final

2635  
03:32:02,090 --> 03:31:55,610  
awareness of your safety tether back to

2636  
03:32:05,269 --> 03:32:03,769  
give me one second and I'm just going to

2637  
03:32:13,130 --> 03:32:05,279  
get it

2638  
03:32:17,630 --> 03:32:15,050

and Josh as you're working that uh

2639

03:32:19,610 --> 03:32:17,640

you're going to want to

2640

03:32:22,969 --> 03:32:19,620

eventually get a fair lead on that lower

2641

03:32:24,950 --> 03:32:22,979

right structure and a lower strut lower

2642

03:32:33,550 --> 03:32:24,960

handrail to help keep your safety tether

2643

03:32:39,769 --> 03:32:36,050

yeah we want to put that in after the

2644

03:32:39,779 --> 03:32:46,990

whatever okay uh

2645

03:32:53,210 --> 03:32:50,990

I think each other is clear

2646

03:32:56,389 --> 03:32:53,220

this is the third in the series of at

2647

03:32:58,190 --> 03:32:56,399

least six iroses that are being

2648

03:33:00,370 --> 03:32:58,200

delivered and installed on the

2649

03:33:03,170 --> 03:33:00,380

International Space Station the next one

2650

03:33:06,170 --> 03:33:03,180

also uh carried to the station on the

2651  
03:33:08,210 --> 03:33:06,180  
SpaceX cargo Dragon a week ago

2652  
03:33:11,750 --> 03:33:08,220  
is scheduled to be installed on the port

2653  
03:33:14,990 --> 03:33:11,760  
Fortress of the station by cassida and

2654  
03:33:18,469 --> 03:33:15,000  
Rubio on December 19th this is going to

2655  
03:33:19,790 --> 03:33:18,479  
be ISS Port three meters and Zenith two

2656  
03:33:22,969 --> 03:33:19,800  
and a half meters

2657  
03:33:24,290 --> 03:33:22,979  
okay we copy and Frank when uh when

2658  
03:33:26,450 --> 03:33:24,300  
they're way clear let me know and then

2659  
03:33:28,670 --> 03:33:26,460  
I'll turn around and we'll uh we'll get

2660  
03:33:32,030 --> 03:33:28,680  
to work okay

2661  
03:33:34,250 --> 03:33:32,040  
each of these iroses will produce and

2662  
03:33:36,410 --> 03:33:34,260  
are producing more than 20 kilowatts of

2663  
03:33:39,110 --> 03:33:36,420

electricity

2664

03:33:40,969 --> 03:33:39,120

again designed to augment the existing

2665

03:33:42,590 --> 03:33:40,979

power supply of the International Space

2666

03:33:46,929 --> 03:33:42,600

Station for future research and

2667

03:33:46,939 --> 03:33:54,410

towards your right

2668

03:33:58,729 --> 03:33:55,849

so

2669

03:34:58,309 --> 03:33:58,739

we won't

2670

03:34:58,319 --> 03:35:03,590

all right

2671

03:35:07,250 --> 03:35:05,510

okay

2672

03:35:17,389 --> 03:35:07,260

that's making it hard because it's

2673

03:35:22,010 --> 03:35:19,729

hey everyone we have about 85

2674

03:35:24,590 --> 03:35:22,020

centimeters Zenith to go and we're

2675

03:35:26,750 --> 03:35:24,600

having a hard time seeing the apr from

2676

03:35:30,349 --> 03:35:26,760

the trust can you help us out

2677

03:35:36,590 --> 03:35:30,359

uh I cannot

2678

03:35:41,269 --> 03:35:39,110

if your fire is clear

2679

03:35:41,279 --> 03:35:48,769

if you're looking for clearance

2680

03:36:04,130 --> 03:35:51,170

okay we're gonna continue Zenith 85

2681

03:36:04,140 --> 03:36:15,769

30 centimeters to go

2682

03:36:19,280 --> 03:36:18,229

all right I think I'm kind of losing you

2683

03:36:20,809 --> 03:36:19,290

now because of a

2684

03:36:23,210 --> 03:36:20,819

[Applause]

2685

03:36:24,889 --> 03:36:23,220

light that's kind of directly in my eyes

2686

03:36:29,450 --> 03:36:24,899

so I can't quite clear the last 10

2687

03:36:35,150 --> 03:36:32,090

okay we are at the published position

2688

03:36:50,210 --> 03:36:35,160

position and brakes are on standby while

2689

03:36:55,429 --> 03:36:53,690

and so Josh once you get that fair lead

2690

03:36:57,469 --> 03:36:55,439

in on that lower strut then you're

2691

03:36:59,929 --> 03:36:57,479

you're on the right side to get into

2692

03:37:02,450 --> 03:36:59,939

position for the unfold I got a warning

2693

03:37:04,790 --> 03:37:02,460

that when we do that unfold

2694

03:37:08,210 --> 03:37:04,800

it's a pinch point so keep clear of the

2695

03:37:08,220 --> 03:37:30,950

okay understood

2696

03:37:43,849 --> 03:37:34,010

I don't think the fairly's gonna stay

2697

03:37:49,250 --> 03:37:46,849

so I've got every um my feather it's

2698

03:38:00,950 --> 03:37:49,260

going across the front of my body to the

2699

03:38:08,690 --> 03:38:02,389

I think I'm gonna try to get it on my

2700

03:38:12,170 --> 03:38:09,950

probably

2701  
03:38:14,210 --> 03:38:12,180  
and Josh just to let you know the intent

2702  
03:38:16,010 --> 03:38:14,220  
of that fair lead we're just trying to

2703  
03:38:19,370 --> 03:38:16,020  
clear your safety tether out of the way

2704  
03:38:21,349 --> 03:38:19,380  
of the unfold as as that happens so you

2705  
03:38:23,750 --> 03:38:21,359  
know using that lower hand rail to try

2706  
03:38:27,710 --> 03:38:23,760  
to string it down towards your feet uh

2707  
03:38:31,070 --> 03:38:29,450  
understood

2708  
03:38:33,530 --> 03:38:31,080  
Josh I think for now if you just leave

2709  
03:38:38,330 --> 03:38:35,870  
too so we're just going to go across our

2710  
03:38:40,490 --> 03:38:38,340  
body on that one and I think that will

2711  
03:38:42,050 --> 03:38:40,500  
keep it out of the way of the unfold if

2712  
03:38:44,269 --> 03:38:42,060  
you agree

2713  
03:38:46,250 --> 03:38:44,279

but I agree

2714

03:38:50,389 --> 03:38:46,260

yep and if you guys have awareness of it

2715

03:38:55,370 --> 03:38:52,790

okay everyone we're set up on our end

2716

03:38:57,530 --> 03:38:55,380

let us know if you need a GCA once you

2717

03:38:59,090 --> 03:38:57,540

get to each other's home okay that's a

2718

03:38:59,929 --> 03:38:59,100

little bit down the road uh I appreciate

2719

03:39:01,190 --> 03:38:59,939

it

2720

03:39:04,070 --> 03:39:01,200

um

2721

03:39:05,690 --> 03:39:04,080

that was amazing thank you for the ride

2722

03:39:07,190 --> 03:39:05,700

I will definitely get on my advice here

2723

03:39:15,110 --> 03:39:07,200

after give you five stars when we get

2724

03:39:20,389 --> 03:39:19,130

okay uh Nick we are ready for the unfold

2725

03:39:23,929 --> 03:39:20,399

if you are

2726

03:39:44,090 --> 03:39:26,030

okay

2727

03:39:44,100 --> 03:39:48,830

and the soft capture is armed

2728

03:39:56,090 --> 03:39:51,050

watch those fingers so here it comes

2729

03:40:07,990 --> 03:39:59,389

cables and feathers are clear on their

2730

03:40:08,000 --> 03:40:18,290

catcher oh actually it's engaged nice uh

2731

03:40:26,469 --> 03:40:22,790

okay now it's got you okay bye

2732

03:40:30,650 --> 03:40:28,849

copy guys great work that's a good

2733

03:40:32,210 --> 03:40:30,660

install it's a great config

2734

03:40:34,070 --> 03:40:32,220

um while you're in that position we'd

2735

03:40:37,969 --> 03:40:34,080

like to get gloves half and Gauntlet

2736

03:40:43,610 --> 03:40:39,710

okay

2737

03:40:46,910 --> 03:40:43,620

gloves for easy one

2738

03:40:49,910 --> 03:40:46,920

oh notifications

2739

03:40:50,950 --> 03:40:49,920  
and half is dry and gauntlets are

2740

03:40:54,349 --> 03:40:50,960  
covered

2741

03:40:56,450 --> 03:40:54,359  
that is true no noticeable changes on my

2742

03:40:59,090 --> 03:40:56,460  
gloves and dry hair

2743

03:41:01,550 --> 03:40:59,100  
that's all covered

2744

03:41:03,650 --> 03:41:01,560  
copying good checks for both of you

2745

03:41:06,769 --> 03:41:03,660  
three hours 38 minutes into the

2746

03:41:09,830 --> 03:41:06,779  
spacewalk the ISS rollout solar array

2747

03:41:11,630 --> 03:41:09,840  
has unfolded to Stow the long duration

2748

03:41:14,990 --> 03:41:11,640  
tie-down tether with those scoops on it

2749

03:41:17,150 --> 03:41:15,000  
inside of crew lock bag M and Josh

2750

03:41:27,250 --> 03:41:17,160  
you're going to translate uh to work the

2751  
03:41:33,050 --> 03:41:31,790  
that's affirmative R7 and R8 and uh you

2752  
03:41:34,250 --> 03:41:33,060  
can start with whatever one is

2753  
03:41:36,410 --> 03:41:34,260  
convenient

2754  
03:41:38,570 --> 03:41:36,420  
Frank just for heads up when you are in

2755  
03:41:47,990 --> 03:41:38,580  
the bag you're going to retrieve the AET

2756  
03:41:52,610 --> 03:41:50,750  
Frank with that moving anchor of my

2757  
03:41:55,250 --> 03:41:52,620  
safety shutter

2758  
03:41:58,610 --> 03:41:55,260  
to make sure that now I can get it off

2759  
03:42:04,490 --> 03:42:01,010  
and it's currently opened my right yeah

2760  
03:42:08,450 --> 03:42:04,500  
so I'm gonna do it's it's our clear as

2761  
03:42:08,460 --> 03:42:14,330  
bring your legs down

2762  
03:42:19,429 --> 03:42:16,429  
keep going down on your rights

2763  
03:42:21,889 --> 03:42:19,439

good real quick awesome perfect thank

2764

03:42:24,349 --> 03:42:21,899

you yep

2765

03:42:27,469 --> 03:42:24,359

the two space Walkers now will uh

2766

03:42:30,290 --> 03:42:27,479

tighten a pair of hinge restraint bolts

2767

03:42:32,769 --> 03:42:30,300

to make sure that the unfolded ISS

2768

03:42:36,729 --> 03:42:32,779

rollout solar array does not have any

2769

03:42:39,349 --> 03:42:36,739

motion at the hinge itself

2770

03:42:41,210 --> 03:42:39,359

we're three hours 40 minutes into the

2771

03:42:42,610 --> 03:42:41,220

spacewalk the crew continues to work

2772

03:43:31,190 --> 03:42:42,620

slightly ahead of the timeline

2773

03:43:31,200 --> 03:43:38,809

okay R7 R8

2774

03:43:38,819 --> 03:43:43,309

all right and

2775

03:43:50,330 --> 03:43:46,070

I'm here and understand

2776  
03:43:56,030 --> 03:43:53,570  
that's affirmative Alpha One these uh

2777  
03:43:59,750 --> 03:43:56,040  
bolts that the two space Walkers are

2778  
03:44:01,070 --> 03:43:59,760  
driving will uh physically attach the

2779  
03:44:05,150 --> 03:44:01,080  
irosa

2780  
03:44:08,510 --> 03:44:05,160  
to the Mast canister that uh

2781  
03:44:11,870 --> 03:44:08,520  
basically also is the the base if you

2782  
03:44:13,429 --> 03:44:11,880  
will for the uh original solar array on

2783  
03:44:15,889 --> 03:44:13,439  
the starboard Fortress of the

2784  
03:44:18,349 --> 03:44:15,899  
International Space Station the irosa

2785  
03:44:21,650 --> 03:44:18,359  
now will accompany that original array

2786  
03:44:34,130 --> 03:44:21,660  
to increase electrical output for the 3A

2787  
03:44:38,809 --> 03:44:36,290  
a health award

2788  
03:44:41,150 --> 03:44:38,819

clockwise 2 is set

2789

03:44:44,090 --> 03:44:41,160

that's good settings and so you're gonna

2790

03:44:46,790 --> 03:44:44,100

drive those hinge bolts uh 14 to 16

2791

03:44:52,250 --> 03:44:46,800

turns just let us know which one you're

2792

03:44:52,260 --> 03:44:58,610

so it was 14 to 16.

2793

03:44:58,620 --> 03:45:07,429

the dryer

2794

03:45:12,769 --> 03:45:10,370

and based on that body position uh in

2795

03:45:14,750 --> 03:45:12,779

the pool uh that might be a position

2796

03:45:17,690 --> 03:45:14,760

that Frank can help stabilize you a

2797

03:45:23,210 --> 03:45:20,450

that sounds great

2798

03:45:34,190 --> 03:45:23,220

I understand 14 to 16 turns correct hey

2799

03:45:34,200 --> 03:45:41,870

um

2800

03:45:41,880 --> 03:45:47,150

we just missed the power

2801

03:45:52,849 --> 03:45:48,769

it was on

2802

03:46:06,349 --> 03:45:52,859

uh but I think we just expired our

2803

03:46:06,359 --> 03:46:10,330

hey just say it again Alpha One

2804

03:46:27,830 --> 03:46:13,130

clockwise two

2805

03:46:32,990 --> 03:46:30,469

yeah I'm gonna try to put my feet here

2806

03:46:34,370 --> 03:46:33,000

and if there's a way you can stabilize

2807

03:46:39,469 --> 03:46:34,380

my shoulder we shouldn't put too much

2808

03:46:39,479 --> 03:46:43,010

you're on higher nope

2809

03:47:21,710 --> 03:47:13,610

or

2810

03:47:21,720 --> 03:47:26,750

hey that's a good R7

2811

03:47:32,690 --> 03:47:28,849

I didn't tell you which one I was doing

2812

03:47:38,330 --> 03:47:36,110

all right these are eight and Frank if

2813

03:47:49,429 --> 03:47:38,340

we could do something similar

2814

03:47:49,439 --> 03:48:28,309

yeah that's perfect thank you

2815

03:48:35,870 --> 03:48:30,590

hey 17 turns again

2816

03:48:40,849 --> 03:48:38,210

that's a good R8 so now we're going to

2817

03:48:43,210 --> 03:48:40,859

work to try to release them one turn so

2818

03:48:54,590 --> 03:48:43,220

the new setting is Alpha One

2819

03:49:01,250 --> 03:48:57,910

also one is set

2820

03:49:03,349 --> 03:49:01,260

counterclockwise two is set and I'll try

2821

03:49:04,250 --> 03:49:03,359

to go get our seven first here and we're

2822

03:49:06,650 --> 03:49:04,260

doing

2823

03:49:16,849 --> 03:49:06,660

turn our last trip

2824

03:49:21,050 --> 03:49:19,550

there's three quarters on

2825

03:49:28,250 --> 03:49:21,060

our seven

2826

03:49:33,170 --> 03:49:30,889

Quarters on our eighth

2827

03:49:34,910 --> 03:49:33,180

copy a good release on both our seven r

2828

03:49:37,010 --> 03:49:34,920

eight you can Stow the PTT and then

2829

03:49:41,030 --> 03:49:37,020

Frank's gonna hand you that AET with the

2830

03:50:12,349 --> 03:50:07,610

okay

2831

03:50:15,710 --> 03:50:12,359

thank you and it's true rights on this

2832

03:50:18,050 --> 03:50:15,720

is you should just be a leader of this

2833

03:50:25,370 --> 03:50:18,060

and Frank there should be enough stretch

2834

03:50:25,380 --> 03:50:30,290

on hand tight on R7

2835

03:50:44,570 --> 03:50:32,570

copy that's going to be less than one

2836

03:50:50,650 --> 03:50:46,849

hey that's less than 30 inch pounds and

2837

03:50:56,809 --> 03:50:50,660

that was about half a turn

2838

03:50:56,819 --> 03:51:11,889

sorry

2839

03:51:16,550 --> 03:51:14,030

a good luck

2840

03:51:18,349 --> 03:51:16,560

at the solar arrays at the starboard

2841

03:51:19,630 --> 03:51:18,359

Fortress of the International Space

2842

03:51:21,729 --> 03:51:19,640

Station

2843

03:51:26,389 --> 03:51:21,739

112 feet long

2844

03:51:30,250 --> 03:51:26,399

39 feet wide about to be augmented by

2845

03:51:32,950 --> 03:51:30,260

the ISS rollout solar array which when

2846

03:51:35,630 --> 03:51:32,960

unfurled will be about 60 feet long

2847

03:51:38,750 --> 03:51:35,640

providing an additional 20 kilowatts of

2848

03:51:41,090 --> 03:51:38,760

power for the 3A power channel on the

2849

03:51:43,130 --> 03:51:41,100

International Space Station

2850

03:51:45,170 --> 03:51:43,140

speaking each other on my left side and now

2851

03:51:46,969 --> 03:51:45,180

we're moving on

2852

03:51:51,070 --> 03:51:46,979

let's make sure I think it's still in a

2853

03:52:03,950 --> 03:51:55,130

I am on the on the upkeep hooks for

2854

03:52:03,960 --> 03:52:08,830

you can move that for sure

2855

03:52:14,690 --> 03:52:12,050

page four is off

2856

03:52:24,769 --> 03:52:14,700

and let's put this that's a lot going on

2857

03:52:24,779 --> 03:52:28,910

oh my future yeah right

2858

03:52:28,920 --> 03:52:33,170

that's okay

2859

03:52:40,849 --> 03:52:34,550

um here it is

2860

03:52:40,859 --> 03:53:02,150

son or something else

2861

03:53:13,210 --> 03:53:03,650

all right

2862

03:53:19,690 --> 03:53:16,630

that might keep happening Frankie

2863

03:53:22,849 --> 03:53:19,700

I see oh

2864

03:53:24,410 --> 03:53:22,859

sounds good then the next one Let's do

2865

03:53:26,030 --> 03:53:24,420

let's try to do all four of the same

2866

03:53:29,570 --> 03:53:26,040

area

2867

03:53:46,070 --> 03:53:30,830

it doesn't really matter there's plenty

2868

03:53:46,080 --> 03:53:52,130

that is awesome thank you

2869

03:53:56,450 --> 03:53:54,710

I make that four caps for J1 through

2870

03:53:59,210 --> 03:53:56,460

four right

2871

03:54:01,429 --> 03:53:59,220

that I think we'll do mvgl's right

2872

03:54:03,950 --> 03:54:01,439

yep copy Josh a good release on those

2873

03:54:09,050 --> 03:54:03,960

cats and just a heads up uh your head is

2874

03:54:09,060 --> 03:54:18,710

thank you

2875

03:54:23,570 --> 03:54:21,889

Chris is already attracting it

2876

03:54:26,269 --> 03:54:23,580

and so we're gonna

2877

03:54:31,610 --> 03:54:26,279

use the cap keeper from the bag and get

2878

03:54:34,530 --> 03:54:33,110

yes

2879

03:54:38,990 --> 03:54:34,540

sure

2880

03:55:01,849 --> 03:54:41,450

did I do I do I have it

2881

03:55:01,859 --> 03:55:10,010

clear my grocery

2882

03:55:14,929 --> 03:55:13,670

all right it's a direct cap a four-door

2883

03:55:26,750 --> 03:55:14,939

center now

2884

03:55:26,760 --> 03:55:32,150

there's this ordered

2885

03:55:32,160 --> 03:55:34,969

that's

2886

03:55:42,309 --> 03:55:37,429

essential f

2887

03:55:48,590 --> 03:55:45,349

no I think it prints back on you it's

2888

03:55:51,290 --> 03:55:48,600

got to go back a little sooner

2889

03:55:53,630 --> 03:55:51,300

oh the force it

2890

03:55:56,750 --> 03:55:53,640

I'm showing

2891

03:56:03,650 --> 03:55:56,760

that guy's over Center

2892

03:56:03,660 --> 03:56:07,969

Nick

2893

03:56:07,979 --> 03:56:11,090

yep we're watching

2894

03:56:13,790 --> 03:56:12,710

just don't want to I don't want to force

2895

03:56:16,550 --> 03:56:13,800

it here

2896

03:56:21,590 --> 03:56:16,560

got a good uh teammate

2897

03:56:32,030 --> 03:56:23,150

I go ahead and try to remove the cap

2898

03:56:32,040 --> 03:56:38,630

in Joshua

2899

03:56:46,010 --> 03:56:40,729

and Josh if you need you can pull on

2900

03:57:02,870 --> 03:56:48,530

in fact I just did that we are full over

2901

03:57:02,880 --> 03:57:12,910

it's quite an abusive huh yeah

2902

03:57:12,920 --> 03:57:18,610

the cat keeper on it

2903

03:57:41,510 --> 03:57:21,170

that's actually super helpful when I did

2904

03:57:41,520 --> 03:57:56,689

remember these being so hard inside

2905

03:57:56,699 --> 03:58:09,290

go after the center

2906

03:58:14,630 --> 03:58:13,309

hey Nick uh three and four or at least

2907

03:58:24,550 --> 03:58:14,640

the connectors for three and four are

2908

03:58:30,229 --> 03:58:27,110

approaching the four hour mark in the

2909

03:58:32,750 --> 03:58:30,239

spacewalk Casita and Rubio are uh

2910

03:58:34,550 --> 03:58:32,760

working with a number of uh electrical

2911

03:58:36,710 --> 03:58:34,560

connector caps

2912

03:58:39,370 --> 03:58:36,720

prior to the time that we would move

2913

03:58:42,830 --> 03:58:39,380

into an eclipse period

2914

03:58:46,490 --> 03:58:42,840

we will not do any uh electrical mating

2915

03:58:49,250 --> 03:58:46,500

or demating of cables during daylight to

2916

03:58:51,530 --> 03:58:49,260

ensure that the integrated Electronics

2917

03:58:52,969 --> 03:58:51,540

assembly and the solar arrays that exist

2918

03:58:55,370 --> 03:58:52,979

on the space station are not

2919

03:58:58,429 --> 03:58:55,380

electrically charged at the time that

2920

03:59:02,150 --> 03:58:58,439

that delicate work is taking place

2921

03:59:04,790 --> 03:59:02,160

the ISS rollout solar array is bolted

2922

03:59:06,469 --> 03:59:04,800

into place on the starboard Ford truss

2923

03:59:09,710 --> 03:59:06,479

of the International Space Station it

2924

03:59:12,889 --> 03:59:09,720

has been unhinged or unfolded into its

2925

03:59:16,670 --> 03:59:12,899

unfolded position and now a series of

2926  
03:59:19,790 --> 03:59:16,680  
cables will be connected to mate the new

2927  
03:59:21,969 --> 03:59:19,800  
augmented solar array to the existing

2928  
03:59:24,410 --> 03:59:21,979  
solar array on the starboard Fortress

2929  
03:59:27,650 --> 03:59:24,420  
ultimately to produce about 20

2930  
03:59:29,510 --> 03:59:27,660  
additional kilowatts of power for the 3A

2931  
03:59:45,229 --> 03:59:29,520  
power channel on the International Space

2932  
03:59:50,929 --> 03:59:48,950  
pull forward over Center and made it on

2933  
03:59:54,830 --> 03:59:50,939  
four

2934  
03:59:54,840 --> 04:00:00,290  
or P3

2935  
04:00:07,729 --> 04:00:04,849  
left over Center no sauce no vent pins

2936  
04:00:10,130 --> 04:00:07,739  
good Emi band

2937  
04:00:31,070 --> 04:00:10,140  
and going on good checks you go to main

2938  
04:00:35,570 --> 04:00:33,349

pull forward over Center

2939

04:00:38,510 --> 04:00:35,580

made it on P3

2940

04:00:42,740 --> 04:00:38,520

copy good mates good connections on P3

2941

04:00:42,750 --> 04:00:47,210

[Music]

2942

04:00:47,220 --> 04:00:57,650

00

2943

04:01:01,370 --> 04:00:59,570

yeah Frank if you hold the cap in one

2944

04:01:02,809 --> 04:01:01,380

hand and the back shell the metal part

2945

04:01:04,610 --> 04:01:02,819

of the back shell on the other and just

2946

04:01:05,809 --> 04:01:04,620

try to separate them it should move the

2947

04:01:09,590 --> 04:01:05,819

lever by

2948

04:01:09,600 --> 04:01:12,710

nice

2949

04:01:17,750 --> 04:01:14,450

understanding what you're saying is uh

2950

04:01:17,760 --> 04:01:20,929

hey

2951

04:01:24,650 --> 04:01:22,790

all right do you want to get these or do

2952

04:01:26,269 --> 04:01:24,660

you want me to meet them and all right

2953

04:01:29,030 --> 04:01:26,279

okay

2954

04:01:31,510 --> 04:01:29,040

all right all right Papa one is going to

2955

04:01:36,410 --> 04:01:31,520

day one is that correct

2956

04:01:43,030 --> 04:01:37,389

yeah

2957

04:01:51,889 --> 04:01:44,750

thank you

2958

04:01:56,150 --> 04:01:53,450

I think what worked for me is getting it

2959

04:01:57,889 --> 04:01:56,160

right there and then I took my thumb on

2960

04:02:04,510 --> 04:01:57,899

top

2961

04:02:10,189 --> 04:02:08,689

all right thank you made it look easier

2962

04:02:14,450 --> 04:02:10,199

and uh

2963

04:02:17,150 --> 04:02:14,460

into the day two and I have good things

2964

04:02:22,189 --> 04:02:17,160

provide City in my advance

2965

04:02:22,199 --> 04:02:27,469

you won't be heading over to uh 2217

2966

04:02:33,889 --> 04:02:29,630

so you're uh good to go over there for

2967

04:02:39,290 --> 04:02:37,130

okay P1 and J1 are

2968

04:02:44,150 --> 04:02:39,300

full forward over Center

2969

04:02:48,710 --> 04:02:46,070

so Frank you're going to start working

2970

04:02:56,870 --> 04:02:48,720

the end bolts starting with M31 through

2971

04:03:00,229 --> 04:02:58,790

. Francesca

2972

04:03:01,490 --> 04:03:00,239

the safety time is still looking okay

2973

04:03:05,229 --> 04:03:01,500

correct

2974

04:03:09,530 --> 04:03:08,269

four hours into the spacewalk Frank

2975

04:03:12,110 --> 04:03:09,540

Rubio

2976

04:03:14,210 --> 04:03:12,120

is going to begin to drive a series of

2977

04:03:15,710 --> 04:03:14,220

eight bolts four on the left side four

2978

04:03:16,729 --> 04:03:15,720

on the right side of this mounting

2979

04:03:21,710 --> 04:03:16,739

bracket

2980

04:03:24,110 --> 04:03:21,720

to firmly secure the ISS rollout solar

2981

04:03:26,269 --> 04:03:24,120

array permanently affix it to the

2982

04:03:27,830 --> 04:03:26,279

integrated Electronics assembly on the

2983

04:03:34,350 --> 04:03:27,840

International Space Station starboard

2984

04:03:34,360 --> 04:04:08,990

[Music]

2985

04:04:09,000 --> 04:04:17,389

already for settings

2986

04:04:22,490 --> 04:04:19,969

hey guys we're back with you off a uh a

2987

04:04:24,110 --> 04:04:22,500

short Handover uh just wanted to provide

2988

04:04:25,670 --> 04:04:24,120

you with a big picture as you're uh

2989

04:04:27,889 --> 04:04:25,680

moving into position for the next task

2990

04:04:30,170 --> 04:04:27,899

from a consumables perspective you guys

2991

04:04:32,630 --> 04:04:30,180

are you're golden uh we've got plenty of

2992

04:04:35,450 --> 04:04:32,640

time you're on track for the uh the

2993

04:04:38,030 --> 04:04:35,460

timeline so we're gonna work these bolts

2994

04:04:39,830 --> 04:04:38,040

we're gonna work the the cable as a

2995

04:04:41,929 --> 04:04:39,840

priority when we get into Eclipse we'll

2996

04:04:44,870 --> 04:04:41,939

mix in uh

2997

04:04:46,370 --> 04:04:44,880

um the cables as we need to then we'll

2998

04:04:47,870 --> 04:04:46,380

step into the deploy and we're

2999

04:04:55,269 --> 04:04:47,880

completely on track for trying to get

3000

04:04:55,279 --> 04:04:59,210

I am ready for settings

3001  
04:04:59,220 --> 04:05:05,170  
copy you've got Bravo 5 clockwise two

3002  
04:05:10,490 --> 04:05:08,110  
spacecraft Communicator Nick Hague

3003  
04:05:13,309 --> 04:05:10,500  
reporting back to the crew of status in

3004  
04:05:15,830 --> 04:05:13,319  
the big picture the 1B cable that he

3005  
04:05:18,830 --> 04:05:15,840  
referred to is one of four electrical

3006  
04:05:22,490 --> 04:05:18,840  
connectors on the adjacent uh starboard

3007  
04:05:25,250 --> 04:05:22,500  
six truss to which uh this ISS solar

3008  
04:05:29,950 --> 04:05:25,260  
array the rollout solar array is uh

3009  
04:05:32,870 --> 04:05:29,960  
attached now and will soon be unfurled

3010  
04:05:35,450 --> 04:05:32,880  
back in March there was a trip an

3011  
04:05:37,610 --> 04:05:35,460  
electrical trip

3012  
04:05:41,570 --> 04:05:37,620  
you could call it a short in the

3013  
04:05:45,170 --> 04:05:41,580

circuitry of the 1B power channel on the

3014

04:05:47,929 --> 04:05:45,180

starboard 6 solar array that took down

3015

04:05:52,030 --> 04:05:47,939

some of the power capability of the 1B

3016

04:05:55,370 --> 04:05:52,040

solar array the 1B power Channel itself

3017

04:05:57,590 --> 04:05:55,380

the array had been operating at a

3018

04:06:00,170 --> 04:05:57,600

somewhat reduced or degraded capability

3019

04:06:03,170 --> 04:06:00,180

until about a week and a half ago when

3020

04:06:05,510 --> 04:06:03,180

there was another electrical trip that

3021

04:06:08,330 --> 04:06:05,520

further degraded its capability and took

3022

04:06:11,030 --> 04:06:08,340

down the 1B Channel altogether all of

3023

04:06:13,010 --> 04:06:11,040

the electrical loads for systems usually

3024

04:06:15,530 --> 04:06:13,020

powered by the 1B power Channel went

3025

04:06:17,450 --> 04:06:15,540

over to the 1A power Channel seamlessly

3026

04:06:19,910 --> 04:06:17,460

so there was no interruption in space

3027

04:06:22,849 --> 04:06:19,920

station operations or payload or

3028

04:06:25,250 --> 04:06:22,859

utilization work however in order to get

3029

04:06:27,590 --> 04:06:25,260

the one beer a power Channel back up and

3030

04:06:30,830 --> 04:06:27,600

running at about 75 percent of

3031

04:06:33,290 --> 04:06:30,840

capability uh the two spacewalkers are

3032

04:06:37,189 --> 04:06:33,300

going to disconnect one of the four

3033

04:06:38,750 --> 04:06:37,199

electrical connectors between that 1B

3034

04:06:40,910 --> 04:06:38,760

power Channel and the integrated

3035

04:06:43,910 --> 04:06:40,920

Electronics assembly on the starboard

3036

04:06:46,189 --> 04:06:43,920

six truss isolating the affected area of

3037

04:06:48,950 --> 04:06:46,199

the solar array and then the 1B power

3038

04:06:52,250 --> 04:06:48,960

channel can be reactivated to about 75

3039

04:06:54,110 --> 04:06:52,260

percent of its rated performance the 1B

3040

04:06:57,769 --> 04:06:54,120

power channel is going to get its own

3041

04:06:59,630 --> 04:06:57,779

ISS rollout solar array next year when

3042

04:07:02,630 --> 04:06:59,640

the next pair of solar arrays are

3043

04:07:25,130 --> 04:07:02,640

launched on another SpaceX cargo dragons

3044

04:07:29,269 --> 04:07:27,530

okay make that five 3v1

3045

04:07:38,150 --> 04:07:29,279

you wouldn't it

3046

04:07:41,510 --> 04:07:39,590

okay

3047

04:07:44,150 --> 04:07:41,520

another swamp first or if you thought

3048

04:07:50,510 --> 04:07:44,160

bring himself we'll work the tether Swap

3049

04:07:50,520 --> 04:08:02,030

oh that's good

3050

04:08:06,769 --> 04:08:03,650

all right Nick I'm gonna go get my Red

3051  
04:08:07,910 --> 04:08:06,779  
Hook here in 2017 I'm gonna put it right

3052  
04:08:09,410 --> 04:08:07,920  
on it

3053  
04:08:11,630 --> 04:08:09,420  
uh

3054  
04:08:12,590 --> 04:08:11,640  
and then I'm going to put it on my Right

3055  
04:08:21,530 --> 04:08:12,600  
theory

3056  
04:08:21,540 --> 04:09:20,330  
copy Josh

3057  
04:09:24,590 --> 04:09:22,670  
all right Red Hook is down on my right

3058  
04:09:26,750 --> 04:09:24,600  
Hearing Center gate closed spider lost

3059  
04:09:39,410 --> 04:09:26,760  
black on black

3060  
04:09:44,870 --> 04:09:43,070  
pretty much 21 decimal nine on the

3061  
04:09:47,030 --> 04:09:44,880  
torque and I was

3062  
04:09:50,090 --> 04:09:47,040  
13 turns

3063  
04:09:51,229 --> 04:09:50,100

copy Frank and uh

3064

04:09:52,309 --> 04:09:51,239

and the heck of you it looked like it

3065

04:09:53,990 --> 04:09:52,319

might have been turning a little slow

3066

04:10:00,170 --> 04:09:54,000

just want to confirm settings that

3067

04:10:06,170 --> 04:10:02,750

Oh I thought I did uh it's for the

3068

04:10:11,870 --> 04:10:06,180

clockwise one so apologies

3069

04:10:16,130 --> 04:10:13,689

correct yeah

3070

04:10:19,540 --> 04:10:16,140

okay copy no we're good with that bolt

3071

04:10:19,550 --> 04:10:51,530

[Applause]

3072

04:10:51,540 --> 04:10:56,689

um

3073

04:10:56,699 --> 04:11:02,269

okay

3074

04:11:06,229 --> 04:11:04,250

that red wheel is unlocked so I

3075

04:11:09,889 --> 04:11:06,239

understand I've got to go to just grab

3076  
04:11:11,809 --> 04:11:09,899  
my anchor from my left safety cutter off

3077  
04:11:22,490 --> 04:11:11,819  
the ssrvis

3078  
04:11:28,250 --> 04:11:24,590  
32 I have

3079  
04:11:29,570 --> 04:11:28,260  
13 turns between my 22 decimal two on

3080  
04:11:41,030 --> 04:11:29,580  
the torque

3081  
04:11:45,889 --> 04:11:44,269  
Nick I'd like to start with uh saw and

3082  
04:11:47,150 --> 04:11:45,899  
roll as I could something right here I

3083  
04:11:53,450 --> 04:11:47,160  
think it's going to skip further away

3084  
04:12:01,550 --> 04:11:56,929  
kilo 9 for yawn roll the pitch is

3085  
04:12:21,610 --> 04:12:06,590  
come back which I understand kilo fine

3086  
04:12:28,490 --> 04:12:26,450  
33 I had 12 turns green light 22 decimal

3087  
04:12:34,130 --> 04:12:28,500  
three and let's work

3088  
04:13:52,670 --> 04:12:37,670

and we're following along in your hecka

3089

04:14:01,250 --> 04:13:57,530

all right y'all is nine gold is kilo

3090

04:14:51,110 --> 04:14:01,260

going for church

3091

04:14:55,130 --> 04:14:53,630

it's a Serial idea I'm gonna do clocking

3092

04:14:57,410 --> 04:14:55,140

first and then come back to Five Star

3093

04:14:58,910 --> 04:14:57,420

Fox Drive I think it's a clock in a nine

3094

04:15:02,389 --> 04:14:58,920

right correct

3095

04:15:05,269 --> 04:15:02,399

firm clocking nine

3096

04:15:08,929 --> 04:15:05,279

hi they've got a mini workstation uh on

3097

04:15:12,590 --> 04:15:08,939

the apfr going to

3098

04:15:12,600 --> 04:15:16,429

three on black

3099

04:15:22,370 --> 04:15:19,490

and mega my 34 I have 12 and a half

3100

04:15:27,050 --> 04:15:22,380

turns screen right

3101  
04:15:32,150 --> 04:15:30,110  
copy Frank that's a good bolt before you

3102  
04:15:33,650 --> 04:15:32,160  
move on to the right side uh you were

3103  
04:15:35,929 --> 04:15:33,660  
working around the mod kit strut there

3104  
04:15:38,689 --> 04:15:35,939  
there's a lot of mli I just want to give

3105  
04:15:42,889 --> 04:15:38,699  
it a a chance to wrap that strut back up

3106  
04:15:52,910 --> 04:15:44,450  
how can I do it when I come back to the

3107  
04:15:59,030 --> 04:15:56,210  
four hours 14 minutes into the spacewalk

3108  
04:16:02,929 --> 04:15:59,040  
Frank Rubio working with Josh cassida

3109  
04:16:06,110 --> 04:16:02,939  
they've completed the bolting of the

3110  
04:16:09,290 --> 04:16:06,120  
left side of a series of eight bolts

3111  
04:16:13,070 --> 04:16:09,300  
four on each side that will permanently

3112  
04:16:15,530 --> 04:16:13,080  
affix the ISS rollout solar array to the

3113  
04:16:17,269 --> 04:16:15,540

integrated Electronics assembly on the

3114

04:16:19,309 --> 04:16:17,279

International Space Station's starboard

3115

04:16:23,510 --> 04:16:19,319

for truss

3116

04:16:25,250 --> 04:16:23,520

hey there's a clocking of nine so I got

3117

04:16:27,769 --> 04:16:25,260

six days to me which I believe is true

3118

04:16:31,130 --> 04:16:27,779

and I got a good pulse twist test and

3119

04:16:31,140 --> 04:16:34,729

copy

3120

04:16:38,389 --> 04:16:36,710

I'm gonna grab my red pack and then I'm

3121

04:16:40,490 --> 04:16:38,399

gonna go for foxtrot

3122

04:16:42,769 --> 04:16:40,500

foxtrot on Pitch

3123

04:16:45,710 --> 04:16:42,779

and uh my 35

3124

04:16:48,710 --> 04:16:45,720

I had 13 and a half turns

3125

04:16:50,510 --> 04:16:48,720

three of my 21 decimal nine torque black

3126

04:16:53,450 --> 04:16:50,520

line is flush

3127

04:16:56,090 --> 04:16:53,460

copy good Bolt

3128

04:16:57,830 --> 04:16:56,100

and Josh as you uh adjust that that

3129

04:17:01,969 --> 04:16:57,840

pitch you also want to if you got an

3130

04:17:01,979 --> 04:17:32,030

okay thank you

3131

04:17:35,469 --> 04:17:34,189

how do I like this apfr better than that

3132

04:17:38,330 --> 04:17:35,479

other one

3133

04:17:39,410 --> 04:17:38,340

wordlock and Pitch can be prepared

3134

04:17:51,290 --> 04:17:39,420

they're going to go fall down

3135

04:17:56,210 --> 04:17:53,510

I think it's someday from that other one

3136

04:17:57,830 --> 04:17:56,220

back in for some onboard maintenance

3137

04:18:03,889 --> 04:17:57,840

but I'll just put that on the comment

3138

04:18:08,689 --> 04:18:05,929

okay uh

3139

04:18:13,010 --> 04:18:08,699

yes I think we've got a good config on

3140

04:18:15,050 --> 04:18:13,020

the apfr at the SSR Mass if you agree

3141

04:18:17,269 --> 04:18:15,060

we see the same and so when you're in a

3142

04:18:22,429 --> 04:18:17,279

good position uh and clear the arm you

3143

04:18:25,790 --> 04:18:23,929

back

3144

04:18:41,269 --> 04:18:25,800

just give me a minute or two I'll be out

3145

04:18:45,950 --> 04:18:44,689

all right next on my 36 I have 12 and a

3146

04:18:49,370 --> 04:18:45,960

half turns

3147

04:18:51,830 --> 04:18:49,380

three my 21 decimal nine on the torque

3148

04:19:05,450 --> 04:18:51,840

and black on the flush Kathy that's a

3149

04:19:09,290 --> 04:19:07,610

hey dude I'm on the starboard side of

3150

04:19:13,090 --> 04:19:09,300

the iea

3151  
04:19:13,100 --> 04:19:18,110  
she's like

3152  
04:19:23,510 --> 04:19:21,050  
okay we copy that your tethers are clear

3153  
04:19:25,969 --> 04:19:23,520  
and your 8

3154  
04:19:33,560 --> 04:19:25,979  
th are going to maneuver to the iea back

3155  
04:19:37,969 --> 04:19:35,630  
[Music]

3156  
04:19:39,830 --> 04:19:37,979  
22 decimal zero and its work black on

3157  
04:19:47,750 --> 04:19:39,840  
the flush

3158  
04:19:55,490 --> 04:19:51,950  
okay ev1 we are starting our movement uh

3159  
04:19:57,590 --> 04:19:55,500  
Nader of 50 centimeters starting motion

3160  
04:20:00,590 --> 04:19:57,600  
taking home copies and I'm over at the

3161  
04:20:08,269 --> 04:20:00,600  
mod kit and I do not have Sao

3162  
04:20:08,279 --> 04:20:13,429  
they come back at the market

3163  
04:20:17,330 --> 04:20:15,710

Josh can I hand you this uh PGT and you

3164

04:20:19,490 --> 04:20:17,340

grab that bolt that's over there sure

3165

04:20:22,849 --> 04:20:19,500

tell me another VR

3166

04:20:25,130 --> 04:20:22,859

mean one second

3167

04:20:26,540 --> 04:20:25,140

I wasn't listening to the settings so I

3168

04:20:26,929 --> 04:20:26,550

need a brt

3169

04:20:35,290 --> 04:20:26,939

[Music]

3170

04:20:35,300 --> 04:20:46,790

and I'll be ready

3171

04:20:53,689 --> 04:20:48,650

if I'm gonna grab this one on the far

3172

04:20:53,699 --> 04:20:57,469

and say again Josh

3173

04:21:05,030 --> 04:21:00,050

I'm getting the far right bolt here I

3174

04:21:10,849 --> 04:21:05,040

can't really see the label 538 538 yes

3175

04:21:18,410 --> 04:21:12,830

all right I've got

3176

04:21:24,170 --> 04:21:22,370

and clockwise two sets

3177

04:21:27,710 --> 04:21:24,180

settings

3178

04:21:30,469 --> 04:21:27,720

11 to 13 turns looking for a black line

3179

04:21:33,170 --> 04:21:30,479

this is the last of the eight bolts that

3180

04:21:34,610 --> 04:21:33,180

will permanently affix the ISS rollout

3181

04:21:36,650 --> 04:21:34,620

solar array

3182

04:22:10,969 --> 04:21:36,660

to the starboard Ford truss of the

3183

04:22:10,979 --> 04:22:34,750

and MRI does not help nope when I order

3184

04:22:41,809 --> 04:22:38,450

Ed thank you okay I'm on it

3185

04:22:48,530 --> 04:22:41,819

all right certain turns

3186

04:22:53,570 --> 04:22:51,110

give me 11 or 14 but it's been about 12

3187

04:23:05,809 --> 04:22:53,580

or 13. it's not turning so but we gotta

3188

04:23:11,450 --> 04:23:08,150

all our air so this is the one you were

3189

04:23:20,330 --> 04:23:14,889

yeah it might be just one of the uh

3190

04:23:20,340 --> 04:24:07,969

too

3191

04:24:12,110 --> 04:24:09,410

all right man I didn't know is that

3192

04:24:15,410 --> 04:24:12,120

going to be that involved that's okay

3193

04:24:19,689 --> 04:24:15,420

and I got a red light

3194

04:24:24,950 --> 04:24:19,699

that's 13 and a half actual torque

3195

04:24:24,960 --> 04:24:36,170

yep copy Josh

3196

04:24:42,050 --> 04:24:39,349

a good view of the ISS rollout solar

3197

04:24:43,550 --> 04:24:42,060

array that has been installed on the

3198

04:24:47,269 --> 04:24:43,560

starboard Fortress of the International

3199

04:24:49,849 --> 04:24:47,279

Space Station now four hours 22 minutes

3200

04:24:51,590 --> 04:24:49,859

into today's spacewalk by Josh cassida

3201

04:24:53,389 --> 04:24:51,600

and Frank Rubio

3202

04:24:56,870 --> 04:24:53,399

display is not in front of me but I saw

3203

04:25:07,189 --> 04:24:56,880

22 of the program yeah that sounds right

3204

04:25:07,199 --> 04:25:15,490

um

3205

04:25:19,070 --> 04:25:17,929

zero torque and Zero Turns maybe it just

3206

04:25:20,990 --> 04:25:19,080

got reset

3207

04:25:29,030 --> 04:25:21,000

looking for a go to do it one more time

3208

04:25:59,469 --> 04:25:32,090

although I

3209

04:25:59,479 --> 04:26:05,140

to pull these out and Frank by the way

3210

04:26:05,150 --> 04:26:11,389

[Applause]

3211

04:26:15,769 --> 04:26:14,330

of course the Cable Guy's got him up

3212

04:26:17,809 --> 04:26:15,779

there

3213

04:26:26,269 --> 04:26:17,819

we go

3214

04:26:32,210 --> 04:26:30,229

with green light actual torque 21.9 and

3215

04:26:33,469 --> 04:26:32,220

that says I got 0.3 turns I didn't even

3216

04:26:38,389 --> 04:26:33,479

see that

3217

04:26:54,710 --> 04:26:40,250

that's good and again that black line is

3218

04:27:00,710 --> 04:26:57,410

all right Frank where does that leave

3219

04:27:04,969 --> 04:27:00,720

that's all those balls so

3220

04:27:07,130 --> 04:27:04,979

you want us heading to our nine or ten

3221

04:27:09,769 --> 04:27:07,140

or do you want to go into cables okay

3222

04:27:12,229 --> 04:27:09,779

hey guys big picture uh we've got about

3223

04:27:14,570 --> 04:27:12,239

18 minutes till Eclipse we're going to

3224

04:27:16,670 --> 04:27:14,580

work on some cleanup steps here uh with

3225

04:27:20,870 --> 04:27:16,680

the m bag and then we're going to get in

3226

04:27:24,830 --> 04:27:22,490

Chris

3227

04:27:26,450 --> 04:27:24,840

and then we'll uh we'll deploy after

3228

04:27:29,450 --> 04:27:26,460

that

3229

04:27:29,460 --> 04:27:33,849

sounds good

3230

04:27:38,570 --> 04:27:36,290

spacewalk Communicator Nick Hague

3231

04:27:40,130 --> 04:27:38,580

letting uh cassid and Rubio know what

3232

04:27:44,090 --> 04:27:40,140

the big picture is here at the four hour

3233

04:27:46,490 --> 04:27:44,100

25 minute Mark the uh ISS rollout solar

3234

04:27:48,050 --> 04:27:46,500

array permanently affixed now to the

3235

04:27:49,670 --> 04:27:48,060

starboard Fortress of the International

3236

04:27:52,010 --> 04:27:49,680

Space Station

3237

04:27:54,530 --> 04:27:52,020

the crew will do a little bit of cleanup

3238

04:27:57,110 --> 04:27:54,540

here waiting for the start of a

3239

04:27:59,689 --> 04:27:57,120

nighttime pass about 17 and a half

3240

04:28:02,510 --> 04:27:59,699

minutes from now it is during that

3241

04:28:05,210 --> 04:28:02,520

nighttime pass that there will be a

3242

04:28:08,269 --> 04:28:05,220

mating of cables that will electrically

3243

04:28:10,429 --> 04:28:08,279

connect the new ISS rollout solar array

3244

04:28:12,590 --> 04:28:10,439

to the integrated Electronics assembly

3245

04:28:15,649 --> 04:28:12,600

joining the uh

3246

04:28:17,630 --> 04:28:15,659

solar array that currently exists the

3247

04:28:20,750 --> 04:28:17,640

original array that was delivered 15 and

3248

04:28:26,870 --> 04:28:20,760

a half years ago on the sts-117 mission

3249

04:28:32,450 --> 04:28:28,870

foreign

3250

04:28:34,849 --> 04:28:32,460

each of the ISS rollout solar arrays

3251  
04:28:36,110 --> 04:28:34,859  
will produce an additional 20 kilowatts

3252  
04:28:38,929 --> 04:28:36,120  
of power

3253  
04:28:40,969 --> 04:28:38,939  
to augment the research and utilization

3254  
04:28:43,309 --> 04:28:40,979  
capability on the International Space

3255  
04:28:44,689 --> 04:28:43,319  
Station Josh if you want to help uh

3256  
04:28:49,010 --> 04:28:44,699  
Frank he's going to end up taking that

3257  
04:28:51,740 --> 04:28:50,630  
money absolutely

3258  
04:28:52,910 --> 04:28:51,750  
um

3259  
04:28:55,070 --> 04:28:52,920  
[Music]

3260  
04:28:57,889 --> 04:28:55,080  
I was thinking that might be useful for

3261  
04:29:01,969 --> 04:28:57,899  
uh doing nine and ten it was really

3262  
04:29:06,229 --> 04:29:04,490  
the choreography and the timing of the

3263  
04:29:08,750 --> 04:29:06,239

mating of these electrical cables is

3264

04:29:12,590 --> 04:29:08,760

designed to be done in darkness

3265

04:29:14,870 --> 04:29:12,600

so that any stored electrical energy in

3266

04:29:16,670 --> 04:29:14,880

the integrated Electronics assembly

3267

04:29:18,830 --> 04:29:16,680

doesn't pose a hazard for the crew

3268

04:29:20,630 --> 04:29:18,840

members again we'll go into Eclipse

3269

04:29:23,510 --> 04:29:20,640

about 16 and a half minutes from now

3270

04:29:27,349 --> 04:29:23,520

it'll be about a 28 and a half minute

3271

04:29:29,689 --> 04:29:27,359

pass through an orbital Sunset before we

3272

04:29:32,870 --> 04:29:29,699

come back into daylight to begin the

3273

04:29:34,969 --> 04:29:32,880

actual unfurling of the array to its

3274

04:29:45,889 --> 04:29:34,979

full length of 60 feet and its ultimate

3275

04:29:49,910 --> 04:29:48,110

Nick it is Tethered right now do you

3276

04:29:52,670 --> 04:29:49,920

want me to take the driver and I can try

3277

04:29:57,530 --> 04:29:52,680

to get it uh

3278

04:30:02,090 --> 04:29:59,689

if you wanted to try to release it and

3279

04:30:03,410 --> 04:30:02,100

and get it re-clocked into the uh the

3280

04:30:05,330 --> 04:30:03,420

straight-on position so it doesn't

3281

04:30:16,309 --> 04:30:05,340

provide interference you can give it a

3282

04:30:22,610 --> 04:30:19,670

actually if you can see in my uh hecca I

3283

04:30:24,410 --> 04:30:22,620

think Frank was brilliant I think

3284

04:30:26,450 --> 04:30:24,420

this is a great orientation I can get

3285

04:30:28,250 --> 04:30:26,460

both with no interference

3286

04:30:29,870 --> 04:30:28,260

yeah we see it in that case you're right

3287

04:30:32,450 --> 04:30:29,880

so if you want to leave it there it's

3288

04:30:38,570 --> 04:30:35,090

yeah let's do that I don't mind

3289

04:30:58,729 --> 04:30:40,550

hello Miranda I still appreciated those

3290

04:31:03,710 --> 04:31:01,130

I help you Frank

3291

04:31:06,290 --> 04:31:03,720

oh nope I just saw a uh went with my

3292

04:31:09,050 --> 04:31:06,300

right extended here they're like that 55

3293

04:31:12,229 --> 04:31:09,060

footer is on my right dealing extender

3294

04:31:12,239 --> 04:31:26,510

guppy that's a good connection Frank

3295

04:31:26,520 --> 04:31:41,510

thanks Josh appreciate it no problem

3296

04:31:46,790 --> 04:31:44,990

and so Josh words for you uh so Frank's

3297

04:31:48,649 --> 04:31:46,800

clean enough over there uh if you think

3298

04:31:51,170 --> 04:31:48,659

it's helpful to to have some hands there

3299

04:31:52,910 --> 04:31:51,180

you can you can assist otherwise uh next

3300

04:31:56,389 --> 04:31:52,920

task will be getting into position for

3301  
04:31:56,399 --> 04:32:09,729  
foreign

3302  
04:32:14,210 --> 04:32:11,630  
thank you

3303  
04:32:16,250 --> 04:32:14,220  
oh okay remember that ID is that or what

3304  
04:32:19,450 --> 04:32:16,260  
was it the front bag last time was the

3305  
04:32:22,309 --> 04:32:19,460  
up there it was a bear yeah

3306  
04:32:27,889 --> 04:32:22,319  
repays a favor let me give this uh two

3307  
04:32:47,149 --> 04:32:29,389  
and I'll be pretty but it's going to be

3308  
04:32:47,159 --> 04:32:50,710  
all right

3309  
04:32:55,729 --> 04:32:53,269  
and Frank just a heads up we're going to

3310  
04:32:57,710 --> 04:32:55,739  
end up opening those doors again so if

3311  
04:33:02,450 --> 04:32:57,720  
you can't get everything in

3312  
04:33:06,230 --> 04:33:05,090  
are we okay we're opening them back up

3313  
04:33:08,150 --> 04:33:06,240

today

3314

04:33:11,990 --> 04:33:08,160

yeah so that scoop that Josh wanted to

3315

04:33:16,910 --> 04:33:13,551

okay then I'll just leave it open well

3316

04:33:19,310 --> 04:33:18,230

reached the end of that on the on the

3317

04:33:23,330 --> 04:33:19,320

outside

3318

04:33:46,730 --> 04:33:23,340

so we've reaction I built up the doors

3319

04:33:46,740 --> 04:34:04,789

okay

3320

04:34:04,799 --> 04:34:30,650

um

3321

04:34:40,209 --> 04:34:33,769

can I come over

3322

04:34:44,510 --> 04:34:42,349

invitation only to the left side of the

3323

04:34:46,730 --> 04:34:44,520

mod here

3324

04:34:49,131 --> 04:34:46,740

I think I just got it

3325

04:34:57,230 --> 04:34:49,141

dude you're awesome everybody just got

3326

04:35:01,369 --> 04:34:58,789

you think you'll get it I might head

3327

04:35:04,310 --> 04:35:01,379

over and uh yeah

3328

04:35:05,470 --> 04:35:04,320

if not we'll get it together later oh no

3329

04:35:08,390 --> 04:35:05,480

no no

3330

04:35:12,769 --> 04:35:08,400

you got it yep

3331

04:35:18,529 --> 04:35:15,051

thank you

3332

04:35:21,949 --> 04:35:20,330

yep so as you guys can tell the sun's

3333

04:35:25,250 --> 04:35:21,959

getting low on the horizon uh we're

3334

04:35:27,709 --> 04:35:25,260

about uh 10 minutes away from the uh the

3335

04:35:29,449 --> 04:35:27,719

start of our working Eclipse so if you

3336

04:35:31,131 --> 04:35:29,459

want to get in position

3337

04:35:32,269 --> 04:35:31,141

um about the we're gonna we're gonna sit

3338

04:35:34,429 --> 04:35:32,279

here and wait about the only thing we

3339

04:35:40,010 --> 04:35:34,439

can do is demate the Wing Cap connectors

3340

04:35:40,020 --> 04:35:42,650

oh

3341

04:35:46,730 --> 04:35:44,810

yep and we've got some time so I'm going

3342

04:35:49,429 --> 04:35:46,740

to read the warning to you is that you

3343

04:35:51,769 --> 04:35:49,439

cannot demate the saw connectors until

3344

04:35:53,990 --> 04:35:51,779

Eclipse plus two minutes we'll let you

3345

04:35:55,849 --> 04:35:54,000

know when that is and that you must

3346

04:35:58,429 --> 04:35:55,859

maintain a one foot keep out Zone from

3347

04:36:04,730 --> 04:35:58,439

the demated saw connectors starting two

3348

04:36:04,740 --> 04:36:25,209

you want copies

3349

04:36:29,269 --> 04:36:27,529

this is Mission Control Houston we're

3350

04:36:31,849 --> 04:36:29,279

about nine and a half minutes away from

3351

04:36:34,250 --> 04:36:31,859

entering the eclipse period

3352

04:36:37,070 --> 04:36:34,260

period of orbital Sunset and darkness

3353

04:36:41,090 --> 04:36:37,080

during which cassid and Rubio will begin

3354

04:36:43,010 --> 04:36:41,100

to mate cables electrical cables that

3355

04:36:45,590 --> 04:36:43,020

will provide the electrical connections

3356

04:36:47,090 --> 04:36:45,600

for the newly installed ISS or rollout

3357

04:36:49,369 --> 04:36:47,100

solar array

3358

04:36:50,810 --> 04:36:49,379

that is now permanently affixed to the

3359

04:37:19,910 --> 04:36:50,820

starboard Fortress of the International

3360

04:37:23,349 --> 04:37:21,830

feel bad about this Frank he worked so

3361

04:37:24,949 --> 04:37:23,359

hard on this one

3362

04:37:27,170 --> 04:37:24,959

nope

3363

04:37:34,490 --> 04:37:29,570

Josh is there a wire ties further

3364

04:37:34,500 --> 04:37:38,929

there he is it's on the long handrail

3365

04:37:49,480 --> 04:37:40,789

yeah coffee that's the one we want to

3366

04:37:49,490 --> 04:37:53,810

[Applause]

3367

04:38:01,429 --> 04:37:58,070

this one isn't attached to the uh

3368

04:38:02,631 --> 04:38:01,439

it's your handrail do you want it to be

3369

04:38:08,390 --> 04:38:02,641

firm

3370

04:38:37,810 --> 04:38:10,070

I was hiding behind the cables I see it

3371

04:38:44,510 --> 04:38:42,170

once we enter the period of eclipse or

3372

04:38:47,209 --> 04:38:44,520

orbital sunset

3373

04:38:50,510 --> 04:38:47,219

there are a series of four connectors

3374

04:38:52,730 --> 04:38:50,520

two for the left blanket box on the

3375

04:38:55,429 --> 04:38:52,740

integrated Electronics assembly one and

3376

04:38:57,709 --> 04:38:55,439

two for the right blanket box

3377

04:38:59,631 --> 04:38:57,719

cassid and Rubio will divide and conquer

3378

04:39:02,150 --> 04:38:59,641

are each taking two connectors a piece

3379

04:39:05,029 --> 04:39:02,160

and that will electrically mate the new

3380

04:39:06,349 --> 04:39:05,039

ISS rollout solar array to the

3381

04:39:17,869 --> 04:39:06,359

electrical system of the International

3382

04:39:23,209 --> 04:39:21,051

uh he made the cables from themselves

3383

04:40:01,010 --> 04:39:23,219

if you were go to demate those new

3384

04:40:05,810 --> 04:40:03,530

Nick understand I am not putting these

3385

04:40:08,208 --> 04:40:05,820

cables back in this long uh handheld

3386

04:40:13,250 --> 04:40:08,218

firefighters long story time now let's

3387

04:40:18,530 --> 04:40:16,130

yeah copy Josh yeah so it's there you're

3388

04:40:20,750 --> 04:40:18,540

after we make finish the mating with the

3389

04:40:24,230 --> 04:40:20,760

uh the cables you'll use that to help

3390

04:40:28,250 --> 04:40:26,690

okay sounds good so it's on the wrong

3391

04:40:30,050 --> 04:40:28,260

hand around now so I'm gonna take off my

3392

04:40:52,310 --> 04:40:30,060

rent and we'll use it use the Wi-Fi

3393

04:40:58,970 --> 04:40:57,230

okay P 23 Alpha if you made it from j23

3394

04:41:09,708 --> 04:40:58,980

Alpha

3395

04:41:25,010 --> 04:41:12,170

and same floor

3396

04:41:31,788 --> 04:41:29,150

I think I have a p7 alpha and J

3397

04:41:33,890 --> 04:41:31,798

seven or how far D mated I'm just gonna

3398

04:41:36,230 --> 04:41:33,900

do them one at a time

3399

04:41:37,730 --> 04:41:36,240

yep copy understand both you guys are in

3400

04:41:39,410 --> 04:41:37,740

a great position we've got about four

3401  
04:41:41,030 --> 04:41:39,420  
minutes before we can actually start

3402  
04:41:43,430 --> 04:41:41,040  
working on those connectors we've got

3403  
04:41:46,128 --> 04:41:43,440  
some inhibits to put in place so get

3404  
04:41:49,670 --> 04:41:46,138  
into a good position and uh catch your

3405  
04:42:05,628 --> 04:41:51,590  
sounds great thank you Nick for getting

3406  
04:42:11,150 --> 04:42:08,150  
Nick while we do catch our breath and

3407  
04:42:13,250 --> 04:42:11,160  
take in this incredible View

3408  
04:42:15,890 --> 04:42:13,260  
um after these are mated

3409  
04:42:17,570 --> 04:42:15,900  
I understand we're gonna go fast he's at

3410  
04:42:20,030 --> 04:42:17,580  
the floor

3411  
04:42:22,010 --> 04:42:20,040  
nine and ten

3412  
04:42:23,390 --> 04:42:22,020  
and then Frank will hang out for a

3413  
04:42:24,230 --> 04:42:23,400

couple minutes and then start making his

3414

04:42:29,208 --> 04:42:24,240

way

3415

04:42:32,868 --> 04:42:31,368

yep coffee and as efficient as you guys

3416

04:42:34,430 --> 04:42:32,878

are we may have to pause a little bit

3417

04:42:38,628 --> 04:42:34,440

because the deployment needs to be in

3418

04:42:38,638 --> 04:42:44,930

okay copy that

3419

04:42:44,940 --> 04:42:52,850

I bet you say that to all the Evas

3420

04:42:56,390 --> 04:42:54,708

but we're only efficient because the

3421

04:42:58,670 --> 04:42:56,400

plan that was put together it's correct

3422

04:43:00,410 --> 04:42:58,680

it's remarkable

3423

04:43:16,310 --> 04:43:00,420

and the team that got us out of the door

3424

04:43:19,250 --> 04:43:17,750

hey guys well we got a couple minutes

3425

04:43:20,150 --> 04:43:19,260

here while we're waiting

3426

04:43:21,530 --> 04:43:20,160

um

3427

04:43:23,448 --> 04:43:21,540

it looks like you're in good body

3428

04:43:25,550 --> 04:43:23,458

positions based on hecca just to let you

3429

04:43:26,930 --> 04:43:25,560

know you can drop a brt on handrails

3430

04:43:28,368 --> 04:43:26,940

there if you want to get stable if you

3431

04:43:29,930 --> 04:43:28,378

haven't done it already

3432

04:43:32,330 --> 04:43:29,940

um and then when we are working the

3433

04:44:37,730 --> 04:43:32,340

electrical connectors we're looking for

3434

04:44:44,390 --> 04:44:41,330

four hours 42 minutes into the spacewalk

3435

04:44:47,570 --> 04:44:44,400

Frank Rubio and Josh cassida soon will

3436

04:44:50,990 --> 04:44:47,580

begin the mating of electrical cables

3437

04:44:52,788 --> 04:44:51,000

two on each side of the uh integrated

3438

04:44:54,708 --> 04:44:52,798

Electronics assembly two for the left

3439

04:44:57,050 --> 04:44:54,718

blanket box two for the right blanket

3440

04:45:00,170 --> 04:44:57,060

box that will electrically tie the new

3441

04:45:02,390 --> 04:45:00,180

ISS rollout solar array to the original

3442

04:45:04,670 --> 04:45:02,400

solar array delivered 15 and a half

3443

04:45:06,650 --> 04:45:04,680

years ago to the International Space

3444

04:45:09,830 --> 04:45:06,660

Station just to let you guys know right

3445

04:45:11,810 --> 04:45:09,840

as we give you the go to start work I'm

3446

04:45:15,410 --> 04:45:11,820

going to end up being in a 20 second

3447

04:45:21,170 --> 04:45:17,810

okay understood

3448

04:45:24,770 --> 04:45:21,180

after P9 Alpha goes to the panel

3449

04:45:28,070 --> 04:45:24,780

in peace 23 Alpha go to the panel can I

3450

04:45:34,250 --> 04:45:28,080

do uh those in parallel or does P9 need

3451

04:45:38,930 --> 04:45:36,948

and copy

3452

04:45:41,330 --> 04:45:38,940

copy some inhibits but we'd like to do

3453

04:45:42,890 --> 04:45:41,340

them uh serially so we'll work

3454

04:45:45,708 --> 04:45:42,900

everything on one cable and then move to

3455

04:45:45,718 --> 04:45:51,310

up

3456

04:46:00,230 --> 04:45:55,250

okay guys we are go so Josh you're good

3457

04:46:07,128 --> 04:46:00,240

to demate P9 from panel D9 and Frank

3458

04:46:13,730 --> 04:46:08,690

okay

3459

04:46:22,970 --> 04:46:18,650

Brian is you made it Kevin's teammate

3460

04:46:24,708 --> 04:46:22,980

copy and it's P9 Alpha to the panel P9

3461

04:46:27,410 --> 04:46:24,718

and we're in that Handover between

3462

04:46:30,288 --> 04:46:27,420

satellites as you just heard from Nick

3463

04:46:32,690 --> 04:46:30,298

Hague the spacewalk communicator

3464

04:46:34,368 --> 04:46:32,700

we'll pick up a video here in just a

3465

04:46:37,310 --> 04:46:34,378

moment

3466

04:46:39,590 --> 04:46:37,320

as the mating of electrical cables

3467

04:46:41,390 --> 04:46:39,600

between the newly installed ISS rollout

3468

04:46:44,930 --> 04:46:41,400

solar array and the international space

3469

04:46:46,090 --> 04:46:44,940

stations S4 truss electrical system

3470

04:46:49,190 --> 04:46:46,100

begins

3471

04:46:55,310 --> 04:46:52,490

like hitting in my band no fraud

3472

04:47:00,110 --> 04:46:55,320

and good receptacles

3473

04:47:02,930 --> 04:47:00,120

and I'm meeting T9 Alpha to panel T9

3474

04:47:04,490 --> 04:47:02,940

copy and uh Frank week we were in and

3475

04:47:06,948 --> 04:47:04,500

out with a Handover I copied all your

3476

04:47:13,510 --> 04:47:06,958

checks Frank uh Josh I I'm sure you

3477

04:47:39,890 --> 04:47:16,490

and those those checks were completed

3478

04:47:39,900 --> 04:47:45,070

89 Alpha is made it to P9

3479

04:47:50,390 --> 04:47:49,010

copy P9 made it to the panel our output

3480

04:47:54,890 --> 04:47:50,400

to the panel and you got a good hard

3481

04:47:59,270 --> 04:47:57,170

sorry yes I did get a good heart stop

3482

04:48:01,128 --> 04:47:59,280

and it is the panel P9 that I needed to

3483

04:48:03,948 --> 04:48:01,138

that's correct

3484

04:48:10,788 --> 04:48:03,958

so you're going to make the j9 alpha to

3485

04:48:17,990 --> 04:48:13,490

the saw cable referenced by Nick Hague

3486

04:48:18,000 --> 04:48:21,530

and

3487

04:48:27,288 --> 04:48:23,690

pins no sod

3488

04:48:32,150 --> 04:48:27,298

and good Emi band on the saw table

3489

04:48:37,490 --> 04:48:33,830

event in

3490

04:48:39,890 --> 04:48:37,500

the fraud oh you're my van

3491

04:48:48,110 --> 04:48:39,900

copy Josh and we see uh we see it in

3492

04:48:57,590 --> 04:48:51,050

Josh and Frank you uh you were able to

3493

04:49:07,310 --> 04:49:00,050

stop copy get hard stuff so you're

3494

04:49:07,320 --> 04:49:10,730

perimeter put seconds on both

3495

04:49:15,650 --> 04:49:14,270

good hard stop on j9 Alpha to saw cable

3496

04:49:17,690 --> 04:49:15,660

P9

3497

04:49:20,288 --> 04:49:17,700

I have the same

3498

04:49:24,890 --> 04:49:20,298

good connections so Josh you're working

3499

04:49:31,850 --> 04:49:24,900

p23 to panel 23 D mate and Frank you're

3500

04:49:55,788 --> 04:49:33,410

I'm gonna

3501

04:49:55,798 --> 04:50:00,770

23 is demated on the saw cable

3502

04:50:00,780 --> 04:50:06,770

uh DMI band no uh no pins

3503

04:50:12,650 --> 04:50:09,050

and on the panel

3504

04:50:19,910 --> 04:50:12,660

and we might end up saw good pins

3505

04:50:26,448 --> 04:50:23,270

depends getting arrive in no fraud on

3506

04:50:29,208 --> 04:50:26,458

the original table and for the

3507

04:50:31,788 --> 04:50:29,218

21 Alphas also have

3508

04:50:35,750 --> 04:50:31,798

Within

3509

04:50:37,490 --> 04:50:35,760

pretty in my Vans and no fun

3510

04:50:47,990 --> 04:50:37,500

copy Frank good checks your go to mate

3511

04:50:52,788 --> 04:50:50,110

I don't know if I told you the words on

3512

04:50:55,850 --> 04:50:52,798

p23 Alpha

3513

04:50:57,288 --> 04:50:55,860

um getting in my van built in in no

3514

04:51:00,288 --> 04:50:57,298

fraud

3515

04:51:04,730 --> 04:51:00,298

copy Josh your go to mate p23 Alpha to

3516

04:51:04,740 --> 04:51:18,530

obviously

3517

04:51:24,830 --> 04:51:22,010

all right p23 Alpha is native and hard

3518

04:51:28,070 --> 04:51:24,840

stuff on the panel

3519

04:51:36,530 --> 04:51:28,080

copy Josh next uh next one will be j23

3520

04:51:40,368 --> 04:51:38,810

three and I gave you the words on that

3521

04:51:44,270 --> 04:51:40,378

one

3522

04:51:48,410 --> 04:51:44,280

the j23 alpha

3523

04:51:51,170 --> 04:51:48,420

pin though in my band and no pho

3524

04:52:31,250 --> 04:51:51,180

good checks your go to mate j23 Alpha to

3525

04:52:36,590 --> 04:52:33,470

okay

3526

04:52:42,230 --> 04:52:36,600

oh Pete's running three is connected to

3527

04:52:47,030 --> 04:52:44,510

copy Josh and uh just want to confirm

3528

04:52:54,230 --> 04:52:47,040

yep uh there you go and so now you can

3529

04:52:57,350 --> 04:52:55,970

uh I don't know what you're seeing Frank

3530

04:52:59,090 --> 04:52:57,360

but uh

3531

04:53:01,970 --> 04:52:59,100

I'm not fear enough so I have to get out

3532

04:53:05,510 --> 04:53:01,980

to that uh long handrail

3533

04:53:07,610 --> 04:53:05,520

oh no if we can go to the next truck

3534

04:53:09,590 --> 04:53:07,620

please

3535

04:53:13,010 --> 04:53:09,600

so the uh

3536

04:53:19,850 --> 04:53:13,020

the long Wi-Fi that I attached out there

3537

04:53:24,708 --> 04:53:21,650

and Josh you don't have to worry about

3538

04:53:26,150 --> 04:53:24,718

trying to get to that the wire tie out

3539

04:53:27,948 --> 04:53:26,160

there on that long handrail if it's not

3540

04:53:42,550 --> 04:53:27,958

going to be helpful you can just use the

3541

04:53:48,708 --> 04:53:46,250

I I think you can see in my hecca

3542

04:53:51,890 --> 04:53:48,718

I don't know that it needs anything here

3543

04:53:53,930 --> 04:53:51,900

on the struts

3544

04:54:01,610 --> 04:53:53,940

if it's already connected but I'm happy

3545

04:54:06,350 --> 04:54:04,788

and copy Josh let's look at your hecca

3546

04:54:10,610 --> 04:54:06,360

and uh and talk about if they want

3547

04:54:14,810 --> 04:54:13,490

okay uh in the interim do you want me to

3548

04:54:17,510 --> 04:54:14,820

go out for the long handrail and get

3549

04:54:25,910 --> 04:54:17,520

that long Wi-Fi

3550

04:54:29,990 --> 04:54:27,890

Josh actually what we'd like you to do

3551

04:54:30,890 --> 04:54:30,000

is is we're okay with those cables for

3552

04:54:33,110 --> 04:54:30,900

now

3553

04:54:34,850 --> 04:54:33,120

um Frank is is having some difficulty

3554

04:54:36,350 --> 04:54:34,860

with the panel connection and so we'd

3555

04:54:37,970 --> 04:54:36,360

like you to go over and see if you can

3556

04:54:43,730 --> 04:54:37,980

help stabilize him a little bit and

3557

04:54:43,740 --> 04:55:02,810

absolutely

3558

04:55:11,868 --> 04:55:05,510

and copy Frank here you moved on to j21

3559

04:55:16,610 --> 04:55:14,810

yeah I'm just gonna get B2 real quick

3560

04:55:18,590 --> 04:55:16,620

okay

3561

04:55:38,510 --> 04:55:18,600

I just want to double check a good uh

3562

04:55:42,948 --> 04:55:40,610

and guys just want to let you know we've

3563

04:55:44,868 --> 04:55:42,958

got we've got almost 20 minutes left in

3564

04:55:46,788 --> 04:55:44,878

this uh Eclipse you're working super

3565

04:55:51,110 --> 04:55:46,798

fast so we've got time to work through

3566

04:55:59,750 --> 04:55:53,810

let's grab it up

3567

04:56:05,090 --> 04:56:02,570

there's the piano one is that right well

3568

04:56:07,010 --> 04:56:05,100

it's the one that's been

3569

04:56:09,368 --> 04:56:07,020

escaping mine

3570

04:56:12,530 --> 04:56:09,378

free around here

3571

04:56:16,310 --> 04:56:12,540

Rubio working to uh connect the fourth

3572

04:56:19,670 --> 04:56:16,320

and final electrical cable that will uh

3573

04:56:22,190 --> 04:56:19,680

mate electrically the newly installed

3574

04:56:26,628 --> 04:56:22,200

ISS rollout solar array

3575

04:56:28,010 --> 04:56:26,638

to the 3A power Channel Source on the S4

3576

04:56:31,010 --> 04:56:28,020

starboard array of the International

3577

04:56:34,128 --> 04:56:31,020

Space Station Rubio working in tight

3578

04:56:38,690 --> 04:56:35,868

I've been able to

3579

04:56:40,610 --> 04:56:38,700

helpful if I hold you right here

3580

04:57:01,250 --> 04:56:40,620

um you tell me when you want to

3581

04:57:01,260 --> 04:57:10,190

okay got it that's awesome

3582

04:57:14,448 --> 04:57:12,948

I still have one more and and Frank just

3583

04:57:18,288 --> 04:57:14,458

wanted to confirm good heart stop on

3584

04:57:18,298 --> 04:57:25,490

yeah there was a good hard spot copy

3585

04:57:30,590 --> 04:57:28,490

you're able to mate with best for us or

3586

04:57:41,310 --> 04:57:30,600

with you right well on that one I was

3587

04:57:41,320 --> 04:57:50,448

[Music]

3588

04:57:55,550 --> 04:57:53,690

well the cables now have been mated

3589

04:58:02,810 --> 04:57:55,560

and so if you if you want to work on

3590

04:58:07,850 --> 04:58:05,170

thanks Josh

3591

04:58:10,730 --> 04:58:07,860

to hold you back

3592

04:58:15,650 --> 04:58:13,970

all right and uh Nick what do we need to

3593

04:58:18,230 --> 04:58:15,660

do with the flag on the on the right

3594

04:58:22,550 --> 04:58:20,390

yeah Josh uh for both of you when you're

3595

04:58:24,050 --> 04:58:22,560

cleaning up these cables uh what we're

3596

04:58:25,730 --> 04:58:24,060

trying to do is just prevent snag

3597

04:58:28,310 --> 04:58:25,740

hazards when people are translating by

3598

04:58:30,948 --> 04:58:28,320

so it's going to be your call to try to

3599

04:58:36,230 --> 04:58:30,958

shore up any kind of potential snags and

3600

04:58:41,330 --> 04:58:37,970

okay copy that

3601  
04:58:44,448 --> 04:58:41,340  
no more constraints now to working uh

3602  
04:58:47,448 --> 04:58:44,458  
during the eclipse period of Darkness

3603  
04:58:50,990 --> 04:58:47,458  
will come into an orbital sunrise

3604  
04:58:54,288 --> 04:58:51,000  
in about 15 minutes at which point there

3605  
04:58:57,110 --> 04:58:54,298  
is one final step before the unfurling

3606  
04:58:58,788 --> 04:58:57,120  
of the irosa array that being the

3607  
04:58:59,868 --> 04:58:58,798  
release of a pair of launch restraint

3608  
04:59:02,868 --> 04:58:59,878  
bolts

3609  
04:59:04,910 --> 04:59:02,878  
that will basically remove all the

3610  
04:59:07,368 --> 04:59:04,920  
stored energy

3611  
04:59:10,788 --> 04:59:07,378  
in the rolled up array and allow it to

3612  
04:59:11,750 --> 04:59:10,798  
begin to unfurl to its full length of 60

3613  
04:59:13,970 --> 04:59:11,760

feet

3614

04:59:16,490 --> 04:59:13,980

followed by uh

3615

04:59:19,190 --> 04:59:16,500

the driving of

3616

05:00:11,030 --> 04:59:19,200

two bolts that will provide the

3617

05:00:16,910 --> 05:00:13,730

I did not have a good solution over here

3618

05:00:16,920 --> 05:00:24,470

as good as it's gonna get

3619

05:00:28,610 --> 05:00:26,330

I trusted mine

3620

05:00:30,830 --> 05:00:28,620

when I was working I met uh it actually

3621

05:00:36,050 --> 05:00:30,840

ended up an old Christmas tree yeah I

3622

05:00:36,060 --> 05:00:51,128

um

3623

05:00:54,770 --> 05:00:53,330

all right Nick I have a good configure

3624

05:00:57,470 --> 05:00:54,780

on the watch

3625

05:00:59,270 --> 05:00:57,480

copy Frank and so um we're going to have

3626

05:01:01,550 --> 05:00:59,280

you do a glove hat and Gauntlet

3627

05:01:04,010 --> 05:01:01,560

inspection and we noticed the cuff

3628

05:01:06,288 --> 05:01:04,020

checklist is flipped down again so we

3629

05:01:08,030 --> 05:01:06,298

may have to have the two of you come

3630

05:01:14,208 --> 05:01:08,040

together to help work on shimmy and that

3631

05:01:21,770 --> 05:01:19,010

okay uh I can push it here

3632

05:01:24,170 --> 05:01:21,780

I have to have a garment cover the oven

3633

05:01:25,850 --> 05:01:24,180

yeah and and Frank if you can just flip

3634

05:01:27,708 --> 05:01:25,860

the pages back and pull the gauntlet up

3635

05:01:31,250 --> 05:01:27,718

over the uh the wrist field and you're

3636

05:01:31,260 --> 05:01:43,670

yeah drift your back

3637

05:01:43,680 --> 05:01:49,250

and Joshua ground's happy with that

3638

05:01:54,050 --> 05:01:51,890

this is Mission Control Houston at the

3639

05:01:57,830 --> 05:01:54,060

five hour mark in today's space walk

3640

05:01:59,750 --> 05:01:57,840

Josh cassida and Frank Rubio have sailed

3641

05:02:02,090 --> 05:01:59,760

through most of the work associated with

3642

05:02:05,090 --> 05:02:02,100

the installation of the first of the two

3643

05:02:08,448 --> 05:02:05,100

ISS rollout solar arrays delivered last

3644

05:02:10,070 --> 05:02:08,458

week on the SpaceX cargo dragon resupply

3645

05:02:11,090 --> 05:02:10,080

mission to the International Space

3646

05:02:13,250 --> 05:02:11,100

Station

3647

05:02:15,110 --> 05:02:13,260

Josh if you can give me glove hap and

3648

05:02:21,470 --> 05:02:15,120

Gauntlet check and then Frank I don't

3649

05:02:25,788 --> 05:02:22,730

you know if I looked at them and didn't

3650

05:02:32,208 --> 05:02:25,798

call you uh my gloves no changes dry hop

3651  
05:02:37,190 --> 05:02:35,330  
after removing the irosa as it is called

3652  
05:02:40,128 --> 05:02:37,200  
by its acronym

3653  
05:02:42,650 --> 05:02:40,138  
from its Flight Support equipment

3654  
05:02:46,970 --> 05:02:42,660  
Josh cassida rode the end of the

3655  
05:02:49,030 --> 05:02:46,980  
canadarm 2 robotic arm holding the 750

3656  
05:02:51,770 --> 05:02:49,040  
pound in Mass

3657  
05:02:53,208 --> 05:02:51,780  
roll out solar array over to the

3658  
05:02:56,030 --> 05:02:53,218  
starboard four

3659  
05:02:58,368 --> 05:02:56,040  
trust work site where he and Rubio

3660  
05:03:00,948 --> 05:02:58,378  
worked to bolt it in place first

3661  
05:03:03,350 --> 05:03:00,958  
mounting it on a mounting bracket that

3662  
05:03:06,590 --> 05:03:03,360  
was installed on a previous spacewalk

3663  
05:03:09,110 --> 05:03:06,600

then bolting it in place and then just

3664

05:03:11,750 --> 05:03:09,120

moments ago completing the connection of

3665

05:03:14,930 --> 05:03:11,760

four electrical connectors to

3666

05:03:18,170 --> 05:03:14,940

electrically mate the new array to the

3667

05:03:20,208 --> 05:03:18,180

power system for the 3A power channel on

3668

05:03:23,150 --> 05:03:20,218

the International Space Station

3669

05:03:26,330 --> 05:03:23,160

we're about uh

3670

05:03:28,970 --> 05:03:26,340

to move into an orbital sunrise at which

3671

05:03:30,650 --> 05:03:28,980

point the crew members will release a

3672

05:03:32,810 --> 05:03:30,660

pair of launch restraint bolts that will

3673

05:03:35,150 --> 05:03:32,820

begin the unfurling of the array to its

3674

05:03:37,610 --> 05:03:35,160

full length of 60 feet and will drive

3675

05:03:40,490 --> 05:03:37,620

two tensioner bolts to provide the

3676

05:03:43,850 --> 05:03:40,500

tensioning of that blanket basically at

3677

05:03:45,708 --> 05:03:43,860

its full length of 60 feet position to

3678

05:03:54,770 --> 05:03:45,718

stay clear of the deploying irosa

3679

05:03:54,780 --> 05:04:23,090

uh ev1 copies 82 copies

3680

05:04:26,750 --> 05:04:25,310

and Frank Josh uh just give you a heads

3681

05:04:28,128 --> 05:04:26,760

up it's about 10 minutes before we're

3682

05:04:29,628 --> 05:04:28,138

going to get into the Sun and be able to

3683

05:04:31,250 --> 05:04:29,638

deploy this

3684

05:04:33,708 --> 05:04:31,260

um so we've got a little bit of time as

3685

05:04:36,890 --> 05:04:33,718

you look around if you see any mli that

3686

05:04:37,970 --> 05:04:36,900

on the mod kit or anything now's the

3687

05:04:43,490 --> 05:04:37,980

time that we've got a little bit of time

3688

05:04:48,288 --> 05:04:45,410

I'll be back

3689

05:04:51,610 --> 05:04:48,298

all right Josh I bailed on you before I

3690

05:04:57,230 --> 05:04:54,830

once we complete the unfolding of the

3691

05:05:00,310 --> 05:04:57,240

array and the tensioning at its point of

3692

05:05:02,930 --> 05:05:00,320

60 feet uh in length

3693

05:05:04,730 --> 05:05:02,940

irosa will be complete

3694

05:05:07,010 --> 05:05:04,740

and then we'll have to wait for the next

3695

05:05:08,990 --> 05:05:07,020

eclipse which will start in about an

3696

05:05:11,570 --> 05:05:09,000

hour and 13 minutes

3697

05:05:13,430 --> 05:05:11,580

before the crew can tackle uh the other

3698

05:05:16,368 --> 05:05:13,440

major task that was added to the back

3699

05:05:18,948 --> 05:05:16,378

end of today's spacewalk that being the

3700

05:05:23,930 --> 05:05:18,958

demating of a single connector on the

3701  
05:05:28,310 --> 05:05:23,940  
adjacent starboard six solar array Truss

3702  
05:05:31,490 --> 05:05:28,320  
the 1B array incurred a power trip

3703  
05:05:34,368 --> 05:05:31,500  
about 10 days ago that took the power

3704  
05:05:36,708 --> 05:05:34,378  
Channel down for the starboard six solar

3705  
05:05:39,110 --> 05:05:36,718  
array the 1B power Channel

3706  
05:05:42,650 --> 05:05:39,120  
the power loads the electrical loads

3707  
05:05:45,470 --> 05:05:42,660  
powering systems on that channel were

3708  
05:05:47,868 --> 05:05:45,480  
seamlessly transferred to the 1A power

3709  
05:05:50,990 --> 05:05:47,878  
Channel without impacting any space

3710  
05:05:53,990 --> 05:05:51,000  
station operations but to regain the use

3711  
05:05:56,330 --> 05:05:54,000  
of the 1B array one electrical connector

3712  
05:05:59,390 --> 05:05:56,340  
needs to be demated that has to be done

3713  
05:06:03,230 --> 05:05:59,400

during an orbital sunset or eclipse

3714

05:06:06,530 --> 05:06:03,240

in order to isolate the affected area of

3715

05:06:08,930 --> 05:06:06,540

the solar array the 1B solar array out

3716

05:06:12,470 --> 05:06:08,940

on the starboard six truss

3717

05:06:14,930 --> 05:06:12,480

once that cable is demated then the 1B

3718

05:06:17,510 --> 05:06:14,940

array or the 1B power channel can be

3719

05:06:20,930 --> 05:06:17,520

reactivated to bring its power

3720

05:06:22,788 --> 05:06:20,940

capability up to about 75 percent of

3721

05:06:26,930 --> 05:06:22,798

performance

3722

05:06:29,750 --> 05:06:26,940

that 1B channel is awaiting delivery of

3723

05:06:36,530 --> 05:06:29,760

the next pair of solar rollout solar

3724

05:06:41,570 --> 05:06:39,110

cargo delivery mission that will bring

3725

05:08:21,590 --> 05:06:41,580

iroses up that is targeted for SpaceX

3726

05:08:25,390 --> 05:08:23,930

okay I think I've had myself

3727

05:08:34,070 --> 05:08:25,400

oh

3728

05:08:34,080 --> 05:09:22,250

you guys got about five more minutes

3729

05:09:28,010 --> 05:09:25,430

and Josh the uh looking looking at you

3730

05:09:29,628 --> 05:09:28,020

trying to brt there uh in the pool it

3731

05:09:31,550 --> 05:09:29,638

was helpful there's a handrail on that

3732

05:09:34,310 --> 05:09:31,560

uh the strut that's just off to your

3733

05:09:40,850 --> 05:09:34,320

left might make it for a decent brt

3734

05:09:49,010 --> 05:09:43,190

okay copy that

3735

05:09:49,020 --> 05:09:58,910

I think that might work okay

3736

05:09:58,920 --> 05:10:03,770

erase that bro

3737

05:11:16,970 --> 05:10:05,750

your hand levels reporters really really

3738

05:11:16,980 --> 05:12:13,970

um

3739

05:12:18,590 --> 05:12:17,150

and Frank Josh a few more minutes like

3740

05:12:25,610 --> 05:12:18,600

watching water

3741

05:12:25,620 --> 05:12:37,128

that's a great place to do it

3742

05:12:41,390 --> 05:12:39,590

also much better to be uh in this

3743

05:12:43,490 --> 05:12:41,400

division than to be

3744

05:12:46,128 --> 05:12:43,500

to try to

3745

05:12:53,150 --> 05:12:46,138

beat the sun yes

3746

05:12:57,230 --> 05:12:55,730

and people thought through every single

3747

05:13:00,230 --> 05:12:57,240

scenario

3748

05:13:09,230 --> 05:13:00,240

get this window incredible

3749

05:13:13,788 --> 05:13:12,110

Nick I just put it on put the uh

3750

05:13:15,410 --> 05:13:13,798

PGT on there because that's an easier

3751

05:13:16,128 --> 05:13:15,420

place to put it but right now we gotta

3752

05:13:18,650 --> 05:13:16,138

wait

3753

05:13:20,030 --> 05:13:18,660

and I understand Bravo seven not sure on

3754

05:13:21,948 --> 05:13:20,040

the counterclockwise

3755

05:13:28,610 --> 05:13:21,958

yep I hadn't passed it up to you so it's

3756

05:13:35,030 --> 05:13:31,750

I guess right I got Bravo seven set

3757

05:13:38,150 --> 05:13:35,040

counterclockwise two and we'll wait

3758

05:13:41,510 --> 05:13:38,160

yep and it's going to be 17 to 20 turns

3759

05:13:44,390 --> 05:13:41,520

I'm on our nine here

3760

05:14:44,150 --> 05:13:44,400

belly and uh when these release they

3761

05:14:48,170 --> 05:14:46,490

and Frank while we're sitting here um in

3762

05:14:49,970 --> 05:14:48,180

the procedures just got a reminder here

3763

05:14:52,010 --> 05:14:49,980

you know the Target that you're trying

3764

05:14:54,590 --> 05:14:52,020

to look at as this deploys is that

3765

05:14:55,910 --> 05:14:54,600

initial those initial magnets as they

3766

05:15:01,550 --> 05:14:55,920

snap together at the base of the boom

3767

05:15:12,948 --> 05:15:03,230

yes and those will be in the middle

3768

05:15:21,530 --> 05:15:16,368

yeah so it's located on the uh just uh

3769

05:15:26,270 --> 05:15:24,050

yeah negative it's on the outside so

3770

05:15:28,368 --> 05:15:26,280

it's on the very ends of the boom

3771

05:15:30,110 --> 05:15:28,378

um and it's it's rolled flat and you'll

3772

05:15:33,770 --> 05:15:30,120

see them fold back and and make that

3773

05:15:38,090 --> 05:15:35,868

the uh it's a thing we kept yelling at

3774

05:15:43,670 --> 05:15:38,100

you not to touch that has the uh the

3775

05:15:47,390 --> 05:15:46,070

okay yep I see it

3776

05:15:52,010 --> 05:15:47,400

hopefully you guys have a good view on

3777

05:15:55,310 --> 05:15:53,868

and the heck is not required for it so

3778

05:16:02,288 --> 05:15:55,320

as long as you can put good eyes on it

3779

05:16:06,948 --> 05:16:04,730

this is Mission Control Houston we're

3780

05:16:09,110 --> 05:16:06,958

nearing the point where we'll fly into

3781

05:16:11,810 --> 05:16:09,120

an orbital sunrise

3782

05:16:14,448 --> 05:16:11,820

we are just about off the Southwest

3783

05:16:17,628 --> 05:16:14,458

coast of Australia right now when we

3784

05:16:20,750 --> 05:16:17,638

come into daylight that will be the

3785

05:16:23,330 --> 05:16:20,760

queue to begin the deployment actually

3786

05:16:25,788 --> 05:16:23,340

the unfurling if you will of the ISS

3787

05:16:26,990 --> 05:16:25,798

rollout solar array that has been

3788

05:16:30,170 --> 05:16:27,000

installed

3789

05:16:31,788 --> 05:16:30,180  
on the starboard Fortress of the

3790

05:16:35,510 --> 05:16:31,798  
International Space Station

3791

05:16:37,550 --> 05:16:35,520  
joined now electronically to uh the

3792

05:16:40,850 --> 05:16:37,560  
original solar array

3793

05:16:42,948 --> 05:16:40,860  
on the S4 truss of the station that was

3794

05:16:46,250 --> 05:16:42,958  
delivered 15 and a half years ago to the

3795

05:16:50,990 --> 05:16:48,590  
and and crew will release a pair of

3796

05:16:53,208 --> 05:16:51,000  
launch restraint bolts and then the

3797

05:16:56,448 --> 05:16:53,218  
stored energy in that rolled up solar

3798

05:16:59,030 --> 05:16:56,458  
array will uh be released and it should

3799

05:17:02,270 --> 05:16:59,040  
unfurl it will take a few minutes to

3800

05:17:05,208 --> 05:17:02,280  
unfurl to its full length of 60 feet at

3801  
05:17:08,208 --> 05:17:05,218  
which point uh Josh Cassidy will drive

3802  
05:17:10,610 --> 05:17:08,218  
and release actually a pair of bolts to

3803  
05:17:28,070 --> 05:17:10,620  
tension the blanket and the iroso work

3804  
05:17:45,170 --> 05:17:30,280  
or

3805  
05:17:51,788 --> 05:17:45,180  
outboard of the the mod kit so you're

3806  
05:17:57,948 --> 05:17:54,230  
correct yeah but I came all the way to

3807  
05:18:02,750 --> 05:17:59,890  
uh S5

3808  
05:18:05,930 --> 05:18:02,760  
54 yep so we want you to translate out

3809  
05:18:07,250 --> 05:18:05,940  
to S5 so if you uh head back in out

3810  
05:18:08,270 --> 05:18:07,260  
there you'll you'll be in a good

3811  
05:18:12,530 --> 05:18:08,280  
position

3812  
05:18:12,540 --> 05:18:18,650  
outboard you mean outwards

3813  
05:18:18,660 --> 05:18:23,990

promising upside down

3814

05:18:33,050 --> 05:18:27,948

okay Josh you have a go-to work on the

3815

05:18:42,170 --> 05:18:38,750

okay R9 Bravo seven one o'clockwise to I

3816

05:18:43,670 --> 05:18:42,180

heard 17 to 20 turns that's a good read

3817

05:18:45,590 --> 05:18:43,680

back and you should see a white line

3818

05:18:47,390 --> 05:18:45,600

fully appear when released

3819

05:18:50,030 --> 05:18:47,400

this is the first of two launch

3820

05:18:52,490 --> 05:18:50,040

restraint bolts that once both are

3821

05:18:57,230 --> 05:18:52,500

released we'll begin the unfurling of

3822

05:19:11,510 --> 05:19:00,530

what would be 2101 is something that

3823

05:19:11,520 --> 05:19:22,368

okay

3824

05:19:27,050 --> 05:19:24,230

and we're in a quick Handover between

3825

05:19:28,788 --> 05:19:27,060

satellites so we'll get back momentarily

3826

05:19:36,530 --> 05:19:28,798

our downlink video from the space

3827

05:19:36,540 --> 05:19:41,750

there's 18 and I see a white line

3828

05:19:47,150 --> 05:19:45,288

copy 18 turns white line on par nine

3829

05:19:50,208 --> 05:19:47,160

good Bolt

3830

05:19:50,218 --> 05:19:54,410

and we had a little understanding

3831

05:19:59,810 --> 05:19:56,330

yep copy and Frank are you in position

3832

05:20:05,570 --> 05:20:02,470

hi everybody I'm at uh

3833

05:20:13,628 --> 05:20:05,580

2101 2102

3834

05:21:06,590 --> 05:20:16,610

crackler to r10

3835

05:21:06,600 --> 05:21:27,948

all right

3836

05:21:34,250 --> 05:21:30,650

I'm at 21 turns

3837

05:22:13,910 --> 05:21:34,260

it just needs a little persuasion

3838

05:22:13,920 --> 05:22:18,670

that sounds good

3839

05:22:18,680 --> 05:22:25,490

to move

3840

05:22:33,470 --> 05:22:28,070

and Applause here in Mission Control the

3841

05:22:47,930 --> 05:22:35,868

this will take a little under 10 minutes

3842

05:22:58,850 --> 05:22:49,970

that is incredible

3843

05:23:03,830 --> 05:23:01,670

amazing job from Engineers who came up

3844

05:23:06,050 --> 05:23:03,840

with this idea and the once you put

3845

05:23:15,970 --> 05:23:06,060

together the plan

3846

05:23:22,550 --> 05:23:19,128

the ISS rollout solar array began to

3847

05:23:24,550 --> 05:23:22,560

unfurl at uh 11 37 a.m central time at

3848

05:23:49,730 --> 05:23:24,560

the five hour

3849

05:23:53,810 --> 05:23:51,650

I think it could be a first set of

3850

05:23:57,230 --> 05:23:53,820

magnets are all equipped together

3851  
05:24:00,890 --> 05:23:57,240  
yeah copy Frank and uh if you could uh

3852  
05:24:19,368 --> 05:24:00,900  
roll a little bit to your right we'd uh

3853  
05:24:19,378 --> 05:24:38,390  
that's great view appreciate the effort

3854  
05:24:44,330 --> 05:24:41,570  
this array when fully deployed to its

3855  
05:24:47,150 --> 05:24:44,340  
length of 60 feet will Shadow about half

3856  
05:24:49,250 --> 05:24:47,160  
of the original array on the starboard

3857  
05:24:52,010 --> 05:24:49,260  
Fortress providing an additional 20

3858  
05:25:55,250 --> 05:24:52,020  
kilowatts or so of electrical capability

3859  
05:25:59,390 --> 05:25:57,050  
[Applause]

3860  
05:26:01,670 --> 05:25:59,400  
and Nick from my vantage point it looks

3861  
05:26:03,770 --> 05:26:01,680  
like on this side all the magnets are

3862  
05:26:04,430 --> 05:26:03,780  
aligning and zipping up properly all the

3863  
05:26:09,770 --> 05:26:04,440

way

3864

05:26:47,510 --> 05:26:11,390

that's great to hear Frank thanks for

3865

05:27:01,800 --> 05:26:56,448

uh

3866

05:27:01,810 --> 05:28:01,368

[Applause]

3867

05:28:07,670 --> 05:28:04,730

this is Mission Control Houston the new

3868

05:28:10,670 --> 05:28:07,680

ISS rollout solar array doing just what

3869

05:28:14,448 --> 05:28:10,680

its name implies rolling out to its full

3870

05:28:18,170 --> 05:28:14,458

length of 60 feet that began about five

3871

05:28:18,180 --> 05:28:22,670

really speechless

3872

05:28:22,680 --> 05:28:38,270

that's pretty cool

3873

05:28:42,470 --> 05:28:40,730

and Josh Brink we've got a few minutes

3874

05:28:44,030 --> 05:28:42,480

here as it finishes the deployments and

3875

05:28:46,970 --> 05:28:44,040

then we uh tighten everything back up

3876

05:28:48,288 --> 05:28:46,980

and start cleaning up wanted to give you

3877

05:28:50,628 --> 05:28:48,298

some big picture words and then figure

3878

05:28:52,010 --> 05:28:50,638

out the I get some input from you on the

3879

05:28:53,448 --> 05:28:52,020

way forward because we do have a little

3880

05:28:54,530 --> 05:28:53,458

bit of time before the next eclipse

3881

05:28:59,810 --> 05:28:54,540

where we're going to go after that one

3882

05:29:03,948 --> 05:29:01,310

okay

3883

05:29:06,110 --> 05:29:03,958

ready to cover yeah so big picture

3884

05:29:09,170 --> 05:29:06,120

consumables are looking great timelines

3885

05:29:11,570 --> 05:29:09,180

looking great uh you know so we're not

3886

05:29:13,490 --> 05:29:11,580

facing any limits there

3887

05:29:15,110 --> 05:29:13,500

um we've been scratching our heads on

3888

05:29:17,150 --> 05:29:15,120

the the things that Josh might be able

3889

05:29:19,550 --> 05:29:17,160

to do while Frank while you're out

3890

05:29:20,868 --> 05:29:19,560

working the the one Bravo

3891

05:29:23,410 --> 05:29:20,878

um so

3892

05:29:27,650 --> 05:29:23,420

that would involve going back to the FSE

3893

05:29:29,570 --> 05:29:27,660

and releasing bolts one through four R1

3894

05:29:32,510 --> 05:29:29,580

through R4

3895

05:29:34,070 --> 05:29:32,520

and uh and no need to do any kind of

3896

05:29:36,530 --> 05:29:34,080

socket swap or anything we'd have you

3897

05:29:39,410 --> 05:29:36,540

drop a crew lock bag off on the seated

3898

05:29:42,050 --> 05:29:39,420

card on your way and uh but that would

3899

05:29:43,850 --> 05:29:42,060

uh put Josh that it puts you at the FSC

3900

05:29:46,010 --> 05:29:43,860

while Frank's getting in position out at

3901  
05:29:47,270 --> 05:29:46,020  
one Bravo I just wanted to check and see

3902  
05:29:53,868 --> 05:29:47,280  
how you guys are feeling if you're good

3903  
05:29:57,708 --> 05:29:55,610  
so you're broken but I'd understand the

3904  
05:29:59,390 --> 05:29:57,718  
question is are we comfortable with me

3905  
05:30:02,690 --> 05:29:59,400  
being out there for the seat

3906  
05:30:05,810 --> 05:30:02,700  
uh doing R1 through R4 on the lower

3907  
05:30:08,330 --> 05:30:05,820  
right well Frank is over

3908  
05:30:11,930 --> 05:30:10,550  
yep copy we've got some com interference

3909  
05:30:13,490 --> 05:30:11,940  
you were a little broken but yeah that's

3910  
05:30:18,170 --> 05:30:13,500  
the question are you guys good with the

3911  
05:30:23,030 --> 05:30:20,570  
um I'm okay with it

3912  
05:30:26,868 --> 05:30:23,040  
Nick how long of a transfer

3913  
05:30:30,170 --> 05:30:26,878

it is if uh if we need to do it quickly

3914

05:30:41,448 --> 05:30:32,890

10 15.

3915

05:30:45,170 --> 05:30:43,368

Frank if you are comfortable with it and

3916

05:30:46,850 --> 05:30:45,180

we can uh

3917

05:30:48,830 --> 05:30:46,860

go ahead and just talk through the route

3918

05:30:49,850 --> 05:30:48,840

that I would take to get out to you but

3919

05:30:51,170 --> 05:30:49,860

we've already thought through it there's

3920

05:30:53,030 --> 05:30:51,180

no questions

3921

05:30:57,110 --> 05:30:53,040

and I would be uh I'd be comfortable

3922

05:31:00,948 --> 05:30:59,090

okay yeah we'll just stay in constant

3923

05:31:05,330 --> 05:31:00,958

column and I'll let you know

3924

05:31:09,230 --> 05:31:07,430

I don't know if I think I can picture a

3925

05:31:12,708 --> 05:31:09,240

lot of the handrails

3926

05:31:15,110 --> 05:31:12,718

for me to get out there uh I'll be free

3927

05:31:17,208 --> 05:31:15,120

from the ffe going over the Mt going

3928

05:31:19,850 --> 05:31:17,218

under the starburst Peter carts

3929

05:31:24,110 --> 05:31:19,860

uh going across the search

3930

05:31:24,120 --> 05:31:32,270

or would I

3931

05:31:32,280 --> 05:31:38,030

that would work

3932

05:31:41,390 --> 05:31:39,708

yeah

3933

05:31:43,670 --> 05:31:41,400

I don't know if you have it up in front

3934

05:31:45,650 --> 05:31:43,680

of you but would it be the same same

3935

05:31:47,690 --> 05:31:45,660

path I took before I know we've changed

3936

05:31:49,010 --> 05:31:47,700

the configuration of the station

3937

05:31:52,788 --> 05:31:49,020

uh

3938

05:31:54,230 --> 05:31:52,798

two two two

3939

05:31:59,448 --> 05:31:54,240

know that I was going the right way

3940

05:31:59,458 --> 05:32:27,948

in Joshua track we're talking it

3941

05:32:33,948 --> 05:32:30,890

yeah copy Josh it'd be Nader 400 forward

3942

05:32:37,610 --> 05:32:33,958

Corner uh all the way to the FSC or all

3943

05:32:42,350 --> 05:32:40,368

okay and that was a pretty clean path if

3944

05:32:44,208 --> 05:32:42,360

I'm not mistaken it's a straight line

3945

05:32:47,628 --> 05:32:44,218

shot and it's per what we had sent you

3946

05:32:52,368 --> 05:32:50,030

okay

3947

05:32:53,750 --> 05:32:52,378

it still goes with that grapple fixture

3948

05:33:01,070 --> 05:32:53,760

but just that one obstruction is that

3949

05:33:05,150 --> 05:33:03,350

well Frank I'm as familiar as you can be

3950

05:33:07,070 --> 05:33:05,160

uh I haven't looked at it on the

3951

05:33:08,448 --> 05:33:07,080

computer and then uh

3952

05:33:09,770 --> 05:33:08,458

haven't been out there once but that's

3953

05:33:12,170 --> 05:33:09,780

not the route I was

3954

05:33:14,390 --> 05:33:12,180

yep and if I had to come to you I would

3955

05:33:16,670 --> 05:33:14,400

just follow my

3956

05:33:23,628 --> 05:33:16,680

letters Swap and then head over to the

3957

05:33:33,368 --> 05:33:25,730

hey Nick if we end up going that route

3958

05:33:38,510 --> 05:33:36,350

yep copy Josh uh I appreciate you guys

3959

05:33:41,030 --> 05:33:38,520

uh talking through that we're tracking

3960

05:33:43,070 --> 05:33:41,040

along understand that anything that

3961

05:33:44,690 --> 05:33:43,080

we've got you doing Josh we can break

3962

05:33:47,628 --> 05:33:44,700

out at any time

3963

05:33:49,610 --> 05:33:47,638

um and so if the situation changes if if

3964

05:33:51,288 --> 05:33:49,620

we feel like we want to just stop and

3965

05:33:53,330 --> 05:33:51,298

call it a day you guys have crushed it

3966

05:33:57,650 --> 05:33:53,340

up to this point this is all extra nice

3967

05:34:03,770 --> 05:34:01,010

okay sounds great and uh

3968

05:34:13,030 --> 05:34:03,780

this uh this face lock was crushed we

3969

05:34:19,030 --> 05:34:16,490

the new ISS rollout solar array now

3970

05:34:21,470 --> 05:34:19,040

fully deployed to its length of 60 feet

3971

05:34:26,628 --> 05:34:21,480

the deployment took about nine minutes

3972

05:34:32,208 --> 05:34:29,570

the uh deployment or the unfurling of

3973

05:34:34,850 --> 05:34:32,218

the array began at 11 37 a.m Central

3974

05:34:36,250 --> 05:34:34,860

Time and was complete about two minutes

3975

05:34:40,128 --> 05:34:36,260

ago

3976

05:34:43,550 --> 05:34:40,138

two bolts now will be driven to tension

3977

05:34:47,810 --> 05:34:43,560

the array and then all of the irosa work

3978

05:34:54,288 --> 05:34:49,310

that's good

3979

05:35:03,310 --> 05:34:55,910

I was going to say your your settings

3980

05:35:08,990 --> 05:35:06,650

alpha one character so the new ISS solar

3981

05:35:11,570 --> 05:35:09,000

array joins uh the original array

3982

05:35:14,270 --> 05:35:11,580

delivered to the space station at the

3983

05:35:17,570 --> 05:35:14,280

starboard Fortress more than 15 years

3984

05:35:20,330 --> 05:35:17,580

ago to augment the power capability and

3985

05:35:23,410 --> 05:35:20,340

output for the 3A power channel on the

3986

05:35:38,690 --> 05:35:23,420

International Space Station

3987

05:35:47,330 --> 05:35:42,830

Josh cassida will

3988

05:35:50,690 --> 05:35:47,340

move towards uh the likelihood of a get

3989

05:35:53,690 --> 05:35:50,700

ahead work to release four bolts on the

3990

05:35:55,430 --> 05:35:53,700

other ISS rollout solar array that was

3991

05:35:58,190 --> 05:35:55,440

delivered on the SpaceX cargo Dragon

3992

05:36:00,650 --> 05:35:58,200

resupply flight a week ago at the

3993

05:36:03,830 --> 05:36:00,660

International Space Station that array

3994

05:36:06,948 --> 05:36:03,840

or rollouts solar array is due to be uh

3995

05:36:10,070 --> 05:36:06,958

released and transported to the port

3996

05:36:13,550 --> 05:36:10,080

Fortress of the station for installation

3997

05:36:15,770 --> 05:36:13,560

and deployment on December 19th in

3998

05:36:19,128 --> 05:36:15,780

another spacewalk plan for cassida and

3999

05:36:21,288 --> 05:36:19,138

Rubio this would be get ahead work to

4000

05:36:24,590 --> 05:36:21,298

release the first four bolts that are

4001  
05:36:28,910 --> 05:36:24,600  
holding that second ISS rollout solar

4002  
05:36:34,368 --> 05:36:32,448  
thank you for the reminder and uh the

4003  
05:36:39,110 --> 05:36:34,378  
first one pop out

4004  
05:36:44,628 --> 05:36:42,288  
okay thank you

4005  
05:36:46,970 --> 05:36:44,638  
Meanwhile we're about 42 minutes from

4006  
05:36:49,788 --> 05:36:46,980  
entering the next eclipse period in

4007  
05:36:52,670 --> 05:36:49,798  
darkness for the station at which time

4008  
05:36:57,288 --> 05:36:52,680  
Frank Rubio will be at the starboard six

4009  
05:36:59,150 --> 05:36:57,298  
truss and we'll work to demate one of

4010  
05:37:05,390 --> 05:36:59,160  
four electrical connectors

4011  
05:37:08,510 --> 05:37:05,400  
for the 1B power Channel solar array

4012  
05:37:11,270 --> 05:37:08,520  
that experienced an electrical trip

4013  
05:37:15,670 --> 05:37:11,280

we're taking down that 1B power Channel

4014

05:37:17,868 --> 05:37:15,680

about 10 days ago the loads for uh

4015

05:37:20,390 --> 05:37:17,878

generation of electricity for station

4016

05:37:22,610 --> 05:37:20,400

systems through the 1B Channel where

4017

05:37:25,550 --> 05:37:22,620

seamlessly transferred over to the 1A

4018

05:37:28,390 --> 05:37:25,560

power Channel but to regain the 1B power

4019

05:37:30,948 --> 05:37:28,400

Channel capability at a somewhat reduced

4020

05:37:33,708 --> 05:37:30,958

efficiency of about 75 percent of

4021

05:37:35,868 --> 05:37:33,718

capacity one electrical cable needs to

4022

05:37:39,708 --> 05:37:35,878

be demated to isolate the affected area

4023

05:37:42,650 --> 05:37:39,718

of that array Rubio will demate the one

4024

05:37:45,050 --> 05:37:42,660

electrical connector and the electrical

4025

05:37:47,448 --> 05:37:45,060

systems Specialists here in Mission

4026

05:37:50,570 --> 05:37:47,458

Control will reactivate the 1B power

4027

05:37:53,208 --> 05:37:50,580

Channel bringing it back into operation

4028

05:37:59,750 --> 05:37:53,218

albeit at 75 percent of rated

4029

05:38:05,628 --> 05:38:02,930

and the two bolts to tension the newly

4030

05:38:07,970 --> 05:38:05,638

deployed uh rollout solar array have now

4031

05:38:09,410 --> 05:38:07,980

been driven so that solar array work is

4032

05:38:15,288 --> 05:38:09,420

now complete

4033

05:38:20,590 --> 05:38:17,390

I can help stabilize you a little bit if

4034

05:38:32,330 --> 05:38:23,448

oh actually you have a brca

4035

05:38:32,340 --> 05:38:35,448

okay

4036

05:38:40,368 --> 05:38:37,610

and guys just want to let you know we're

4037

05:38:42,948 --> 05:38:40,378

seeing uh good power off irosa so it's

4038

05:38:47,030 --> 05:38:42,958

up and working

4039

05:38:50,750 --> 05:38:47,040

all right awesome dude holy cow

4040

05:38:53,810 --> 05:38:50,760

you make on my TV setting is now four

4041

05:38:56,330 --> 05:38:53,820

copy Josh and that word uh long waited

4042

05:39:00,170 --> 05:38:56,340

uh by spacecraft uh Communicator Nick

4043

05:39:04,030 --> 05:39:00,180

Hague that the newly installed irosa is

4044

05:39:08,390 --> 05:39:04,040

generating full electrical power

4045

05:39:11,690 --> 05:39:09,530

okay so I'm gonna get my mini

4046

05:39:12,890 --> 05:39:11,700

workstation and effect keep that brt

4047

05:39:14,930 --> 05:39:12,900

down okay got

4048

05:39:14,940 --> 05:39:21,708

Eagle here

4049

05:39:21,718 --> 05:39:24,830

all right

4050

05:39:24,840 --> 05:39:27,050

um

4051

05:39:27,060 --> 05:39:31,610

you want to give me a rep

4052

05:39:39,590 --> 05:39:35,628

understand that we can go ahead and uh

4053

05:39:40,730 --> 05:39:39,600

at least the adjustables from

4054

05:39:45,530 --> 05:39:40,740

the

4055

05:39:47,750 --> 05:39:45,540

adjustable itself

4056

05:39:48,948 --> 05:39:47,760

affirmative so both those adjustables

4057

05:39:50,868 --> 05:39:48,958

and the scoop are going to go back

4058

05:40:06,650 --> 05:39:50,878

inside crew lock bag M that's your

4059

05:40:10,550 --> 05:40:08,810

all right we've got a rep to the b-ring

4060

05:40:13,010 --> 05:40:10,560

on the adjustable so now I'm going to

4061

05:40:22,310 --> 05:40:13,020

release the large hook

4062

05:40:25,910 --> 05:40:23,690

you're looking pretty hard for these

4063

05:40:28,250 --> 05:40:25,920

earlier this week yeah seriously

4064

05:40:35,690 --> 05:40:28,260

and then

4065

05:40:44,570 --> 05:40:39,410

that's released and it's all

4066

05:41:01,010 --> 05:40:46,970

basically releasing the

4067

05:41:01,020 --> 05:41:07,030

all right here it comes

4068

05:41:11,890 --> 05:41:10,128

that was great thank you yeah and that

4069

05:41:20,750 --> 05:41:11,900

that's the way I was telling you about

4070

05:41:24,590 --> 05:41:22,430

to Frank that scoop and those

4071

05:41:26,990 --> 05:41:24,600

adjustables that go inside crew lock bag

4072

05:41:28,910 --> 05:41:27,000

M uh and Josh if you want to help them

4073

05:41:33,110 --> 05:41:28,920

out when it's all packed up it's going

4074

05:42:21,350 --> 05:41:34,670

sounds great

4075

05:42:52,610 --> 05:42:25,128

yeah I'm trying to make your life harder

4076

05:42:55,730 --> 05:42:53,810

great

4077

05:42:59,570 --> 05:42:55,740

is that you're right already on it that

4078

05:43:01,788 --> 05:42:59,580

is my VIP rent let's just make sure

4079

05:43:04,910 --> 05:43:01,798

that we're clear and that we're happy

4080

05:43:06,050 --> 05:43:04,920

with that being secure

4081

05:43:08,390 --> 05:43:06,060

okay

4082

05:43:11,390 --> 05:43:08,400

I can read it for you

4083

05:43:14,390 --> 05:43:11,400

you're gonna release uh from the mid

4084

05:43:18,410 --> 05:43:16,310

that sounds great

4085

05:43:22,430 --> 05:43:18,420

and then we'll have there's one more

4086

05:43:22,440 --> 05:43:42,230

fifth

4087

05:43:47,570 --> 05:43:44,510

all right Nick I'm ready for the bag on

4088

05:43:50,990 --> 05:43:47,580

my VR for my brt so we're releasing the

4089

05:43:53,080 --> 05:43:51,000

two I'm gonna throw and what is that an

4090

05:43:57,288 --> 05:43:53,090

adjustable up there

4091

05:44:07,788 --> 05:44:00,708

it's on the back okay yep it comes the

4092

05:44:17,868 --> 05:44:10,548

how many uh secure it for you

4093

05:44:24,590 --> 05:44:21,970

with my luck it's a loop now yeah

4094

05:44:27,890 --> 05:44:24,600

that's fine it's fine

4095

05:44:27,900 --> 05:44:38,090

I'm not just the pain and then we won't

4096

05:44:42,170 --> 05:44:40,430

all right dogs are closed paddles are

4097

05:44:54,830 --> 05:44:42,180

out I'm ready

4098

05:44:54,840 --> 05:44:58,850

look how much time until night pass

4099

05:45:02,448 --> 05:45:00,590

we got about 30 minutes until the next

4100

05:45:04,490 --> 05:45:02,458

night pass so we've got a little bit of

4101  
05:45:13,490 --> 05:45:04,500  
time frame oh okay

4102  
05:45:13,500 --> 05:45:18,560  
oh

4103  
05:45:18,570 --> 05:45:24,350  
[Applause]

4104  
05:45:24,360 --> 05:45:29,990  
yeah pretty

4105  
05:45:34,670 --> 05:45:32,330  
funny that you mentioned it Frank my

4106  
05:45:40,430 --> 05:45:34,680  
next task is to be for you to

4107  
05:45:44,930 --> 05:45:43,250  
um okay we'll try um I tried to pick a

4108  
05:45:46,788 --> 05:45:44,940  
few photos of Josh

4109  
05:45:49,128 --> 05:45:46,798  
earlier when I was just kind of watching

4110  
05:45:52,670 --> 05:45:49,138  
and my camera did not appear to work

4111  
05:45:55,030 --> 05:45:52,680  
that great so I can still try

4112  
05:45:55,040 --> 05:46:01,690  
yeah it's going to be best effort

4113  
05:46:05,750 --> 05:46:04,250

let's see in front I noticed mine didn't

4114

05:46:07,850 --> 05:46:05,760

do it at first but I really have to wake

4115

05:46:09,830 --> 05:46:07,860

it up okay don't know if that's hopeful

4116

05:46:11,208 --> 05:46:09,840

or not yeah I'll try

4117

05:46:13,548 --> 05:46:11,218

that would have been the first time I

4118

05:46:14,350 --> 05:46:13,558

used it so

4119

05:46:16,490 --> 05:46:14,360

um

4120

05:46:19,850 --> 05:46:16,500

uh you're doing that right so I'll go

4121

05:46:24,770 --> 05:46:22,910

so you want to pass me on to

4122

05:46:26,930 --> 05:46:24,780

this is Mission Control Houston five

4123

05:46:28,430 --> 05:46:26,940

hours 44 minutes into uh today's

4124

05:46:31,610 --> 05:46:28,440

spacewalk

4125

05:46:34,250 --> 05:46:31,620

the irosa the ISS rollout solar array

4126  
05:46:37,910 --> 05:46:34,260  
launched a week ago along with a

4127  
05:46:39,830 --> 05:46:37,920  
companion irosa on the SpaceX cargo

4128  
05:46:42,830 --> 05:46:39,840  
Dragon resupply craft to the

4129  
05:46:45,048 --> 05:46:42,840  
International Space Station the irosa

4130  
05:46:47,208 --> 05:46:45,058  
you're marked to augment power for the

4131  
05:46:48,890 --> 05:46:47,218  
3A power channel on the starboard for

4132  
05:46:51,890 --> 05:46:48,900  
truss of the International Space Station

4133  
05:46:55,368 --> 05:46:51,900  
has been installed and fully unfurled

4134  
05:46:58,670 --> 05:46:55,378  
generating perfect electrical power in

4135  
05:47:01,788 --> 05:46:58,680  
one of the smooth operations uh

4136  
05:47:05,990 --> 05:47:01,798  
seen in recent space walking history by

4137  
05:47:10,910 --> 05:47:08,150  
took about nine minutes for the array to

4138  
05:47:13,390 --> 05:47:10,920

fully unfurl once its final launch

4139

05:47:15,430 --> 05:47:13,400

restraint bolts were

4140

05:47:19,310 --> 05:47:15,440

backed away

4141

05:47:21,048 --> 05:47:19,320

slowly but surely it moved to its fully

4142

05:47:22,930 --> 05:47:21,058

unfurled position and then a pair of

4143

05:47:25,670 --> 05:47:22,940

bolts were driven to tension the blanket

4144

05:47:27,590 --> 05:47:25,680

and the electrical systems officer here

4145

05:47:31,128 --> 05:47:27,600

in Mission Control reported a short time

4146

05:47:35,750 --> 05:47:31,138

ago that the newly installed irosa is

4147

05:47:39,830 --> 05:47:35,760

generating a perfect electrical output

4148

05:47:42,708 --> 05:47:39,840

okay so I can start heading out towards

4149

05:47:45,410 --> 05:47:42,718

with that having been completed uh Frank

4150

05:47:48,708 --> 05:47:45,420

Rubio will soon make his way to the

4151  
05:47:50,628 --> 05:47:48,718  
adjacent starboard six truss to demate

4152  
05:47:53,390 --> 05:47:50,638  
once we can move into an eclipse period

4153  
05:47:56,628 --> 05:47:53,400  
into orbital Sunset about 30 minutes

4154  
05:47:57,708 --> 05:47:56,638  
from now he will demate one electrical

4155  
05:48:00,368 --> 05:47:57,718  
cable

4156  
05:48:05,690 --> 05:48:00,378  
for the 1B solar

4157  
05:48:11,868 --> 05:48:09,048  
the 1B power channel uh experienced a

4158  
05:48:13,670 --> 05:48:11,878  
power trip about 10 days ago that took

4159  
05:48:16,250 --> 05:48:13,680  
the power Channel Down

4160  
05:48:18,890 --> 05:48:16,260  
power output for station systems through

4161  
05:48:22,930 --> 05:48:18,900  
the 1B Channel seamlessly transferred

4162  
05:48:25,548 --> 05:48:22,940  
over to the 1A power Channel but to

4163  
05:48:26,708 --> 05:48:25,558

reinstate power capability for the 1B

4164

05:48:30,128 --> 05:48:26,718

channel

4165

05:48:32,868 --> 05:48:30,138

one of four power connectors will be

4166

05:48:35,868 --> 05:48:32,878

demated that will isolate the affected

4167

05:48:38,330 --> 05:48:35,878

area of the 1B solar array on the

4168

05:48:40,430 --> 05:48:38,340

starboard 6 truss that will enable

4169

05:48:43,128 --> 05:48:40,440

flight controllers here to reactivate

4170

05:48:45,830 --> 05:48:43,138

the 1B Channel albeit at about 75

4171

05:48:49,070 --> 05:48:45,840

percent of working capacity meanwhile

4172

05:48:52,670 --> 05:48:49,080

Josh Casado will do a one get ahead task

4173

05:48:55,910 --> 05:48:52,680

that will be the release of four initial

4174

05:48:57,190 --> 05:48:55,920

bolts for the other ISS rollout solar

4175

05:49:00,170 --> 05:48:57,200

array that's on a flight support

4176  
05:49:01,850 --> 05:49:00,180  
structure on the truss of the station on

4177  
05:49:04,850 --> 05:49:01,860  
the port 4 Truss

4178  
05:49:06,890 --> 05:49:04,860  
that will buy a little bit of time on

4179  
05:49:09,530 --> 05:49:06,900  
December 19th when this pair of

4180  
05:49:12,948 --> 05:49:09,540  
astronauts goes back out to install the

4181  
05:49:23,208 --> 05:49:12,958  
next ISS rollout solar array on the port

4182  
05:49:27,650 --> 05:49:25,788  
white ribbons that's a

4183  
05:49:30,708 --> 05:49:27,660  
if you can take a picture of everything

4184  
05:49:43,850 --> 05:49:30,718  
around that that'd be great uh we just

4185  
05:49:43,860 --> 05:49:49,430  
[Music]

4186  
05:49:54,470 --> 05:49:53,150  
and Frank it's uh if you move a little

4187  
05:49:56,090 --> 05:49:54,480  
bit further outboard you might be able

4188  
05:49:58,250 --> 05:49:56,100

to see it between the Legacy arrays

4189

05:49:59,990 --> 05:49:58,260

through the launcher on uh we're just

4190

05:50:02,330 --> 05:50:00,000

looking at that scene between the irosa

4191

05:50:02,340 --> 05:51:12,190

thanks

4192

05:51:18,288 --> 05:51:14,868

uh just looking forward can you guys see

4193

05:51:18,298 --> 05:51:29,510

negative

4194

05:51:37,368 --> 05:51:31,490

hey Frank we're happy from that Vantage

4195

05:51:42,770 --> 05:51:40,250

but I'm sorry Nick the uh I'm here at

4196

05:51:45,470 --> 05:51:42,780

the starboard see the cart

4197

05:51:47,150 --> 05:51:45,480

for me again about the I'm back yeah and

4198

05:51:49,190 --> 05:51:47,160

Josh you're going to go to the Port City

4199

05:51:51,708 --> 05:51:49,200

cart and then you're going to Stow the

4200

05:51:54,350 --> 05:51:51,718

crew lock bag on the Ceda cart Nader

4201

05:51:54,360 --> 05:52:02,270

coffee thank you

4202

05:52:07,010 --> 05:52:05,390

and Josh for your essay it's attempts

4203

05:53:01,430 --> 05:52:07,020

though because we're taking it back in

4204

05:53:04,250 --> 05:53:02,390

okay

4205

05:53:08,690 --> 05:53:04,260

[Music]

4206

05:53:11,208 --> 05:53:08,700

the restore 5 10 finger pushes on the

4207

05:53:14,208 --> 05:53:11,218

button not sure if I have pictures

4208

05:53:17,868 --> 05:53:14,218

copy that uh appreciate it Frank

4209

05:53:19,368 --> 05:53:17,878

um so if you want to we'd like you to uh

4210

05:53:22,190 --> 05:53:19,378

if you want to move into position for

4211

05:53:23,930 --> 05:53:22,200

your safety tether uh swap

4212

05:53:25,548 --> 05:53:23,940

um and when you're doing that we'll also

4213

05:53:32,150 --> 05:53:25,558

do a glove and half check while you're

4214

05:53:32,160 --> 05:53:38,448

it's 2006.

4215

05:53:38,458 --> 05:54:04,490

of course I'm here

4216

05:54:52,368 --> 05:54:06,530

and Frank we see in a good position so

4217

05:54:59,510 --> 05:54:56,270

I make my 55 foot better

4218

05:55:00,708 --> 05:54:59,520

is on the outboard expansion of two zero

4219

05:55:06,288 --> 05:55:00,718

zero six

4220

05:55:11,270 --> 05:55:09,110

close last second box

4221

05:55:13,850 --> 05:55:11,280

and again to verify

4222

05:55:15,890 --> 05:55:13,860

the small

4223

05:55:22,850 --> 05:55:15,900

look on that is also on my right viewing

4224

05:55:22,860 --> 05:55:25,850

okay

4225

05:55:31,490 --> 05:55:28,610

so I get a good load pass do I have a go

4226

05:55:34,190 --> 05:55:31,500

for my our federal relief

4227

05:55:39,288 --> 05:55:34,200

that's a good path you are good to

4228

05:55:54,708 --> 05:55:40,970

and we've got a call out to put that

4229

05:55:57,310 --> 05:55:55,920

okay

4230

05:56:21,788 --> 05:55:57,320

[Music]

4231

05:56:21,798 --> 05:56:44,868

comes on

4232

05:56:49,150 --> 05:56:48,170

Nick do you copy

4233

05:56:51,350 --> 05:56:49,160

foreign

4234

05:56:55,850 --> 05:56:51,360

yeah it looks like we're coming out of a

4235

05:56:55,860 --> 05:57:01,628

now

4236

05:57:06,650 --> 05:57:05,030

red my Red Hook is on two zero zero five

4237

05:57:08,330 --> 05:57:06,660

Imports connection

4238

05:57:10,250 --> 05:57:08,340

um unlocked

4239

05:57:11,930 --> 05:57:10,260

copy Frank that's a good location so

4240

05:57:15,590 --> 05:57:11,940

you're good to translate outboard to the

4241

05:57:18,530 --> 05:57:15,600

work site uh just remember to not

4242

05:57:22,250 --> 05:57:18,540

translate up uh to that location via the

4243

05:57:22,260 --> 05:57:26,090

okay

4244

05:57:31,250 --> 05:57:29,150

all right Nick I am uh at the Fortuna

4245

05:57:33,110 --> 05:57:31,260

card I've got the true lock bag mic down

4246

05:57:35,690 --> 05:57:33,120

there on the seat of carts understand

4247

05:57:38,150 --> 05:57:35,700

you need to be over at the ffe

4248

05:57:43,190 --> 05:57:38,160

and I have not studied ahead am I going

4249

05:57:48,048 --> 05:57:43,200

uh Alpha to thoroughly

4250

05:57:59,868 --> 05:57:51,048

and then it'll uh finish you on the uh

4251  
05:58:04,788 --> 05:58:01,788  
this is Mission Control Houston

4252  
05:58:07,368 --> 05:58:04,798  
approaching the six hour mark in today's

4253  
05:58:08,390 --> 05:58:07,378  
space walk by Josh cassida and Frank

4254  
05:58:10,670 --> 05:58:08,400  
Rubio

4255  
05:58:13,368 --> 05:58:10,680  
the major objective the installation

4256  
05:58:15,890 --> 05:58:13,378  
deployment and activation of the first

4257  
05:58:18,230 --> 05:58:15,900  
of two ISS rollout solar arrays

4258  
05:58:21,948 --> 05:58:18,240  
delivered a week ago on the SpaceX cargo

4259  
05:58:24,250 --> 05:58:21,958  
Dragon resupply flight is now fully

4260  
05:58:26,868 --> 05:58:24,260  
activated and generating electricity

4261  
05:58:29,090 --> 05:58:26,878  
tied into the electrical system for the

4262  
05:58:32,750 --> 05:58:29,100  
3A power channel on the International

4263  
05:58:34,970 --> 05:58:32,760

Space Station's starboard for truss

4264

05:58:37,670 --> 05:58:34,980

there's a good view of Josh cassida

4265

05:58:42,890 --> 05:58:37,680

whose next task will be a get ahead uh

4266

05:58:46,128 --> 05:58:42,900

task to back away four bolts to release

4267

05:58:48,650 --> 05:58:46,138

four bolts holding uh the second of the

4268

05:58:50,810 --> 05:58:48,660

two ISS roll out a solar arrays on

4269

05:58:52,670 --> 05:58:50,820

Flight Support equipment this time on

4270

05:58:55,548 --> 05:58:52,680

the opposite side of the backbone on the

4271

05:58:57,770 --> 05:58:55,558

port for truss of the station this is

4272

05:59:00,110 --> 05:58:57,780

get ahead work in advance of cassida and

4273

05:59:02,690 --> 05:59:00,120

Rubio replicating the work they did

4274

05:59:08,510 --> 05:59:02,700

today during the next spacewalk that

4275

05:59:13,970 --> 05:59:11,330

Meanwhile we're just under 20 minutes

4276  
05:59:17,330 --> 05:59:13,980  
away from moving into an orbital Sunset

4277  
05:59:20,208 --> 05:59:17,340  
into Eclipse as it is called at which

4278  
05:59:23,270 --> 05:59:20,218  
point Frank Rubio will be uh at the

4279  
05:59:26,030 --> 05:59:23,280  
starboard six truss at an electrical

4280  
05:59:28,368 --> 05:59:26,040  
panel for the 1B power Channel

4281  
05:59:31,010 --> 05:59:28,378  
for that solar array

4282  
05:59:33,830 --> 05:59:31,020  
he will disconnect one of four

4283  
05:59:36,410 --> 05:59:33,840  
electrical connectors the mate one of

4284  
05:59:39,110 --> 05:59:36,420  
four electrical connectors to isolate an

4285  
05:59:44,030 --> 05:59:39,120  
affected portion of the 1B power Channel

4286  
05:59:47,150 --> 05:59:44,040  
solar array that went down about 10 days

4287  
05:59:49,010 --> 05:59:47,160  
ago due to a power trip by disconnecting

4288  
05:59:51,048 --> 05:59:49,020

or demating one of the four electrical

4289

05:59:53,390 --> 05:59:51,058

connectors it will isolate the affected

4290

05:59:55,250 --> 05:59:53,400

portion of that array and enable flight

4291

05:59:58,070 --> 05:59:55,260

controllers here in Mission Control to

4292

06:00:00,410 --> 05:59:58,080

reactivate the 1B Channel bringing it

4293

06:00:05,208 --> 06:00:00,420

back to about 75 percent of its uh

4294

06:00:10,610 --> 06:00:08,090

the 1B Channel itself will be augmented

4295

06:00:13,190 --> 06:00:10,620

with an ISS rollout in solar array next

4296

06:00:17,090 --> 06:00:13,200

year on a future delivery of the next

4297

06:00:23,090 --> 06:00:17,100

pair of solar iOS solar arrays on the

4298

06:00:26,150 --> 06:00:24,590

thank you keep an eye on them I

4299

06:00:28,010 --> 06:00:26,160

appreciate it

4300

06:00:29,448 --> 06:00:28,020

just so you know you can

4301  
06:00:33,110 --> 06:00:29,458  
that handrail that you're holding right

4302  
06:00:33,120 --> 06:00:37,070  
okay

4303  
06:00:57,010 --> 06:00:38,810  
yeah both those handrails on the root

4304  
06:00:57,020 --> 06:01:01,548  
okay like I am at the works right

4305  
06:01:06,230 --> 06:01:03,470  
copy Frank and just to let you know

4306  
06:01:08,390 --> 06:01:06,240  
we've got about uh

4307  
06:01:12,170 --> 06:01:08,400  
below more than 15 minutes until the

4308  
06:01:18,708 --> 06:01:14,090  
all right sounds good I'm looking for

4309  
06:01:18,718 --> 06:01:23,288  
and that's affirmative top of 23.

4310  
06:01:29,690 --> 06:01:25,850  
I see it

4311  
06:01:34,010 --> 06:01:32,448  
Joshy copy I got you now sorry that last

4312  
06:01:38,570 --> 06:01:34,020  
one was broken for some reason I don't

4313  
06:01:46,070 --> 06:01:42,830

I understand it was Alpha Four

4314

06:01:48,288 --> 06:01:46,080  
and it was counterclockwise two

4315

06:01:51,830 --> 06:01:48,298  
yeah I didn't give you that but that's

4316

06:01:54,170 --> 06:01:51,840  
the answer uh Alpha 4 counter two

4317

06:01:59,390 --> 06:01:54,180  
it's going to be 10 to 13 turns and

4318

06:02:03,288 --> 06:02:01,310  
sounds good I see him

4319

06:02:05,868 --> 06:02:03,298  
and he did give it to me just five hours

4320

06:02:05,878 --> 06:02:16,128  
true very true looks really familiar

4321

06:02:21,230 --> 06:02:18,110  
hey can you guys see the moon and the

4322

06:03:11,868 --> 06:02:21,240  
earth and the hecka is that unbelievable

4323

06:03:17,208 --> 06:03:15,288  
and Frank Josh just for your essay uh

4324

06:03:20,090 --> 06:03:17,218  
looks like we might be in and out of

4325

06:03:22,070 --> 06:03:20,100  
s-ban uh for the next couple minutes uh

4326  
06:03:24,708 --> 06:03:22,080  
we we should maintain loss but uh could

4327  
06:03:28,670 --> 06:03:26,448  
okay copy that

4328  
06:03:32,868 --> 06:03:28,680  
property understand on the go for both

4329  
06:03:36,970 --> 06:03:32,878  
R1 and R2 10 seconds to swing them 90

4330  
06:03:41,868 --> 06:03:40,070  
yep that's a correct it's uh once

4331  
06:03:45,110 --> 06:03:41,878  
they're released you rotate them slowly

4332  
06:03:47,150 --> 06:03:45,120  
10 seconds for 90 degrees uh expect 10

4333  
06:03:53,270 --> 06:03:47,160  
to 13 turns and the bolts pop out when

4334  
06:03:59,330 --> 06:03:56,750  
all right I've got Alpha Four

4335  
06:04:01,970 --> 06:03:59,340  
hundred clockwise too

4336  
06:04:05,690 --> 06:04:01,980  
I'm very hard to stay clear of

4337  
06:04:07,368 --> 06:04:05,700  
everything here that's white of course

4338  
06:04:10,610 --> 06:04:07,378

a little bit more of a challenge when

4339

06:04:15,590 --> 06:04:12,650

Y and those are good settings you're

4340

06:04:15,600 --> 06:05:30,430

okay thanks

4341

06:05:30,440 --> 06:05:35,530

R1 is released

4342

06:05:35,540 --> 06:05:41,150

copy a good release on R1 turn count

4343

06:06:17,990 --> 06:05:45,230

that was 10 turns

4344

06:06:23,270 --> 06:06:21,110

and Frank just a heads up

4345

06:06:25,368 --> 06:06:23,280

around 12 minutes until we get to that

4346

06:06:28,910 --> 06:06:25,378

eclipse and you can start the work on

4347

06:06:31,190 --> 06:06:28,920

the connector itself before that we'd

4348

06:06:33,830 --> 06:06:31,200

like to get a glove half and Gauntlet

4349

06:06:33,840 --> 06:06:37,970

okay same work

4350

06:06:44,628 --> 06:06:41,030

there's 10 and a half turns and are on

4351

06:06:47,208 --> 06:06:44,638

I'm sorry R2 is propped out

4352

06:06:49,548 --> 06:06:47,218

copy Josh good release on R2

4353

06:06:53,628 --> 06:06:49,558

so when you're in a position you can

4354

06:07:04,250 --> 06:06:53,638

rotate those beam those rollers

4355

06:07:08,628 --> 06:07:06,890

it's the only change to my gloves is on

4356

06:07:10,730 --> 06:07:08,638

my right

4357

06:07:12,830 --> 06:07:10,740

finger

4358

06:07:16,310 --> 06:07:12,840

I have a small little neck in the rubber

4359

06:07:20,270 --> 06:07:16,320

uh it doesn't go all the way through

4360

06:07:24,170 --> 06:07:22,430

no changes to my glove dry hat and

4361

06:07:26,628 --> 06:07:24,180

dominance are down

4362

06:07:29,390 --> 06:07:26,638

copy Frank thanks for the checks

4363

06:07:31,190 --> 06:07:29,400

um and so you can go ahead and we're

4364

06:07:34,548 --> 06:07:31,200

going to put that short wire tie on the

4365

06:08:16,448 --> 06:07:34,558

p23 cable uh with the three twists so

4366

06:08:16,458 --> 06:08:21,350

Josh cassida moving uh

4367

06:08:26,990 --> 06:08:24,590

the boom deployment mechanisms

4368

06:08:30,230 --> 06:08:27,000

into the correct rotational position

4369

06:08:33,708 --> 06:08:30,240

after uh releasing four bolts as a get

4370

06:08:37,128 --> 06:08:33,718

ahead task on the second set of ISS

4371

06:08:39,830 --> 06:08:37,138

rollout solar arrays on the P4 truss or

4372

06:08:41,868 --> 06:08:39,840

earmark for installation on the P4 truss

4373

06:08:44,510 --> 06:08:41,878

of the International Space Station on

4374

06:08:46,810 --> 06:08:44,520

December 19th when he and Frank Rubio

4375

06:08:50,208 --> 06:08:46,820

conduct their next spacewalk

4376  
06:08:50,990 --> 06:08:50,218  
to augment the 4A power channel on the

4377  
06:08:52,610 --> 06:08:51,000  
station

4378  
06:08:54,288 --> 06:08:52,620  
finish that wire tie that's essentially

4379  
06:08:58,788 --> 06:08:54,298  
what we're going to do is just wait for

4380  
06:08:58,798 --> 06:09:19,250  
I didn't want that

4381  
06:09:19,260 --> 06:09:22,850  
and Frank standby

4382  
06:09:22,860 --> 06:09:28,750  
foreign

4383  
06:09:28,760 --> 06:09:34,250  
s are swung out

4384  
06:09:41,690 --> 06:09:37,190  
and move into R3

4385  
06:09:44,868 --> 06:09:42,890  
okay

4386  
06:09:50,110 --> 06:09:44,878  
give me settings for our three when you

4387  
06:09:55,548 --> 06:09:52,730  
and Frank you can put it on the cable

4388  
06:09:58,250 --> 06:09:55,558

above it that you're not gonna demate

4389

06:10:10,788 --> 06:09:58,260

it's a it's the small connector that's

4390

06:10:16,010 --> 06:10:14,030

and Frank back with you you can put that

4391

06:10:17,390 --> 06:10:16,020

wire tie on the small connector that's

4392

06:10:19,190 --> 06:10:17,400

above the one that you're going to

4393

06:10:20,628 --> 06:10:19,200

demate so on one that you're not

4394

06:10:22,548 --> 06:10:20,638

demating

4395

06:10:24,650 --> 06:10:22,558

this is Mission Control Houston a few

4396

06:10:26,750 --> 06:10:24,660

minutes ago Josh Casada mentioned uh

4397

06:10:29,810 --> 06:10:26,760

that he could see uh the earth below and

4398

06:10:31,390 --> 06:10:29,820

the moon above him in his bird's eye

4399

06:10:33,470 --> 06:10:31,400

perch

4400

06:10:36,230 --> 06:10:33,480

while working outside of the

4401  
06:10:39,350 --> 06:10:36,240  
International Space Station here's a

4402  
06:10:41,330 --> 06:10:39,360  
real-time Telemetry driven animation of

4403  
06:10:43,368 --> 06:10:41,340  
the Orion spacecraft

4404  
06:10:45,350 --> 06:10:43,378  
and it's a distance to the Moon of about

4405  
06:10:47,930 --> 06:10:45,360  
42 000 miles

4406  
06:10:50,868 --> 06:10:47,940  
As It prepares for its return powered

4407  
06:10:53,208 --> 06:10:50,878  
flyby an engine burn that will occur

4408  
06:10:57,288 --> 06:10:53,218  
behind the moon on Monday morning at

4409  
06:11:00,948 --> 06:10:57,298  
about 10 43 a.m central time to propel

4410  
06:11:03,230 --> 06:11:00,958  
it back around from the back side of the

4411  
06:11:05,628 --> 06:11:03,240  
moon on the final leg of the journey

4412  
06:11:08,750 --> 06:11:05,638  
back to Earth and a splash down a week

4413  
06:11:11,628 --> 06:11:08,760

from tomorrow in the Pacific Ocean at 11

4414

06:11:14,990 --> 06:11:11,638

40 a.m Central Time

4415

06:11:17,150 --> 06:11:15,000

Orion is a functioning uh nearly to

4416

06:11:19,368 --> 06:11:17,160

Perfection all of its systems in

4417

06:11:22,070 --> 06:11:19,378

excellent shape as it exited its distant

4418

06:11:24,288 --> 06:11:22,080

retrograde orbit our coverage of the

4419

06:11:26,628 --> 06:11:24,298

return powered flyby of the Moon by the

4420

06:11:29,448 --> 06:11:26,638

unpiloted Orion spacecraft on the

4421

06:11:32,510 --> 06:11:29,458

Artemis One mission will begin on Monday

4422

06:11:35,150 --> 06:11:32,520

morning at 8 A.M Central Time 9 A.M

4423

06:11:38,090 --> 06:11:35,160

eastern time through the return powered

4424

06:11:40,610 --> 06:11:38,100

flyby of the Moon and we will have a

4425

06:11:43,190 --> 06:11:40,620

briefing on Monday afternoon to discuss

4426  
06:11:46,368 --> 06:11:43,200  
all of the particulars regarding the

4427  
06:11:49,128 --> 06:11:46,378  
final major maneuver for Orion prior to

4428  
06:11:51,948 --> 06:11:49,138  
Splashdown that briefing planned for 4

4429  
06:12:00,650 --> 06:11:51,958  
pm Central Time 5 PM eastern time on

4430  
06:12:05,448 --> 06:12:03,288  
all right Alpha three clockwise three

4431  
06:12:08,868 --> 06:12:05,458  
for R3

4432  
06:12:08,878 --> 06:12:19,010  
awesome thanks

4433  
06:12:23,810 --> 06:12:20,930  
and I thought our wire size on top of

4434  
06:12:23,820 --> 06:12:41,868  
copy Frank

4435  
06:12:49,850 --> 06:12:43,970  
you guys want me to drive some mixed

4436  
06:13:00,350 --> 06:12:51,650  
thanks for the offer Frank but we're

4437  
06:13:00,360 --> 06:13:04,570  
enjoy The View

4438  
06:13:09,170 --> 06:13:07,128

about five and a half minutes away from

4439

06:13:10,910 --> 06:13:09,180

entering an orbital Sunset over the

4440

06:13:13,850 --> 06:13:10,920

northeastern Atlantic the International

4441

06:13:16,368 --> 06:13:13,860

Space Station moving from Northwest to

4442

06:13:18,770 --> 06:13:16,378

Southeast and an altitude of about 260

4443

06:13:22,128 --> 06:13:18,780

statute miles

4444

06:13:23,990 --> 06:13:22,138

Frank Rubio is uh at the starboard six

4445

06:13:27,410 --> 06:13:24,000

Trust of the International Space Station

4446

06:13:29,948 --> 06:13:27,420

and once we move into Eclipse he will

4447

06:13:33,770 --> 06:13:29,958

demate one of four electrical connectors

4448

06:13:35,448 --> 06:13:33,780

to isolate the affected area of the 1B

4449

06:13:38,448 --> 06:13:35,458

power Channel

4450

06:13:41,208 --> 06:13:38,458

uh and that solar array that generates

4451  
06:13:43,250 --> 06:13:41,218  
electricity out on the starboard six

4452  
06:13:45,650 --> 06:13:43,260  
truss

4453  
06:13:49,730 --> 06:13:45,660  
that experienced a power trip about 10

4454  
06:13:51,350 --> 06:13:49,740  
days ago taking the 1B Channel offline

4455  
06:13:53,270 --> 06:13:51,360  
the demating of that electrical

4456  
06:13:56,690 --> 06:13:53,280  
connector will enable flight controllers

4457  
06:14:00,170 --> 06:13:56,700  
here to reactivate the 1B Channel and

4458  
06:14:44,810 --> 06:14:00,180  
bring it back up to about 75 percent of

4459  
06:14:44,820 --> 06:15:52,310  
um

4460  
06:15:52,320 --> 06:16:21,500  
foreign

4461  
06:16:26,330 --> 06:16:22,730  
[Applause]

4462  
06:16:27,708 --> 06:16:26,340  
sorry I'm trying really hard

4463  
06:16:30,250 --> 06:16:27,718

um let's just confirm again that was

4464

06:16:32,868 --> 06:16:30,260

Alpha three

4465

06:16:39,048 --> 06:16:32,878

counterclockwise Street

4466

06:16:43,910 --> 06:16:41,208

sorry sorry Alpha three clockwise three

4467

06:16:46,190 --> 06:16:43,920

that's what I've got

4468

06:16:48,230 --> 06:16:46,200

yep and understand you got about 140

4469

06:16:50,810 --> 06:16:48,240

turns in uh it's not possible to

4470

06:16:52,128 --> 06:16:50,820

overturn this and from your Vantage

4471

06:16:54,530 --> 06:16:52,138

Point you may be able to see the turkey

4472

06:16:57,350 --> 06:16:54,540

timer come out when

4473

06:16:59,990 --> 06:16:57,360

um when it releases

4474

06:17:03,530 --> 06:17:00,000

so I think I definitely will be able to

4475

06:17:05,208 --> 06:17:03,540

see it and thanks for the back up there

4476

06:17:07,670 --> 06:17:05,218

um I'll keep going and make sure I get

4477

06:17:09,650 --> 06:17:07,680

there at least 2 45 and sorry to call

4478

06:17:16,490 --> 06:17:09,660

our move sorry yeah let's get back up

4479

06:17:21,770 --> 06:17:19,310

and copy Josh and uh you're watching uh

4480

06:17:23,810 --> 06:17:21,780

Josh cassida as he talks to uh spacewalk

4481

06:17:25,270 --> 06:17:23,820

Communicator Nick Hague here in Mission

4482

06:17:28,490 --> 06:17:25,280

Control

4483

06:17:30,530 --> 06:17:28,500

they are uh Cassidy is in the final

4484

06:17:32,930 --> 06:17:30,540

stages of

4485

06:17:36,170 --> 06:17:32,940

releasing bolts

4486

06:17:38,690 --> 06:17:36,180

the first four bolts for the other ISS

4487

06:17:40,730 --> 06:17:38,700

rollout solar array that was delivered a

4488

06:17:44,030 --> 06:17:40,740

week ago on spacex's mission to the

4489

06:17:45,650 --> 06:17:44,040

station to deliver cargo

4490

06:17:48,410 --> 06:17:45,660

this uh

4491

06:17:51,170 --> 06:17:48,420

irosa that cassid is working on as a get

4492

06:17:53,690 --> 06:17:51,180

ahead task will save some time on the

4493

06:17:57,110 --> 06:17:53,700

next spacewalk the two astronauts

4494

06:17:59,750 --> 06:17:57,120

perform on December 19th this irosa will

4495

06:18:01,190 --> 06:17:59,760

move to the P4 truss of the

4496

06:18:03,530 --> 06:18:01,200

International Space Station to be

4497

06:18:20,750 --> 06:18:03,540

installed to augment power for the 4A

4498

06:18:25,970 --> 06:18:22,510

foreign

4499

06:18:28,010 --> 06:18:25,980

just watch your helmet with the uh that

4500

06:18:33,230 --> 06:18:28,020

skirt hanging off by Rosa you've touched

4501

06:18:36,110 --> 06:18:34,730

thank you for the heads up I thought it

4502

06:18:37,250 --> 06:18:36,120

was clear I appreciate you backing me up

4503

06:18:39,230 --> 06:18:37,260

there

4504

06:18:41,390 --> 06:18:39,240

right that's 200 frames how you doing

4505

06:18:43,548 --> 06:18:41,400

out there I'm doing well how are you

4506

06:18:45,110 --> 06:18:43,558

okay counting I hear you counting I

4507

06:18:49,250 --> 06:18:45,120

didn't want to say hi because Monday or

4508

06:18:56,270 --> 06:18:52,850

okay Frank uh we are go for D mate so

4509

06:18:59,510 --> 06:18:56,280

you're gonna demate Papa 23 from panel

4510

06:18:59,520 --> 06:19:04,190

hey Mark

4511

06:19:09,770 --> 06:19:07,010

and Rubio is about to demate the

4512

06:19:19,368 --> 06:19:09,780

electrical connector for the 1B power

4513

06:19:29,090 --> 06:19:22,610

and proper 23 is demated from panel 23

4514

06:19:45,470 --> 06:19:32,150

so you are go to cap the uh

4515

06:19:56,330 --> 06:19:51,170

okay that is over 245. and I see a

4516

06:19:59,570 --> 06:19:58,490

the demating of this electrical

4517

06:20:02,570 --> 06:19:59,580

connector

4518

06:20:06,110 --> 06:20:02,580

will isolate the portion of the 1B

4519

06:20:08,208 --> 06:20:06,120

power Channel and the solar array on the

4520

06:20:10,788 --> 06:20:08,218

starboard 6 Truss

4521

06:20:13,250 --> 06:20:10,798

that experienced a power trip about 10

4522

06:20:15,590 --> 06:20:13,260

days ago and enable flight controllers

4523

06:20:17,208 --> 06:20:15,600

here to reactivate the 1B channel to

4524

06:20:20,570 --> 06:20:17,218

about 75 percent of its working

4525

06:20:22,730 --> 06:20:20,580

capability assuming no issue with the

4526

06:20:24,890 --> 06:20:22,740

reactivation of 1B

4527

06:20:27,530 --> 06:20:24,900

this should eliminate the need for

4528

06:20:31,670 --> 06:20:27,540

another spacewalk this Wednesday to

4529

06:20:34,670 --> 06:20:31,680

clean up any uh work not completed today

4530

06:20:36,410 --> 06:20:34,680

and over so for Frankie we're getting

4531

06:20:41,990 --> 06:20:36,420

ready to mate and I think Josh you had

4532

06:20:45,530 --> 06:20:44,090

thank you I have a turkey timer on the

4533

06:20:51,048 --> 06:20:45,540

left and if you want although

4534

06:20:55,670 --> 06:20:53,448

hey Josh it's uh completely your call

4535

06:20:57,770 --> 06:20:55,680

we're happy to stop here and start

4536

06:20:59,868 --> 06:20:57,780

working our way back in

4537

06:21:05,990 --> 06:20:59,878

um understand it's it's extra effort

4538

06:21:10,548 --> 06:21:08,150

um I'll be honest I'm here

4539

06:21:12,230 --> 06:21:10,558

to not come back

4540

06:21:13,548 --> 06:21:12,240

you don't mind we'll just knock out R4

4541

06:21:16,150 --> 06:21:13,558

now

4542

06:21:23,448 --> 06:21:16,160

okay copy that so it's Alpha three

4543

06:21:23,458 --> 06:21:26,650

three

4544

06:21:31,490 --> 06:21:28,970

245 turns

4545

06:21:33,470 --> 06:21:31,500

I'm going to make sure that I stay clear

4546

06:21:39,590 --> 06:21:33,480

of anything White

4547

06:21:45,410 --> 06:21:41,750

all right Nick so um

4548

06:21:50,810 --> 06:21:48,410

and the cable is on the short wired side

4549

06:21:54,410 --> 06:21:50,820

to top attempt

4550

06:21:55,730 --> 06:21:54,420

yep copy that Frank and uh get guys down

4551  
06:22:04,070 --> 06:21:55,740  
here that want to make sure that we got

4552  
06:22:06,890 --> 06:22:06,288  
Kathy great job

4553  
06:22:08,810 --> 06:22:06,900  
um

4554  
06:22:32,930 --> 06:22:08,820  
so you're good to translate back in

4555  
06:22:35,930 --> 06:22:34,788  
and Frank it's a little tough for us to

4556  
06:22:37,910 --> 06:22:35,940  
tell but we just want to give you some

4557  
06:22:39,410 --> 06:22:37,920  
heads up about your tether config it may

4558  
06:22:40,910 --> 06:22:39,420  
be going behind your back tough to tell

4559  
06:22:45,410 --> 06:22:40,920  
because it's dark out there but just a

4560  
06:22:45,420 --> 06:22:50,990  
okay I appreciate that

4561  
06:22:56,390 --> 06:22:53,030  
let me get back to the iea and I'll try

4562  
06:22:56,400 --> 06:23:43,368  
copy

4563  
06:23:43,378 --> 06:24:03,170

100.

4564

06:24:03,180 --> 06:24:46,390

assistant

4565

06:24:51,288 --> 06:24:48,530

it's just uh

4566

06:24:55,310 --> 06:24:51,298

kind of on the other side of the pg2

4567

06:24:59,090 --> 06:24:57,048

okay copy that

4568

06:25:23,830 --> 06:24:59,100

so you're heading back to the uh to do

4569

06:25:28,850 --> 06:25:26,868

and Frank Josh now that uh we've got all

4570

06:25:30,350 --> 06:25:28,860

those connector Ops done uh we're gonna

4571

06:25:36,830 --> 06:25:30,360

try to turn on some external lights to

4572

06:25:36,840 --> 06:26:13,788

I appreciate it

4573

06:26:17,470 --> 06:26:16,190

uh

4574

06:26:20,270 --> 06:26:17,480

all right

4575

06:26:24,010 --> 06:26:20,280

245 with my count

4576

06:26:28,548 --> 06:26:26,390

243 and a half

4577

06:26:33,708 --> 06:26:28,558

do you see a turkey farmer

4578

06:26:41,628 --> 06:26:35,390

and copy Josh you said you saw a turkey

4579

06:26:41,638 --> 06:26:50,090

that's a good release then

4580

06:26:55,368 --> 06:26:52,490

like I'm not I'm back at two zero zero

4581

06:26:55,378 --> 06:26:59,330

okay Frank you're gonna

4582

06:27:05,690 --> 06:27:01,190

you're gonna swap back onto your tether

4583

06:27:05,700 --> 06:27:17,448

it up

4584

06:27:22,548 --> 06:27:19,490

Josh thanks for the work on those that's

4585

06:27:24,048 --> 06:27:22,558

a huge get ahead and uh so once you Stow

4586

06:27:29,990 --> 06:27:24,058

your PGT you're going to go back and

4587

06:27:36,230 --> 06:27:32,270

okay sounds good

4588

06:27:36,240 --> 06:28:02,150

Sun's felt even if you did count

4589

06:28:06,830 --> 06:28:03,948

this is Mission Control Houston six

4590

06:28:09,708 --> 06:28:06,840

hours 26 minutes into today's space walk

4591

06:28:12,048 --> 06:28:09,718

by Josh cassida and Frank Rubio

4592

06:28:14,750 --> 06:28:12,058

uh the two astronauts have wrapped up

4593

06:28:18,230 --> 06:28:14,760

all of their work for today the

4594

06:28:21,048 --> 06:28:18,240

installation of the ISS rollout solar

4595

06:28:23,990 --> 06:28:21,058

array on the starboard for trust to

4596

06:28:26,150 --> 06:28:24,000

augment power for the 3A power channel

4597

06:28:29,030 --> 06:28:26,160

on the International Space Station it is

4598

06:28:30,410 --> 06:28:29,040

up and running generating electricity in

4599

06:28:32,750 --> 06:28:30,420

excellent fashion

4600

06:28:35,390 --> 06:28:32,760

Frank Rubio recently in the last few

4601  
06:28:37,990 --> 06:28:35,400  
minutes demated one of four electrical

4602  
06:28:41,628 --> 06:28:38,000  
connectors at the starboard six truss

4603  
06:28:43,128 --> 06:28:41,638  
for the 1B power channel that was

4604  
06:28:46,070 --> 06:28:43,138  
affected

4605  
06:28:48,530 --> 06:28:46,080  
by a power trip about 10 days ago taking

4606  
06:28:50,628 --> 06:28:48,540  
down that power Channel it is in the

4607  
06:28:53,150 --> 06:28:50,638  
process of being reactivated right now

4608  
06:28:56,150 --> 06:28:53,160  
by the electrical systems officer here

4609  
06:28:57,590 --> 06:28:56,160  
in Mission Control once reactivated it

4610  
06:29:01,128 --> 06:28:57,600  
should be back up and running to about

4611  
06:29:04,970 --> 06:29:01,138  
75 percent of its uh Power capability

4612  
06:29:07,548 --> 06:29:04,980  
it will receive in of its own and ISS

4613  
06:29:10,090 --> 06:29:07,558

roll out solar array next year the next

4614

06:29:13,490 --> 06:29:10,100

pair to be delivered on a future SpaceX

4615

06:29:16,548 --> 06:29:13,500

cargo delivery mission

4616

06:29:18,830 --> 06:29:16,558

the two astronauts will soon begin

4617

06:29:21,590 --> 06:29:18,840

cleanup work and make their way back to

4618

06:29:33,170 --> 06:29:21,600

the quest airlock to complete today's

4619

06:29:33,180 --> 06:29:39,128

foreign

4620

06:29:46,850 --> 06:29:43,310

cassida released a quartet of bolts as a

4621

06:29:48,590 --> 06:29:46,860

get ahead task on the next ISS rollout

4622

06:29:50,868 --> 06:29:48,600

solar array to be installed at the

4623

06:29:53,628 --> 06:29:50,878

station that was sitting on a flight

4624

06:29:55,970 --> 06:29:53,638

support equipment attachment device on

4625

06:29:58,670 --> 06:29:55,980

the truss of the station that get ahead

4626

06:30:00,650 --> 06:29:58,680

work will reduce the workload for

4627

06:30:03,590 --> 06:30:00,660

cassida and Rubio when they Venture back

4628

06:30:07,070 --> 06:30:03,600

outside the station on December 19th to

4629

06:30:09,890 --> 06:30:07,080

install that next ISS rollout solar

4630

06:30:16,190 --> 06:30:09,900

array on the port 4 truss of the station

4631

06:30:16,200 --> 06:30:56,030

um

4632

06:31:02,048 --> 06:30:59,270

hey Frank I am back at the Fort see the

4633

06:31:04,788 --> 06:31:02,058

cart and grabbing the

4634

06:31:07,250 --> 06:31:04,798

I'm just working on this unfortunately

4635

06:31:09,830 --> 06:31:07,260

this camera is getting in the way but

4636

06:31:11,510 --> 06:31:09,840

before I get to come back

4637

06:31:13,430 --> 06:31:11,520

you and I both know that cameras can

4638

06:31:15,110 --> 06:31:13,440

complicate life do you need any uh some

4639

06:31:17,270 --> 06:31:15,120

help

4640

06:31:20,230 --> 06:31:17,280

uh no

4641

06:31:23,570 --> 06:31:20,240

one second here

4642

06:31:35,270 --> 06:31:23,580

let me explain it okay I'm gonna hang

4643

06:31:35,280 --> 06:31:42,470

foreign

4644

06:31:48,170 --> 06:31:44,510

how much longer do we have in this might

4645

06:31:48,180 --> 06:31:53,690

17 minutes

4646

06:31:53,700 --> 06:32:18,530

thank you

4647

06:32:18,540 --> 06:32:26,540

all right

4648

06:32:26,550 --> 06:32:44,628

[Music]

4649

06:32:56,690 --> 06:32:49,070

give you one cooling of 3.5

4650

06:32:56,700 --> 06:32:59,510

all right Mike

4651  
06:33:05,990 --> 06:33:01,910  
run okay

4652  
06:33:06,000 --> 06:33:10,310  
unlocked

4653  
06:33:35,350 --> 06:33:13,128  
copy Frank that's great

4654  
06:33:44,990 --> 06:33:37,610  
is that correct

4655  
06:33:45,000 --> 06:34:09,110  
55 photos picked up

4656  
06:34:11,628 --> 06:34:10,610  
and Frank when you're ready to pick up

4657  
06:34:14,090 --> 06:34:11,638  
your local you're going to translate

4658  
06:34:17,570 --> 06:34:14,100  
inboard Josh is in the process of

4659  
06:34:19,310 --> 06:34:17,580  
putting the crew lock bag him on his brt

4660  
06:34:23,690 --> 06:34:19,320  
and he'll lead the way back to the

4661  
06:34:28,368 --> 06:34:26,030  
okay copy that

4662  
06:34:29,810 --> 06:34:28,378  
I see a great generation path picking up

4663  
06:34:36,170 --> 06:34:29,820

my vocals just cleaning stuff up a

4664

06:34:36,180 --> 06:34:50,510

all right Josh I'm on my way

4665

06:34:56,270 --> 06:34:53,930

all right I've got a brt rep on the bag

4666

06:35:21,948 --> 06:34:56,280

I'm gonna release the

4667

06:35:21,958 --> 06:35:32,208

and get all the clothes pedals are out

4668

06:35:36,830 --> 06:35:34,430

and Josh real quick looks like one of

4669

06:35:42,708 --> 06:35:36,840

the door tabs May uh coat my open don't

4670

06:35:53,930 --> 06:35:46,310

thank you so much

4671

06:36:03,650 --> 06:35:56,570

we maximize the capacity of that dog or

4672

06:36:12,230 --> 06:36:05,868

thanks for that touch there

4673

06:36:12,240 --> 06:36:40,390

foreign

4674

06:36:40,400 --> 06:36:44,270

[Applause]

4675

06:36:44,280 --> 06:36:49,310

Nick

4676  
06:36:52,548 --> 06:36:50,868  
you've got green hooks down you'll pick

4677  
06:36:56,090 --> 06:36:52,558  
up along the way

4678  
06:36:56,100 --> 06:37:02,990  
thank you

4679  
06:37:06,650 --> 06:37:04,490  
and Frank as you're making your way over

4680  
06:37:16,670 --> 06:37:06,660  
here to your green hook uh we'll come

4681  
06:37:20,868 --> 06:37:18,288  
yeah Frank I was just going to tell you

4682  
06:37:22,670 --> 06:37:20,878  
to hit the brake release on both of the

4683  
06:37:42,590 --> 06:37:22,680  
seat of carts as you're translating by

4684  
06:37:46,250 --> 06:37:45,110  
okay I've had it twice on the starboard

4685  
06:39:11,330 --> 06:37:46,260  
cuticle

4686  
06:39:17,570 --> 06:39:14,810  
that's our 2024 Peter Park

4687  
06:39:21,890 --> 06:39:17,580  
copy Frank thank you I appreciate it

4688  
06:39:21,900 --> 06:39:26,208

it's great

4689

06:39:26,218 --> 06:39:31,850

Sam back to the airlock

4690

06:39:35,150 --> 06:39:33,470

copy Josh

4691

06:39:40,810 --> 06:39:35,160

and Frank looks like he might be a

4692

06:39:40,820 --> 06:40:57,230

I saw that heading back in

4693

06:41:00,048 --> 06:40:58,850

all right like I have my green hook on

4694

06:41:02,810 --> 06:41:00,058

my red wheel

4695

06:41:07,190 --> 06:41:02,820

300 remark

4696

06:41:09,530 --> 06:41:07,200

copy Frank it's a good config and as you

4697

06:41:10,850 --> 06:41:09,540

translate back by that Port Ceda card if

4698

06:41:57,270 --> 06:41:10,860

you could hit the break release again

4699

06:42:11,110 --> 06:41:59,868

[Music]

4700

06:42:16,250 --> 06:42:14,208

Josh see you down at the airlock Frank's

4701  
06:42:18,830 --> 06:42:16,260  
on his way in just thought I'd give you

4702  
06:42:20,990 --> 06:42:18,840  
guys the uh the general pulse of the

4703  
06:42:23,090 --> 06:42:21,000  
control room which is a bunch of smiling

4704  
06:42:26,090 --> 06:42:23,100  
faces people are super excited about

4705  
06:42:32,628 --> 06:42:26,100  
however how much we got done today so

4706  
06:42:37,368 --> 06:42:35,208  
thank you so much you got two giant

4707  
06:42:39,410 --> 06:42:37,378  
Smiles out here as well

4708  
06:42:40,970 --> 06:42:39,420  
um what an amazing team

4709  
06:42:42,890 --> 06:42:40,980  
you guys

4710  
06:42:45,048 --> 06:42:42,900  
definitely deserve your Sunday off

4711  
06:42:47,030 --> 06:42:45,058  
that's for sure

4712  
06:42:48,770 --> 06:42:47,040  
Frank what do you think we uh maybe used

4713  
06:42:53,030 --> 06:42:48,780

this new station power to catch up on

4714

06:42:57,530 --> 06:42:55,850

games are so much weeks but you know

4715

06:43:00,470 --> 06:42:57,540

people give our goal or anything maybe

4716

06:43:10,548 --> 06:43:02,330

if that wasn't my fault I didn't know

4717

06:43:10,558 --> 06:43:13,850

taking notes

4718

06:43:16,788 --> 06:43:15,830

I'm about to see this person

4719

06:43:19,010 --> 06:43:16,798

happy

4720

06:43:21,350 --> 06:43:19,020

got a reel that doesn't really want to

4721

06:43:21,360 --> 06:43:36,470

see what we got here

4722

06:43:36,480 --> 06:44:10,910

foreign

4723

06:44:10,920 --> 06:44:24,048

paper you're good for the thermal cover

4724

06:44:29,690 --> 06:44:28,070

Josh hi Frank

4725

06:44:33,288 --> 06:44:29,700

because you might hold a new record for

4726  
06:44:37,750 --> 06:44:33,298  
most uh turns on a PG team a single day

4727  
06:44:37,760 --> 06:44:45,128  
it might be done dude

4728  
06:44:49,010 --> 06:44:47,090  
good morning

4729  
06:44:50,690 --> 06:44:49,020  
yeah affirmative and then we'll want to

4730  
06:44:54,770 --> 06:44:50,700  
pass in crew locks back again Nick

4731  
06:44:54,780 --> 06:45:00,350  
okay copy that I will draw my

4732  
06:45:00,360 --> 06:45:08,150  
um

4733  
06:45:11,690 --> 06:45:09,340  
yes

4734  
06:45:13,310 --> 06:45:11,700  
[Music]

4735  
06:45:14,990 --> 06:45:13,320  
yeah

4736  
06:45:17,090 --> 06:45:15,000  
I think we're going to do reverse of

4737  
06:45:20,090 --> 06:45:17,100  
what we did

4738  
06:45:22,070 --> 06:45:20,100

the pet bag now that's easier to to

4739

06:45:24,650 --> 06:45:22,080

connect and send in didn't give me a

4740

06:45:27,110 --> 06:45:24,660

second let me just put it in there

4741

06:45:30,128 --> 06:45:27,120

and you're doing a waste other reviewing

4742

06:45:36,530 --> 06:45:32,930

and Nick once I have that and I'm in the

4743

06:45:37,368 --> 06:45:36,540

analog if Josh was able to release my oh

4744

06:45:41,510 --> 06:45:37,378

well you're gonna have to release

4745

06:45:48,530 --> 06:45:44,750

through it's been a long day for sure

4746

06:45:51,708 --> 06:45:48,540

and I am ready for that bag okay

4747

06:45:53,990 --> 06:45:51,718

I'm going to take it off my beard but

4748

06:45:56,570 --> 06:45:54,000

it's still ready to my guarantee rep

4749

06:45:57,948 --> 06:45:56,580

I'll I'll run it through the inside and

4750

06:46:36,350 --> 06:45:57,958

then I'll take it off and pass it back

4751  
06:46:43,070 --> 06:46:38,330  
all right Josh you ready for your ride

4752  
06:46:49,450 --> 06:46:46,310  
got it all right and guys The Next Step

4753  
06:46:52,548 --> 06:46:49,460  
would be for each of you to turn off

4754  
06:46:56,330 --> 06:46:52,558  
[Applause]

4755  
06:47:00,590 --> 06:46:58,730  
right before I make the uh the tether

4756  
06:47:02,990 --> 06:47:00,600  
connection is that right Nick

4757  
06:47:04,310 --> 06:47:03,000  
yeah it's like to get you yeah Frank

4758  
06:47:06,590 --> 06:47:04,320  
just turned off the second if you can

4759  
06:47:08,448 --> 06:47:06,600  
check and turn off your hecca and then

4760  
06:47:09,948 --> 06:47:08,458  
Frank wanted to check your waste tether

4761  
06:47:12,708 --> 06:47:09,958  
that you've got to the airlock the ring

4762  
06:47:13,850 --> 06:47:12,718  
extender uh the small hook on your waist

4763  
06:47:28,490 --> 06:47:13,860

tether just to make sure that that's

4764

06:47:28,500 --> 06:47:33,948  
seconds

4765

06:47:38,570 --> 06:47:36,948  
copy and so Josh when you're ready uh

4766

06:47:40,788 --> 06:47:38,580  
you're going to be go to release uh

4767

06:47:43,788 --> 06:47:40,798  
Frank's anchor Hook from that Port

4768

06:47:48,830 --> 06:47:43,798  
stanchion of 554 and put that on your

4769

06:47:48,840 --> 06:47:54,770  
of it

4770

06:48:00,650 --> 06:47:57,048  
this is Mission Control Houston six

4771

06:48:02,750 --> 06:48:00,660  
hours 45 minutes into the spacewalk back

4772

06:48:05,628 --> 06:48:02,760  
at the quest airlock you can see Josh

4773

06:48:06,830 --> 06:48:05,638  
cassida as he uh begins to Stow

4774

06:48:10,190 --> 06:48:06,840  
equipment

4775

06:48:12,770 --> 06:48:10,200  
that he and Frank Rubio used for the

4776  
06:48:16,128 --> 06:48:12,780  
successful installation and deployment

4777  
06:48:18,530 --> 06:48:16,138  
of the ISS rollout solar array on the

4778  
06:48:20,628 --> 06:48:18,540  
starboard Fortress of the station which

4779  
06:48:23,448 --> 06:48:20,638  
is now generating electricity to augment

4780  
06:48:25,610 --> 06:48:23,458  
the power output for the 3A power

4781  
06:48:26,708 --> 06:48:25,620  
channel on the International Space

4782  
06:48:29,810 --> 06:48:26,718  
Station

4783  
06:48:32,810 --> 06:48:29,820  
the crew also uh disconnected or demated

4784  
06:48:35,868 --> 06:48:32,820  
one electrical cable on the 1B power

4785  
06:48:38,208 --> 06:48:35,878  
channel on the starboard six truss of

4786  
06:48:40,310 --> 06:48:38,218  
the station to uh enable flight

4787  
06:48:41,990 --> 06:48:40,320  
controllers here to reactivate the 1B

4788  
06:48:45,288 --> 06:48:42,000

Channel which has been down for the past

4789

06:48:48,410 --> 06:48:45,298

10 days it uh is in the process of being

4790

06:48:52,730 --> 06:48:48,420

reactivated back to about 75 percent of

4791

06:48:58,310 --> 06:48:56,030

and cassida did a few get ahead tasks as

4792

06:49:01,128 --> 06:48:58,320

he uh unbolted

4793

06:49:03,948 --> 06:49:01,138

four bolts on the Flight Support

4794

06:49:07,250 --> 06:49:03,958

equipment holding the next ISS rollout

4795

06:49:09,770 --> 06:49:07,260

solar array in place that he and uh

4796

06:49:11,810 --> 06:49:09,780

Frank Rubio will install on the port

4797

06:49:13,128 --> 06:49:11,820

four truss of the station on December

4798

06:49:15,890 --> 06:49:13,138

19th

4799

06:49:18,590 --> 06:49:15,900

during their next spacewalk

4800

06:50:39,230 --> 06:49:18,600

to augment the power for the 4A power

4801  
06:50:39,240 --> 06:50:52,310  
um

4802  
06:50:58,968 --> 06:50:56,330  
okay full cover is coming

4803  
06:51:01,910 --> 06:50:58,978  
copy Josh and so you'll attach the hook

4804  
06:51:04,070 --> 06:51:01,920  
to that magnetic plate d-ring cinch the

4805  
06:51:27,590 --> 06:51:04,080  
strap and Report the number of lines

4806  
06:51:27,600 --> 06:51:47,090  
um

4807  
06:51:47,100 --> 06:52:14,868  
okay

4808  
06:52:14,878 --> 06:52:26,208  
um

4809  
06:52:30,410 --> 06:52:28,490  
is that you there

4810  
06:52:36,170 --> 06:52:30,420  
uh yep

4811  
06:52:40,330 --> 06:52:38,690  
the thermal cover on the quest airlock

4812  
06:52:42,890 --> 06:52:40,340  
being closed

4813  
06:52:45,288 --> 06:52:42,900

and the view back inside the equipment

4814

06:52:47,390 --> 06:52:45,298

block where koichi wakata and Nicole

4815

06:52:50,510 --> 06:52:47,400

Mann will be

4816

06:52:54,368 --> 06:52:50,520

in attendance shortly to begin the work

4817

06:52:57,048 --> 06:52:54,378

to help cassida and Rubio back inside

4818

06:53:00,048 --> 06:52:57,058

once they returned to the crew lock

4819

06:53:02,288 --> 06:53:00,058

section and repressurize the crew lock

4820

06:53:05,628 --> 06:53:02,298

at the start of repress that will Mark

4821

06:53:08,750 --> 06:53:05,638

the stoppage of the clock on the phased

4822

06:53:11,690 --> 06:53:08,760

elapsed time for today's spacewalk

4823

06:53:13,368 --> 06:53:11,700

once we have repressurized the crew lock

4824

06:53:15,890 --> 06:53:13,378

section the hatch will be open between

4825

06:53:17,930 --> 06:53:15,900

the crew lock and the equipment lock and

4826  
06:53:21,110 --> 06:53:17,940  
the two spacewalkers will be helped back

4827  
06:53:23,570 --> 06:53:21,120  
inside the equipment block to begin an

4828  
06:53:26,270 --> 06:53:23,580  
inspection of their uh their gloves

4829  
06:53:27,830 --> 06:53:26,280  
their helmets before they adopt their

4830  
06:53:38,868 --> 06:53:27,840  
helmets and that will wrap up our

4831  
06:53:38,878 --> 06:53:42,288  
wow

4832  
06:53:42,298 --> 06:53:51,708  
there we go

4833  
06:53:55,968 --> 06:53:54,048  
all right it is sensed and I've got one

4834  
06:53:58,850 --> 06:53:55,978  
two three

4835  
06:54:01,430 --> 06:53:58,860  
four five six lines

4836  
06:54:04,250 --> 06:54:01,440  
Gabby Josh six lines

4837  
06:54:05,590 --> 06:54:04,260  
so you'll both remove your seus from the

4838  
06:54:08,448 --> 06:54:05,600

stowage pouch

4839

06:54:54,048 --> 06:54:08,458

uncover your dcms

4840

06:54:54,058 --> 06:55:20,270

foreign

4841

06:55:27,230 --> 06:55:23,390

all right Frank if you could

4842

06:55:32,208 --> 06:55:27,240

uh your pouch if you can attach that the

4843

06:55:38,690 --> 06:55:36,590

a rush all right pouch okay

4844

06:55:40,968 --> 06:55:38,700

you're saying uh

4845

06:55:43,128 --> 06:55:40,978

throw it up here yeah there's Velcro on

4846

06:55:45,468 --> 06:55:43,138

the wall okay I'll just forward right

4847

06:55:45,478 --> 06:55:48,650

yep

4848

06:55:48,660 --> 06:56:17,930

foreign

4849

06:56:21,590 --> 06:56:19,610

okay copy that

4850

06:56:24,170 --> 06:56:21,600

and so with that

4851  
06:56:31,510 --> 06:56:24,180  
um you are both go to switch your water

4852  
06:56:43,310 --> 06:56:34,128  
coming off 3D one

4853  
06:56:49,490 --> 06:56:45,788  
that's all for everyone

4854  
06:56:51,048 --> 06:56:49,500  
and copy off for both of you and uh and

4855  
06:56:52,730 --> 06:56:51,058  
so we're going to sit here and wait for

4856  
06:56:53,990 --> 06:56:52,740  
two minutes before we can close the

4857  
06:56:55,850 --> 06:56:54,000  
hatch

4858  
06:56:58,310 --> 06:56:55,860  
um I may have missed it during the

4859  
06:57:01,310 --> 06:56:58,320  
Handover Josh but can you confirm on the

4860  
06:57:03,830 --> 06:57:01,320  
thermal cover that the magnetic uh

4861  
06:57:09,708 --> 06:57:03,840  
so

4862  
06:57:09,718 --> 06:57:15,048  
it is hot it doesn't stay

4863  
06:57:15,058 --> 06:57:20,810

we are cinched down six

4864

06:57:24,288 --> 06:57:22,670

do you see anything between the magnet

4865

06:57:29,390 --> 06:57:24,298

and the plate that would prevent it from

4866

06:57:29,400 --> 06:57:35,750

now that I'm looking

4867

06:57:35,760 --> 06:57:45,590

I'm just going to get rid of this flap

4868

06:57:50,468 --> 06:57:48,350

it is connected thank you for backing me

4869

06:57:52,910 --> 06:57:50,478

up on that I appreciate it

4870

06:57:54,468 --> 06:57:52,920

out of the way and the magnet is

4871

06:57:56,990 --> 06:57:54,478

connected

4872

06:58:10,250 --> 06:57:57,000

copy thanks and uh we're just gonna wait

4873

06:58:15,288 --> 06:58:12,410

Frank I'm gonna just start getting in

4874

06:58:16,490 --> 06:58:15,298

positions for the fact you're fine you

4875

06:58:19,250 --> 06:58:16,500

have all those

4876  
06:58:21,770 --> 06:58:19,260  
um there is something on my back you

4877  
06:58:29,090 --> 06:58:21,780  
know is that a bag

4878  
06:58:32,690 --> 06:58:31,310  
and Josh and Josh as you're moving into

4879  
06:58:34,010 --> 06:58:32,700  
the position

4880  
06:58:35,448 --> 06:58:34,020  
um yeah you're just confirming that the

4881  
06:58:38,090 --> 06:58:35,458  
hatches can be clear of any kind of

4882  
06:58:43,010 --> 06:58:38,100  
hardware and that the handles in the

4883  
06:58:46,368 --> 06:58:45,048  
I'm here and I will I'll take care of

4884  
06:58:48,110 --> 06:58:46,378  
that handle in the right position when

4885  
06:58:49,730 --> 06:58:48,120  
I've got in a better view there's

4886  
06:58:55,390 --> 06:58:49,740  
nothing that's left in the hatch right

4887  
06:59:00,128 --> 06:58:57,890  
inside the equipment block section of

4888  
06:59:02,930 --> 06:59:00,138

quest Nicole Mann on the right

4889

06:59:05,510 --> 06:59:02,940

koichiwakata on the left they were in

4890

06:59:07,850 --> 06:59:05,520

charge of uh canadarm II robotic

4891

06:59:10,868 --> 06:59:07,860

operations during today's spacewalk

4892

06:59:13,968 --> 06:59:10,878

moving Josh Casada around as he uh

4893

06:59:16,150 --> 06:59:13,978

maneuvered the ISS or roll out solar

4894

06:59:18,410 --> 06:59:16,160

array from its Flight Support equipment

4895

06:59:21,650 --> 06:59:18,420

attachment point on the truss of the

4896

06:59:23,628 --> 06:59:21,660

station over to the uh

4897

06:59:25,430 --> 06:59:23,638

starboard Fortress where it was

4898

06:59:27,590 --> 06:59:25,440

installed bolted into place and

4899

06:59:29,390 --> 06:59:27,600

ultimately unfurled to its full length

4900

06:59:32,990 --> 06:59:29,400

of 60 feet

4901  
06:59:35,090 --> 06:59:33,000  
now uh they were standing by uh watching

4902  
06:59:37,788 --> 06:59:35,100  
uh and waiting for

4903  
06:59:40,128 --> 06:59:37,798  
two minutes to transpire before the

4904  
06:59:42,650 --> 06:59:40,138  
hatch is closed to the crew lock section

4905  
06:59:44,570 --> 06:59:42,660  
of quest that will be the precursor to

4906  
06:59:47,030 --> 06:59:44,580  
the start of the repressurization of the

4907  
06:59:51,288 --> 06:59:47,040  
crew lock that will stop the clock on

4908  
06:59:53,110 --> 06:59:51,298  
today's spacewalk elapsed time

4909  
06:59:55,670 --> 06:59:53,120  
thanks

4910  
06:59:59,510 --> 06:59:55,680  
can you move that uh

4911  
07:00:03,650 --> 07:00:02,448  
you have a chance

4912  
07:00:21,890 --> 07:00:03,660  
okay

4913  
07:00:26,270 --> 07:00:23,690

all right so I'm going to position the

4914

07:00:26,280 --> 07:00:36,530

the unmatched Direction

4915

07:00:40,010 --> 07:00:38,510

it's currently at two o'clock I think I

4916

07:00:41,690 --> 07:00:40,020

need about

4917

07:00:44,750 --> 07:00:41,700

eight o'clock

4918

07:00:46,310 --> 07:00:44,760

Nick and just confirm before I put it in

4919

07:00:51,048 --> 07:00:46,320

place it needs to go in the unlatched

4920

07:01:53,030 --> 07:00:53,990

affirmative Josh like it

4921

07:01:53,040 --> 07:01:57,230

you're arrested

4922

07:02:03,310 --> 07:01:59,330

Kathy Josh understand lacked and

4923

07:02:05,990 --> 07:02:03,320

launched latched and locked on the hacks

4924

07:02:09,890 --> 07:02:06,000

I've only got seven hours on this now

4925

07:02:12,230 --> 07:02:09,900

well done a um flight flight's got a few

4926  
07:02:15,468 --> 07:02:12,240  
words for you

4927  
07:02:18,890 --> 07:02:15,478  
hey for uh Frank Josh

4928  
07:02:20,270 --> 07:02:18,900  
and uh Gucci Duke I just want to say

4929  
07:02:21,708 --> 07:02:20,280  
that this is the kind of day that makes

4930  
07:02:25,010 --> 07:02:21,718  
you want to

4931  
07:02:27,230 --> 07:02:25,020  
clap your hands and uh and then to the

4932  
07:02:29,330 --> 07:02:27,240  
station uh we bring new power more power

4933  
07:02:30,350 --> 07:02:29,340  
generation restored on this Eva than

4934  
07:02:31,730 --> 07:02:30,360  
ever

4935  
07:02:39,250 --> 07:02:31,740  
so

4936  
07:02:39,260 --> 07:02:43,430  
thank you

4937  
07:02:43,440 --> 07:02:48,170  
let there be light great job come on in

4938  
07:02:53,330 --> 07:02:50,790

wow

4939

07:02:55,788 --> 07:02:53,340

[Applause]

4940

07:02:58,490 --> 07:02:55,798

thank you

4941

07:03:00,948 --> 07:02:58,500

okay Frank let's finish up this repress

4942

07:03:02,868 --> 07:03:00,958

uh pre-repressed cue card so um you're

4943

07:03:05,868 --> 07:03:02,878

gonna on the UIA you're gonna check this

4944

07:03:09,468 --> 07:03:05,878

oxygen for emu one and two valves are

4945

07:03:17,090 --> 07:03:13,788

oxygen emu one and two are open

4946

07:03:25,390 --> 07:03:17,100

you know power EV one and two to on

4947

07:03:29,868 --> 07:03:27,650

on good LED

4948

07:03:31,750 --> 07:03:29,878

VQ power is

4949

07:03:34,010 --> 07:03:31,760

on different LED

4950

07:03:35,990 --> 07:03:34,020

this is Mission Control Houston those

4951

07:03:38,990 --> 07:03:36,000

congratulatory words from flight

4952

07:03:41,150 --> 07:03:39,000

director Zeb Scoville who is the Deputy

4953

07:03:43,250 --> 07:03:41,160

uh Chief flight director of the office

4954

07:03:46,070 --> 07:03:43,260

here at the Johnson Space Center

4955

07:03:48,590 --> 07:03:46,080

uh now Josh cassid and Frank Rubio in

4956

07:03:50,510 --> 07:03:48,600

the final stages of uh preparations uh

4957

07:03:54,288 --> 07:03:50,520

prior to the repressurization of the

4958

07:03:54,298 --> 07:04:22,628

foreign

4959

07:04:27,468 --> 07:04:26,030

copy Frank Josh you're both an Su so

4960

07:04:30,650 --> 07:04:27,478

with that I'm going to hand you over to

4961

07:04:34,670 --> 07:04:30,660

the Duke to pick up with the crew lock

4962

07:04:39,468 --> 07:04:37,850

thanks so much uh don't turn your phone

4963

07:04:42,530 --> 07:04:39,478

to silence we're giving you a shout in

4964

07:04:44,330 --> 07:04:42,540

just a half hour we've both uh doing the

4965

07:04:50,868 --> 07:04:44,340

whole team thank you

4966

07:04:50,878 --> 07:04:55,490

all right blue and Frank welcome

4967

07:05:07,730 --> 07:04:58,850

it's your O2 actuators to press

4968

07:05:07,740 --> 07:05:17,990

all right

4969

07:05:18,000 --> 07:05:27,350

it's a fever that I see you there is

4970

07:05:27,360 --> 07:05:48,530

everything's backwards in my mirror

4971

07:05:48,540 --> 07:06:07,190

they'd be one of Interest

4972

07:06:07,200 --> 07:06:37,548

the YouTube still working

4973

07:06:37,558 --> 07:06:44,510

yeah I'm impressed

4974

07:06:53,350 --> 07:06:47,090

okay I'll be both in press

4975

07:06:53,360 --> 07:06:56,990

is closed

4976  
07:07:01,368 --> 07:06:58,788  
okay we're gonna throttle the IV hatch

4977  
07:07:03,530 --> 07:07:01,378  
Equalization valve off to form let us

4978  
07:07:31,250 --> 07:07:03,540  
know we need to adjust the rate sounds

4979  
07:07:35,448 --> 07:07:33,410  
this is Mission Control Houston the

4980  
07:07:38,750 --> 07:07:35,458  
repressurization of the quest airlock is

4981  
07:07:43,250 --> 07:07:38,760  
now underway ending today's spacewalk at

4982  
07:07:46,788 --> 07:07:43,260  
1 21 PM Central Time 2 21 PM Eastern

4983  
07:07:49,670 --> 07:07:46,798  
Time today's space walk seven hours five

4984  
07:07:52,010 --> 07:07:49,680  
minutes again today's spacewalk ended

4985  
07:07:54,670 --> 07:07:52,020  
with the start of the repressurization

4986  
07:07:58,548 --> 07:07:54,680  
of the quest airlock at 1 21 PM Central

4987  
07:08:01,368 --> 07:07:58,558  
2 21 PM Eastern Time bringing today's

4988  
07:08:03,830 --> 07:08:01,378

spacewalk to an end at 7 hours and five

4989

07:08:32,090 --> 07:08:03,840

minutes we'll have complete statistics

4990

07:09:14,628 --> 07:09:10,430

foreign

4991

07:09:16,850 --> 07:09:14,638

addition two for airlock eb2 please

4992

07:09:19,128 --> 07:09:16,860

Frank please check your O2 actuator in

4993

07:09:28,850 --> 07:09:19,138

press and if you need to stop the

4994

07:09:28,860 --> 07:09:35,868

say again

4995

07:09:47,628 --> 07:09:38,270

yeah stop repress and Frank we need your

4996

07:09:53,150 --> 07:09:49,270

yes

4997

07:10:10,070 --> 07:09:53,160

we're showing it in uh off needs to be

4998

07:10:10,080 --> 07:10:14,150

there you go

4999

07:10:30,590 --> 07:10:16,548

okay goalkeeper

5000

07:10:30,600 --> 07:11:02,150

Ed

5001  
07:12:12,650 --> 07:11:04,010  
foreign

5002  
07:12:12,660 --> 07:13:54,890  
thank you guys

5003  
07:13:54,900 --> 07:14:26,150  
foreign

5004  
07:14:30,048 --> 07:14:28,368  
this is Mission Control Houston you're

5005  
07:14:32,690 --> 07:14:30,058  
looking at the equipment lock section of

5006  
07:14:35,030 --> 07:14:32,700  
the quest airlock koichiwakata of the

5007  
07:14:38,448 --> 07:14:35,040  
Japan Aerospace Exploration Agency and

5008  
07:14:40,430 --> 07:14:38,458  
Nicole Mann from NASA on the right has

5009  
07:14:43,368 --> 07:14:40,440  
the repressurization of the crew lock

5010  
07:14:46,968 --> 07:14:43,378  
section of quest well underway going

5011  
07:14:50,208 --> 07:14:46,978  
back to its normal pressure of 14.7

5012  
07:14:52,430 --> 07:14:50,218  
pounds per square inch at which point uh

5013  
07:14:54,288 --> 07:14:52,440

wakata and Mann will open up the hatch

5014

07:14:56,868 --> 07:14:54,298

and bring back inside the equipment

5015

07:14:59,628 --> 07:14:56,878

block Josh cassida and Frank Rubio

5016

07:15:02,750 --> 07:14:59,638

following their spacewalk today here are

5017

07:15:04,788 --> 07:15:02,760

today's statistics 6 following the

5018

07:15:06,850 --> 07:15:04,798

completion of the extra vehicular

5019

07:15:09,890 --> 07:15:06,860

activity this was the

5020

07:15:11,750 --> 07:15:09,900

256th spacewalk in support of space

5021

07:15:15,170 --> 07:15:11,760

station assembly maintenance and

5022

07:15:18,650 --> 07:15:15,180

upgrades the 11th spacewalk conducted

5023

07:15:22,010 --> 07:15:18,660

out of the ISS in 2022 so third

5024

07:15:24,530 --> 07:15:22,020

spacewalk during Expedition 68.

5025

07:15:26,510 --> 07:15:24,540

for both cassida and Rubio it was the

5026  
07:15:30,048 --> 07:15:26,520  
second spacewalk of their respective

5027  
07:15:32,448 --> 07:15:30,058  
careers both totaling 14 hours and 16

5028  
07:15:36,830 --> 07:15:32,458  
minutes of space walking time

5029  
07:15:41,110 --> 07:15:36,840  
the 256 spacewalks for International

5030  
07:15:44,930 --> 07:15:41,120  
Space Station support have now totaled

5031  
07:15:49,850 --> 07:15:44,940  
1623 hours and 18 minutes which is the

5032  
07:15:53,750 --> 07:15:49,860  
equivalent of 67 days 15 hours and 18

5033  
07:15:56,810 --> 07:15:53,760  
minutes of space walking time and the

5034  
07:16:04,310 --> 07:15:56,820  
three spacewalks for Expedition 68 now

5035  
07:16:08,690 --> 07:16:06,430  
so we'll be standing by for that

5036  
07:16:10,610 --> 07:16:08,700  
repressurization to be completed for the

5037  
07:16:13,070 --> 07:16:10,620  
hatch to be open for the two space

5038  
07:16:16,548 --> 07:16:13,080

Walkers to be brought back inside

5039

07:16:19,070 --> 07:16:16,558

and mounted on their respective sides of

5040

07:16:21,650 --> 07:16:19,080

the equipment lock where photographs as

5041

07:16:27,170 --> 07:16:21,660

usual will be taken of their gloves and

5042

07:16:27,180 --> 07:16:39,010

P1 is in Ivy

5043

07:16:44,448 --> 07:16:42,830

we are resuming the replay with the

5044

07:16:47,930 --> 07:16:44,458

hatch Equalization valve you can expect

5045

07:16:50,030 --> 07:16:47,940

an alert tone and when dpdt is about

5046

07:18:15,830 --> 07:16:50,040

zero you'll get another tone

5047

07:19:15,980 --> 07:18:44,030

foreign

5048

07:19:22,300 --> 07:19:20,750

[Applause]

5049

07:19:56,510 --> 07:19:22,310

foreign

5050

07:19:57,820 --> 07:19:56,520

[Music]

5051  
07:20:09,950 --> 07:19:57,830  
foreign

5052  
07:20:28,128 --> 07:20:24,020  
[Music]

5053  
07:20:38,948 --> 07:20:30,900  
foreign

5054  
07:20:43,850 --> 07:20:41,708  
this is Mission Control Houston uh

5055  
07:20:45,830 --> 07:20:43,860  
koichiwakata and Nicole Mann of the

5056  
07:20:47,448 --> 07:20:45,840  
Expedition 68 crew on the International

5057  
07:20:49,250 --> 07:20:47,458  
Space Station

5058  
07:20:50,810 --> 07:20:49,260  
watching the final moments of the

5059  
07:20:52,310 --> 07:20:50,820  
repressurization of the crew lock

5060  
07:20:54,890 --> 07:20:52,320  
section of quest

5061  
07:20:57,170 --> 07:20:54,900  
before they open up the hatch right in

5062  
07:21:00,230 --> 07:20:57,180  
front of them and bring into the

5063  
07:21:02,810 --> 07:21:00,240

equipment lock Josh cassida and Frank

5064

07:21:04,548 --> 07:21:02,820

Rubio who

5065

07:21:08,208 --> 07:21:04,558

aced

5066

07:21:11,090 --> 07:21:08,218

their spacewalk today installing the ISS

5067

07:21:13,730 --> 07:21:11,100

rollout solar array on the starboard

5068

07:21:14,628 --> 07:21:13,740

Ford truss electrically hooking up that

5069

07:21:16,968 --> 07:21:14,638

array

5070

07:21:19,910 --> 07:21:16,978

which is generating perfect power to

5071

07:21:21,410 --> 07:21:19,920

augment the power output of the 3A power

5072

07:21:22,610 --> 07:21:21,420

channel on the International Space

5073

07:21:24,948 --> 07:21:22,620

Station

5074

07:21:28,788 --> 07:21:24,958

also disconnecting one of four

5075

07:21:31,070 --> 07:21:28,798

electrical cables from the 1B power

5076  
07:21:34,070 --> 07:21:31,080  
channel on the starboard six truss to

5077  
07:21:38,030 --> 07:21:34,080  
isolate a portion of the solar array on

5078  
07:21:40,128 --> 07:21:38,040  
S6 affected by a power trip about 10

5079  
07:21:42,770 --> 07:21:40,138  
days ago that took the 1B Channel out of

5080  
07:21:45,110 --> 07:21:42,780  
commission the 1B channel is in the

5081  
07:21:47,510 --> 07:21:45,120  
process of being reactivated as we speak

5082  
07:21:49,368 --> 07:21:47,520  
to about 75 percent of its operating

5083  
07:21:52,368 --> 07:21:49,378  
capability

5084  
07:21:56,270 --> 07:21:52,378  
also Casada did a few get ahead tasks

5085  
07:22:00,048 --> 07:21:56,280  
including the uh on loosening of four

5086  
07:22:01,368 --> 07:22:00,058  
bolts on the next ISS rollout solar

5087  
07:22:03,048 --> 07:22:01,378  
array that is on a flight support

5088  
07:22:06,410 --> 07:22:03,058

structure on the truss of the station

5089

07:22:09,650 --> 07:22:06,420

and which will be moved by cassida and

5090

07:22:13,968 --> 07:22:09,660

Rubio to the port Ford truss of the

5091

07:22:17,448 --> 07:22:13,978

station and installed and deployed to

5092

07:22:19,850 --> 07:22:17,458

augment power for the 4A power Channel

5093

07:22:23,150 --> 07:22:19,860

during the next spacewalk the two will

5094

07:22:25,788 --> 07:22:23,160

conduct on December 19th

5095

07:22:29,090 --> 07:22:25,798

and the hatch is now open between the

5096

07:22:31,850 --> 07:22:29,100

equipment lock and the crew lock

5097

07:22:47,290 --> 07:22:31,860

as Nicole Mann will now Begin work to

5098

07:22:47,300 --> 07:22:55,610

[Applause]

5099

07:22:55,620 --> 07:23:01,868

foreign

5100

07:23:07,548 --> 07:23:04,548

I see that you're taking care of step

5101  
07:23:08,810 --> 07:23:07,558  
four and five uh we'll move along to

5102  
07:23:22,960 --> 07:23:08,820  
step to seven

5103  
07:23:22,970 --> 07:23:45,708  
[Applause]

5104  
07:23:45,718 --> 07:23:51,048  
ah

5105  
07:23:51,058 --> 07:24:10,310  
a

5106  
07:24:10,320 --> 07:24:19,030  
foreign

5107  
07:24:19,040 --> 07:24:26,910  
Rubio back inside

5108  
07:24:26,920 --> 07:24:36,770  
[Applause]

5109  
07:24:42,288 --> 07:24:39,468  
they will first work to remove the

5110  
07:24:45,650 --> 07:24:42,298  
jet-powered backpack the safer unit or

5111  
07:24:53,830 --> 07:24:45,660  
simplified aid for Eva Rescue Unit from

5112  
07:24:59,208 --> 07:24:56,590  
again today's space walk

5113  
07:25:01,250 --> 07:24:59,218

registered in the history books at seven

5114

07:25:04,010 --> 07:25:01,260

hours and five minutes in the

5115

07:25:06,770 --> 07:25:04,020

installation of the next in the series

5116

07:25:09,350 --> 07:25:06,780

the third in the series of ISS rollout

5117

07:25:12,590 --> 07:25:09,360

solar arrays now up and running and

5118

07:25:14,750 --> 07:25:12,600

generating electricity for the 3A power

5119

07:26:30,610 --> 07:25:14,760

channel on the starboard four trusts of

5120

07:26:34,730 --> 07:26:32,810

station he's still on Space to ground

5121

07:27:11,390 --> 07:26:34,740

one steps four and five are complete you

5122

07:28:39,070 --> 07:27:13,490

and Josh cassador back inside the

5123

07:28:45,410 --> 07:28:42,350

Frank Rubio on the left Josh cassida on

5124

07:28:49,010 --> 07:28:45,420

the right being attended to by Nicole

5125

07:28:52,190 --> 07:28:49,020

Mann uh with koichiwakata also uh

5126  
07:28:55,968 --> 07:28:52,200  
working uh in this post spacewalk time

5127  
07:28:58,910 --> 07:28:55,978  
frame the spacewalk ending at 1 21 PM

5128  
07:29:00,708 --> 07:28:58,920  
Central Time 2 21 PM eastern time at 7

5129  
07:29:03,830 --> 07:29:00,718  
hours and five minutes

5130  
07:29:07,128 --> 07:29:03,840  
a completely uh successful spacewalk for

5131  
07:29:09,890 --> 07:29:07,138  
Casita and Rubio to install the third in

5132  
07:29:12,650 --> 07:29:09,900  
the series of ISS rollout solar arrays

5133  
07:29:26,270 --> 07:29:12,660  
the iroses to augment power capability

5134  
07:29:32,448 --> 07:29:29,628  
and here is a replay of uh the actual

5135  
07:29:35,510 --> 07:29:32,458  
rollout of the irosa after it had been

5136  
07:29:37,128 --> 07:29:35,520  
installed on the starboard Ford truss of

5137  
07:29:39,948 --> 07:29:37,138  
the International Space Station it took

5138  
07:29:42,230 --> 07:29:39,958

about nine minutes for the array to roll

5139

07:29:44,390 --> 07:29:42,240

out to its full length of about

5140

07:29:46,670 --> 07:29:44,400

60 feet

5141

07:29:49,128 --> 07:29:46,680

the electrical systems officer here in

5142

07:29:51,770 --> 07:29:49,138

mission control then worked to power up

5143

07:29:54,350 --> 07:29:51,780

the array it was generating electricity

5144

07:29:56,690 --> 07:29:54,360

almost from the get-go and is reported

5145

07:35:20,890 --> 07:29:56,700

to be in full electrical generation

5146

07:35:27,288 --> 07:35:23,628

Nicole Mann now working to remove the

5147

07:35:29,090 --> 07:35:27,298

gloves from Josh cassida as koichiwakata

5148

07:35:31,010 --> 07:35:29,100

does the same for Frank Rubio on the

5149

07:35:32,930 --> 07:35:31,020

left side of your screen soon they will

5150

07:40:05,570 --> 07:35:32,940

doff their helmets that will wrap up our

5151  
07:40:11,448 --> 07:40:08,750  
and the helmets are off cassid and Rubio

5152  
07:40:13,010 --> 07:40:11,458  
safely back inside the equipment lock

5153  
07:40:14,750 --> 07:40:13,020  
of the quest airlock of the

5154  
07:40:17,390 --> 07:40:14,760  
International Space Station a seven hour

5155  
07:40:20,570 --> 07:40:17,400  
five minute spacewalk in which they

5156  
07:40:23,628 --> 07:40:20,580  
successfully installed and deployed

5157  
07:40:25,250 --> 07:40:23,638  
the third in the series of ISS rollout

5158  
07:40:27,288 --> 07:40:25,260  
solar arrays

5159  
07:40:29,090 --> 07:40:27,298  
on the starboard for trusts of the

5160  
07:40:31,070 --> 07:40:29,100  
International Space Station it is up and

5161  
07:40:35,030 --> 07:40:31,080  
running in good shape augmenting power

5162  
07:40:37,128 --> 07:40:35,040  
already for the 3A power channel for the

5163  
07:40:39,590 --> 07:40:37,138

international Outpost these two will

5164

07:40:42,948 --> 07:40:39,600

venture back outside on December 19th to

5165

07:40:45,410 --> 07:40:42,958

replicate the feat with the next ISS

5166

07:40:47,690 --> 07:40:45,420

rollout solar array that they will

5167

07:40:49,128 --> 07:40:47,700

install at the P4 truss on the other

5168

07:40:51,170 --> 07:40:49,138

side on the port side of the

5169

07:40:53,868 --> 07:40:51,180

International Space Station to augment

5170

07:40:56,690 --> 07:40:53,878

power capability for the 4A power

5171

07:40:58,670 --> 07:40:56,700

channel so that'll wrap up our coverage

5172

07:41:01,490 --> 07:40:58,680

for the day of two programming notes

5173

07:41:04,250 --> 07:41:01,500

while all this activity is going on the

5174

07:41:07,070 --> 07:41:04,260

Orion spacecraft is barreling back

5175

07:41:11,030 --> 07:41:07,080

toward the moon heading for a return

5176  
07:41:14,390 --> 07:41:11,040  
powered flyby of the moon coming up on

5177  
07:41:16,430 --> 07:41:14,400  
Monday December 5th our coverage of the

5178  
07:41:17,750 --> 07:41:16,440  
return powered flyby burn that will

5179  
07:41:21,530 --> 07:41:17,760  
carry that will take place actually

5180  
07:41:23,448 --> 07:41:21,540  
behind the moon and enable Orion to whip

5181  
07:41:27,048 --> 07:41:23,458  
around the moon and head back on its

5182  
07:41:29,510 --> 07:41:27,058  
final leg of its 25.5 day Mission with a

5183  
07:41:32,208 --> 07:41:29,520  
Splashdown scheduled on Sunday December

5184  
07:41:34,430 --> 07:41:32,218  
11th in the Pacific Ocean our coverage

5185  
07:41:37,850 --> 07:41:34,440  
of the return powered flyby burn for

5186  
07:41:40,310 --> 07:41:37,860  
Orion is slated to begin at 8 A.M

5187  
07:41:43,548 --> 07:41:40,320  
Central Time 9 A.M Eastern Time on NASA

5188  
07:41:45,590 --> 07:41:43,558

Television on Monday morning that will

5189

07:41:48,530 --> 07:41:45,600

be followed later in the day at 4 pm

5190

07:41:51,048 --> 07:41:48,540

Central Time 5 PM eastern time with a

5191

07:41:53,270 --> 07:41:51,058

briefing to wrap up the return powered

5192

07:41:56,090 --> 07:41:53,280

flyby onto preview recovery operations

5193

07:41:58,070 --> 07:41:56,100

that will begin in Earnest with the

5194

07:41:59,628 --> 07:41:58,080

exploration ground systems folks from

5195

07:42:03,048 --> 07:41:59,638

the Kennedy Space Center out in the

5196

07:42:05,150 --> 07:42:03,058

Pacific Ocean later in the week so

5197

07:42:08,270 --> 07:42:05,160

that'll can that will wrap up our

5198

07:42:11,390 --> 07:42:08,280

coverage for the day a spacewalk that uh

5199

07:42:14,208 --> 07:42:11,400

registered seven hours and five minutes

5200

07:42:16,250 --> 07:42:14,218

Josh cassida and Frank Rubio back inside

5201  
07:42:18,048 --> 07:42:16,260  
the International Space Station their

5202  
07:42:20,150 --> 07:42:18,058  
next spacewalk was scheduled for

5203  
07:42:22,430 --> 07:42:20,160  
December 19th

5204  
07:42:23,930 --> 07:42:22,440  
for now that'll do it for us here in

5205  
07:42:26,150 --> 07:42:23,940  
Mission Control have a great weekend

5206  
07:42:28,270 --> 07:42:26,160  
thanks for watching this is Mission

5207  
07:42:43,250 --> 07:42:28,280  
Control Houston

5208  
07:42:55,830 --> 07:42:44,610  
foreign

5209  
07:43:47,930 --> 07:43:04,660  
[Music]

5210  
07:43:56,380 --> 07:43:49,510  
foreign

5211  
07:43:56,390 --> 07:44:18,650  
[Music]