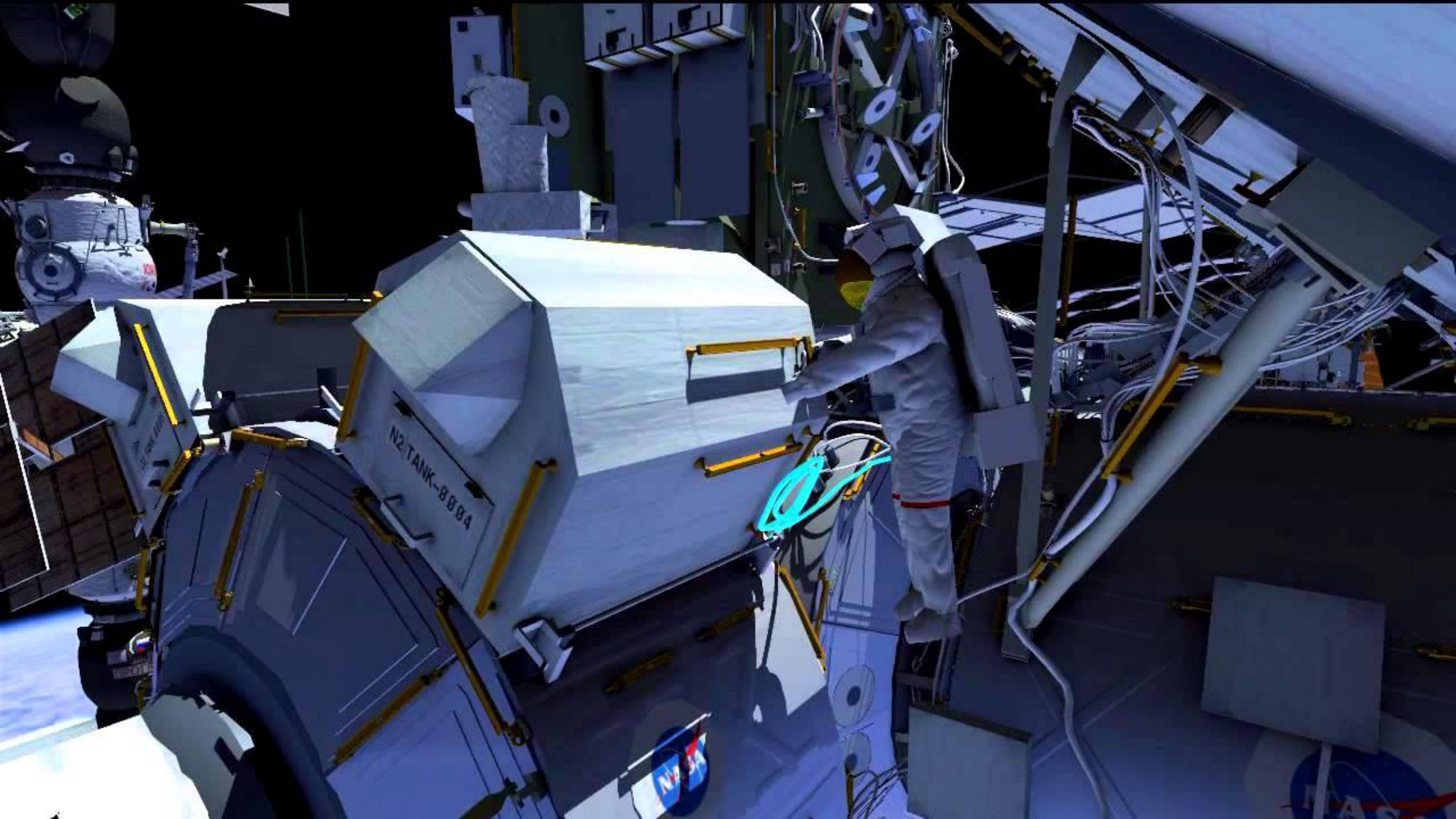
N2 TANK-8884

1
00:00:05,190 --> 00:00:02,470
good afternoon from the johnson space

2
00:00:07,030 --> 00:00:05,200
center in houston texas i'm dan hewitt

3
00:00:09,509 --> 00:00:07,040
two spacewalks in two weeks coming up

4
00:00:11,990 --> 00:00:09,519
for the crew of expedition 36 flight

5
00:00:14,070 --> 00:00:12,000
engineers chris cassidy from nasa and

6
00:00:15,669 --> 00:00:14,080
luca parmitano from the european space

7
00:00:18,230 --> 00:00:15,679
agency will be conducting the two

8
00:00:21,510 --> 00:00:18,240
spacewalks on july 9th and july 16th out

9
00:00:24,150 --> 00:00:21,520
of the quest airlock dubbed evas 22 and

10
00:00:26,070 --> 00:00:24,160
23

11
00:00:28,870 --> 00:00:26,080
each spacewalk scheduled to last six and

12
00:00:31,669 --> 00:00:28,880
a half hours here to tell us more today

13
00:00:35,190 --> 00:00:31,679

i have david korth lead nasa spacewalk

14
00:00:38,229 --> 00:00:35,200
flight director and for eva 22

15
00:00:40,790 --> 00:00:38,239
ernie bell spacewalk officer and for eva

16
00:00:43,190 --> 00:00:40,800
23 karina eversley lead spacewalk

17
00:00:44,630 --> 00:00:43,200
officer for eba 23. we'll hear from each

18
00:00:46,709 --> 00:00:44,640
of them first and then we'll open it up

19
00:00:49,910 --> 00:00:46,719
for questions david

20
00:00:53,590 --> 00:00:52,069
as mentioned we're doing a set of two

21
00:00:55,910 --> 00:00:53,600
space walks

22
00:00:58,389 --> 00:00:55,920
the first of which is july 9th

23
00:01:00,630 --> 00:00:58,399
and july 16th tuesday we separated them

24
00:01:02,950 --> 00:01:00,640
apart uh by a week

25
00:01:05,670 --> 00:01:02,960
both spacewalks chris cassidy and luca

26
00:01:06,710 --> 00:01:05,680
parmitano will go outside

27
00:01:08,390 --> 00:01:06,720
for chris

28
00:01:10,630 --> 00:01:08,400
he has four spacewalks under his belt

29
00:01:12,870 --> 00:01:10,640
this will be his fifth and sixth

30
00:01:15,910 --> 00:01:12,880
and uh for luca this will be his first

31
00:01:17,830 --> 00:01:15,920
and second and uh especially for luca

32
00:01:19,910 --> 00:01:17,840
he'll be the first italian astronaut uh

33
00:01:21,830 --> 00:01:19,920
to do a spacewalk so

34
00:01:22,789 --> 00:01:21,840
i know they're both excited and ready to

35
00:01:28,789 --> 00:01:22,799
go

36
00:01:30,630 --> 00:01:28,799
hold on and and wait for uh

37
00:01:32,950 --> 00:01:30,640
one more week until they get out the

38
00:01:34,950 --> 00:01:32,960

door for the first one

39
00:01:37,109 --> 00:01:34,960
for both spacewalks the uh the ground

40
00:01:38,390 --> 00:01:37,119
support will be by astronaut shane

41
00:01:40,469 --> 00:01:38,400
kimbrough

42
00:01:41,830 --> 00:01:40,479
and onboard karen nyberg for the first

43
00:01:45,030 --> 00:01:41,840
spacewalk

44
00:01:47,429 --> 00:01:45,040
uh we'll be doing the robotic operations

45
00:01:50,310 --> 00:01:47,439
and uh karen will also

46
00:01:51,270 --> 00:01:50,320
help out with pre and post eva operation

47
00:01:56,950 --> 00:01:51,280
suit

48
00:01:59,030 --> 00:01:56,960
eva and she'll be assisted by

49
00:02:00,630 --> 00:01:59,040
russian cosmonaut fyodor yurchikhin on

50
00:02:02,709 --> 00:02:00,640
both evas

51
00:02:05,510 --> 00:02:02,719
for that

52
00:02:07,670 --> 00:02:05,520
why spacewalks now

53
00:02:09,830 --> 00:02:07,680
the program

54
00:02:11,589 --> 00:02:09,840
has collected a number of tasks over the

55
00:02:12,710 --> 00:02:11,599
last couple of years

56
00:02:15,350 --> 00:02:12,720
and

57
00:02:17,670 --> 00:02:15,360
we what we like to wait

58
00:02:18,790 --> 00:02:17,680
to do evas because evas cost a lot of

59
00:02:21,510 --> 00:02:18,800
crew time

60
00:02:23,110 --> 00:02:21,520
and in the the era of science and

61
00:02:24,869 --> 00:02:23,120
utilization

62
00:02:26,390 --> 00:02:24,879
we try to minimize the perturbation to

63
00:02:28,150 --> 00:02:26,400

the the overall

64
00:02:30,470 --> 00:02:28,160
operations of the u.s laboratory and all

65
00:02:33,030 --> 00:02:30,480
the other laboratories on iss

66
00:02:36,470 --> 00:02:33,040
and so the program has strategically

67
00:02:39,430 --> 00:02:36,480
placed a couple evas this summer to as

68
00:02:40,869 --> 00:02:39,440
we call burn down the list of tasks that

69
00:02:42,550 --> 00:02:40,879
we have

70
00:02:43,910 --> 00:02:42,560
that require eva

71
00:02:46,710 --> 00:02:43,920
and we'll go through a list of what

72
00:02:49,430 --> 00:02:46,720
those tasks are for both evas

73
00:02:54,949 --> 00:02:50,630
okay

74
00:02:56,150 --> 00:02:54,959
all right so let's talk about eva 22.

75
00:02:57,430 --> 00:02:56,160
as i mentioned we have a number of

76
00:02:59,589 --> 00:02:57,440
different tasks

77
00:03:01,589 --> 00:02:59,599
and a sort of a theme for both of these

78
00:03:03,509 --> 00:03:01,599
evas is that

79
00:03:06,070 --> 00:03:03,519
these are just a mixture of different

80
00:03:07,830 --> 00:03:06,080
unrelated tasks for the most part

81
00:03:10,149 --> 00:03:07,840
that we're trying to burn down

82
00:03:12,390 --> 00:03:10,159
the first thing that you'll uh that will

83
00:03:14,229 --> 00:03:12,400
do is when the crew gets out the door on

84
00:03:16,149 --> 00:03:14,239
the first eva

85
00:03:18,630 --> 00:03:16,159
we'll kind of split them up and we'll

86
00:03:20,630 --> 00:03:18,640
have chris cassidy doing the space to

87
00:03:22,790 --> 00:03:20,640
ground transmitter receiver

88
00:03:25,430 --> 00:03:22,800

controller rnr

89
00:03:28,470 --> 00:03:25,440
this we call it the sgtrc

90
00:03:31,430 --> 00:03:28,480
is one of two boxes that allow us two

91
00:03:34,070 --> 00:03:31,440
different independent strings of ku band

92
00:03:35,110 --> 00:03:34,080
so we can do video data downlinks and

93
00:03:37,270 --> 00:03:35,120
uplinks

94
00:03:38,789 --> 00:03:37,280
this particular box failed in december

95
00:03:40,550 --> 00:03:38,799
of 2012.

96
00:03:42,789 --> 00:03:40,560
we've done some testing and verified yes

97
00:03:45,350 --> 00:03:42,799
indeed this box is failed and it does

98
00:03:46,789 --> 00:03:45,360
need to be replaced

99
00:03:48,949 --> 00:03:46,799
the second task

100
00:03:50,949 --> 00:03:48,959
again out the door in parallel with this

101
00:03:52,869 --> 00:03:50,959
luke is going to head over to the

102
00:03:54,309 --> 00:03:52,879
starboard side of the station on the

103
00:03:56,550 --> 00:03:54,319
starboard truss

104
00:03:58,470 --> 00:03:56,560
and he's going to retrieve two

105
00:03:59,830 --> 00:03:58,480
experiments that are part of the missy

106
00:04:00,869 --> 00:03:59,840
eight

107
00:04:02,789 --> 00:04:00,879
set

108
00:04:04,390 --> 00:04:02,799
he's going to take both of those bring

109
00:04:06,309 --> 00:04:04,400
them back in and the the plan is to

110
00:04:07,830 --> 00:04:06,319
return both of those experiments back on

111
00:04:09,830 --> 00:04:07,840
spacex 3

112
00:04:10,869 --> 00:04:09,840
later this year

113
00:04:13,670 --> 00:04:10,879

once those

114
00:04:15,350 --> 00:04:13,680
completed

115
00:04:16,789 --> 00:04:15,360
the crew is going to join back up

116
00:04:18,310 --> 00:04:16,799
together

117
00:04:20,710 --> 00:04:18,320
to

118
00:04:23,510 --> 00:04:20,720
install or actually remove these two

119
00:04:25,510 --> 00:04:23,520
radiator grapple bars and install one on

120
00:04:26,469 --> 00:04:25,520
the port side and one on the starboard

121
00:04:28,629 --> 00:04:26,479
side

122
00:04:30,310 --> 00:04:28,639
these two bars they would call them the

123
00:04:33,670 --> 00:04:30,320
radiator grapple bars

124
00:04:35,670 --> 00:04:33,680
were brought up on spacex ii

125
00:04:38,790 --> 00:04:35,680
we've stowed them

126
00:04:41,590 --> 00:04:38,800
on the payload oru attachment

127
00:04:43,350 --> 00:04:41,600
on the mbs and we'd like to get them off

128
00:04:44,870 --> 00:04:43,360
of there and put them in more strategic

129
00:04:45,830 --> 00:04:44,880
locations

130
00:04:47,670 --> 00:04:45,840
so that

131
00:04:50,469 --> 00:04:47,680
they can fulfill their purpose

132
00:04:53,189 --> 00:04:50,479
uh which they're intended to aid in

133
00:04:55,270 --> 00:04:53,199
remove and replace of failed thermal

134
00:04:56,790 --> 00:04:55,280
radiators and so we're going to put one

135
00:04:58,390 --> 00:04:56,800
as i mentioned on the starboard side

136
00:05:00,070 --> 00:04:58,400
that'll be the first task

137
00:05:03,510 --> 00:05:00,080
and then following that we'll put the

138
00:05:04,710 --> 00:05:03,520

other one on the port side of the truss

139
00:05:06,950 --> 00:05:04,720
during this

140
00:05:08,070 --> 00:05:06,960
luca will be on the arm and he'll be

141
00:05:10,390 --> 00:05:08,080
translating

142
00:05:12,070 --> 00:05:10,400
both the starboard and port side with

143
00:05:13,749 --> 00:05:12,080
the rgb's

144
00:05:15,830 --> 00:05:13,759
and chris will be at the work sites to

145
00:05:17,590 --> 00:05:15,840
help bolt them down

146
00:05:19,830 --> 00:05:17,600
in between

147
00:05:21,430 --> 00:05:19,840
going from the starboard to the port

148
00:05:22,310 --> 00:05:21,440
we found a convenient opportunity

149
00:05:23,990 --> 00:05:22,320
actually

150
00:05:25,990 --> 00:05:24,000
all these folks here the eva experts

151
00:05:27,350 --> 00:05:26,000
found a convenient opportunity

152
00:05:28,710 --> 00:05:27,360
to remove

153
00:05:30,710 --> 00:05:28,720
a failed

154
00:05:33,189 --> 00:05:30,720
camera assembly the mobile-based system

155
00:05:34,710 --> 00:05:33,199
camera light pan tilt assembly

156
00:05:38,390 --> 00:05:34,720
this one failed

157
00:05:40,629 --> 00:05:38,400
back in may of 2012 just before htv3

158
00:05:43,110 --> 00:05:40,639
it's a it was at the time one of our

159
00:05:44,870 --> 00:05:43,120
prime viewing cameras

160
00:05:46,390 --> 00:05:44,880
for monitoring visiting vehicles as they

161
00:05:48,390 --> 00:05:46,400
come to station

162
00:05:51,029 --> 00:05:48,400
we found of course alternate camera

163
00:05:53,189 --> 00:05:51,039

views but we don't have any spares

164
00:05:55,430 --> 00:05:53,199
to replace any failed units so the idea

165
00:05:56,790 --> 00:05:55,440
is to bring this one back in

166
00:05:59,590 --> 00:05:56,800
fly it down

167
00:06:02,469 --> 00:05:59,600
refurb it and bring it back up as a

168
00:06:04,309 --> 00:06:02,479
valid spare at some point in the future

169
00:06:06,469 --> 00:06:04,319
so luca is going to

170
00:06:09,110 --> 00:06:06,479
do that as he as he translated on on the

171
00:06:12,950 --> 00:06:09,120
arm between the starboard and the port

172
00:06:14,469 --> 00:06:12,960
uh radiator grapple bar task locations

173
00:06:17,110 --> 00:06:14,479
in the meantime

174
00:06:17,990 --> 00:06:17,120
chris cassidy is going to go over and

175
00:06:18,710 --> 00:06:18,000
route

176
00:06:20,550 --> 00:06:18,720
the

177
00:06:22,070 --> 00:06:20,560
multi-purpose laboratory module it's a

178
00:06:23,590 --> 00:06:22,080
russian module that's coming up the end

179
00:06:25,029 --> 00:06:23,600
of this year

180
00:06:26,230 --> 00:06:25,039
he's going to complete the routing of

181
00:06:27,830 --> 00:06:26,240
that cable

182
00:06:31,029 --> 00:06:27,840
from node 1

183
00:06:32,950 --> 00:06:31,039
to the interface between the pma1 and

184
00:06:34,790 --> 00:06:32,960
the the zarya module

185
00:06:36,629 --> 00:06:34,800
so that the russians and a future eva

186
00:06:38,629 --> 00:06:36,639
can finish connecting that and so that's

187
00:06:42,070 --> 00:06:38,639
one of a couple of things we're doing to

188
00:06:44,550 --> 00:06:42,080

aid in preparation for the the visit of

189
00:06:46,230 --> 00:06:44,560
mlm later this year

190
00:06:48,390 --> 00:06:46,240
once those guys are complete with that

191
00:06:51,589 --> 00:06:48,400
and they've completed the port rgb

192
00:06:57,670 --> 00:06:54,390
again chris breaks off and he does a

193
00:06:59,189 --> 00:06:57,680
task it's one of a one of two part tasks

194
00:07:01,670 --> 00:06:59,199
that he'll do

195
00:07:04,550 --> 00:07:01,680
for what we call the z1 on the z1 truss

196
00:07:06,629 --> 00:07:04,560
it's a wide bypass jumper

197
00:07:09,589 --> 00:07:06,639
part 1 will be on this eva part 2 will

198
00:07:10,790 --> 00:07:09,599
be on eva 23.

199
00:07:12,710 --> 00:07:10,800
we found

200
00:07:14,230 --> 00:07:12,720
through various failures we've had in

201
00:07:17,350 --> 00:07:14,240
the past that

202
00:07:19,670 --> 00:07:17,360
if we lose a couple of critical external

203
00:07:21,749 --> 00:07:19,680
power modules or power sources

204
00:07:23,510 --> 00:07:21,759
that we can lose a lot of critical loads

205
00:07:25,589 --> 00:07:23,520
and critical uh components in the

206
00:07:27,430 --> 00:07:25,599
station such as one of our control

207
00:07:30,070 --> 00:07:27,440
moment gyros

208
00:07:31,110 --> 00:07:30,080
one of the strings of the ku-band system

209
00:07:34,230 --> 00:07:31,120
and so

210
00:07:37,510 --> 00:07:34,240
some work was done earlier this year to

211
00:07:40,790 --> 00:07:37,520
inside the node 1 to do some cable

212
00:07:43,270 --> 00:07:40,800
reconfigs and we do these two

213
00:07:45,830 --> 00:07:43,280

y-pass jumper installs and that will

214
00:07:47,670 --> 00:07:45,840
allow us to quickly regain these

215
00:07:49,430 --> 00:07:47,680
critical loads in the event of one of

216
00:07:51,430 --> 00:07:49,440
these external module

217
00:07:53,990 --> 00:07:51,440
power module failures

218
00:07:55,749 --> 00:07:54,000
so we've the program has found this a

219
00:07:57,510 --> 00:07:55,759
very useful thing rather than having to

220
00:07:58,390 --> 00:07:57,520
commit to an eva after you have the

221
00:08:01,510 --> 00:07:58,400
failure

222
00:08:03,430 --> 00:08:01,520
to go restore these capabilities

223
00:08:06,390 --> 00:08:03,440
and finally on the day

224
00:08:08,790 --> 00:08:06,400
the two crew will join back together

225
00:08:11,110 --> 00:08:08,800
for the pma2 cover install

226
00:08:13,589 --> 00:08:11,120
we have an mli cover that we're going to

227
00:08:15,589 --> 00:08:13,599
to go out to the pma2 and you can see on

228
00:08:16,390 --> 00:08:15,599
this graphic it's it's on the very front

229
00:08:18,070 --> 00:08:16,400
right

230
00:08:20,070 --> 00:08:18,080
bottom of the the graphic they're going

231
00:08:22,710 --> 00:08:20,080
to install mli cover and that just

232
00:08:24,150 --> 00:08:22,720
protects the the front interface of the

233
00:08:26,629 --> 00:08:24,160
pma2

234
00:08:29,270 --> 00:08:26,639
from micrometeoroid damage

235
00:08:30,950 --> 00:08:29,280
and so that that in a nutshell wraps up

236
00:08:32,630 --> 00:08:30,960
our first eva and as you can kind of see

237
00:08:34,389 --> 00:08:32,640
from this graphic here

238
00:08:36,469 --> 00:08:34,399

the the crew is going to be mainly

239
00:08:38,469 --> 00:08:36,479
centered in the uh along the center line

240
00:08:39,990 --> 00:08:38,479
of the vehicle

241
00:08:42,149 --> 00:08:40,000
luca will of course go out to the

242
00:08:43,750 --> 00:08:42,159
starboard side for the miss eight

243
00:08:45,430 --> 00:08:43,760
and one thing to note

244
00:08:47,509 --> 00:08:45,440
we've asked luca that while he's out at

245
00:08:50,470 --> 00:08:47,519
the missy 8 work site

246
00:08:51,590 --> 00:08:50,480
to take a few photos of ams while he's

247
00:08:53,350 --> 00:08:51,600
out there

248
00:08:55,910 --> 00:08:53,360
ams has requested to get some better

249
00:08:58,310 --> 00:08:55,920
photography of of their radiators and

250
00:08:59,829 --> 00:08:58,320
get a sense of what condition they're in

251
00:09:02,070 --> 00:08:59,839
so we're going to oblige them on this

252
00:09:04,710 --> 00:09:02,080
eva and then we'll also make an attempt

253
00:09:08,470 --> 00:09:04,720
to take photos again at the end of eva

254
00:09:08,480 --> 00:09:12,310
okay you can go to the next graphic

255
00:09:14,630 --> 00:09:13,750
and this is another view of some of the

256
00:09:16,710 --> 00:09:14,640
other

257
00:09:20,070 --> 00:09:16,720
tasks that i mentioned

258
00:09:20,949 --> 00:09:20,080
again the z1 jumper

259
00:09:22,470 --> 00:09:20,959
and the

260
00:09:24,550 --> 00:09:22,480
sgt-rc or the space-to-ground

261
00:09:26,949 --> 00:09:24,560
transmitter receiver both located on the

262
00:09:28,350 --> 00:09:26,959
z1 truss

263
00:09:32,150 --> 00:09:28,360

all right let's talk a little bit about

264
00:09:33,910 --> 00:09:32,160
eva23 that's a karina's eva and she'll

265
00:09:35,350 --> 00:09:33,920
go over more details

266
00:09:37,910 --> 00:09:35,360
about what we're doing how we're going

267
00:09:41,190 --> 00:09:37,920
to do things during eva 23

268
00:09:43,430 --> 00:09:41,200
eva 23 again we start off the day

269
00:09:46,230 --> 00:09:43,440
chris is going to go out and complete

270
00:09:48,230 --> 00:09:46,240
part two of the z1 y bypass jumper

271
00:09:50,949 --> 00:09:48,240
install task

272
00:09:53,910 --> 00:09:50,959
again both of these things together

273
00:09:55,829 --> 00:09:53,920
allow us to reconfigure the station

274
00:09:58,389 --> 00:09:55,839
just through an internal jumper in the

275
00:10:00,630 --> 00:09:58,399
event that we lose these external

276
00:10:03,750 --> 00:10:00,640
power sources

277
00:10:06,470 --> 00:10:03,760
in the in parallel with that

278
00:10:08,310 --> 00:10:06,480
luca is going to wrap up

279
00:10:10,230 --> 00:10:08,320
another part of the multi-purpose

280
00:10:11,829 --> 00:10:10,240
laboratory module

281
00:10:13,829 --> 00:10:11,839
get ahead that's

282
00:10:15,590 --> 00:10:13,839
routing ethernet cable again in

283
00:10:16,790 --> 00:10:15,600
preparation for mlm later this year and

284
00:10:20,710 --> 00:10:16,800
the russians will complete the

285
00:10:23,190 --> 00:10:20,720
connections once mlm shows up

286
00:10:25,430 --> 00:10:23,200
chris is going to also take care of a

287
00:10:28,310 --> 00:10:25,440
another piece that enables us

288
00:10:30,069 --> 00:10:28,320

to replace

289
00:10:31,990 --> 00:10:30,079
a failed radiator and that's this thing

290
00:10:33,670 --> 00:10:32,000
called the v-guides

291
00:10:35,430 --> 00:10:33,680
they're they're going to be installed

292
00:10:38,069 --> 00:10:35,440
there's four v-guides

293
00:10:39,829 --> 00:10:38,079
we're going to install these on the port

294
00:10:40,550 --> 00:10:39,839
rgb

295
00:10:42,389 --> 00:10:40,560
and

296
00:10:43,990 --> 00:10:42,399
kind of position them close to where

297
00:10:46,230 --> 00:10:44,000
we're having to kind of guess which side

298
00:10:47,350 --> 00:10:46,240
that you might have the failure on of

299
00:10:49,829 --> 00:10:47,360
course but we're going to put them on

300
00:10:51,269 --> 00:10:49,839
the porch side rgb and install them

301
00:10:53,269 --> 00:10:51,279
there this does a couple of things for

302
00:10:55,829 --> 00:10:53,279
us it gets them outside

303
00:10:57,269 --> 00:10:55,839
to free up some internal stowage volume

304
00:10:59,030 --> 00:10:57,279
these were brought up a while ago and

305
00:11:01,670 --> 00:10:59,040
they've been occupying internal stowage

306
00:11:03,350 --> 00:11:01,680
space for a while so this this uh

307
00:11:05,190 --> 00:11:03,360
helps get some free space inside the

308
00:11:06,870 --> 00:11:05,200
vehicle

309
00:11:08,550 --> 00:11:06,880
and also again it gets these things

310
00:11:10,630 --> 00:11:08,560
outside so that in the event that we

311
00:11:11,829 --> 00:11:10,640
have to do a radiator uh remove and

312
00:11:13,509 --> 00:11:11,839
replace

313
00:11:15,910 --> 00:11:13,519

these guides will be used to help guide

314
00:11:18,310 --> 00:11:15,920
in the new radiator beam

315
00:11:22,069 --> 00:11:18,320
into place so they work in concert with

316
00:11:25,269 --> 00:11:22,079
these rgbs that we're installing

317
00:11:26,630 --> 00:11:25,279
luca on the other side is going to

318
00:11:29,750 --> 00:11:26,640
to route some

319
00:11:32,310 --> 00:11:29,760
some cables uh to allow us to power and

320
00:11:34,630 --> 00:11:32,320
get data to this uh payload data grapple

321
00:11:37,030 --> 00:11:34,640
fixture that was installed on the fgb on

322
00:11:39,110 --> 00:11:37,040
the zarya module a while ago

323
00:11:40,949 --> 00:11:39,120
these things again you know these these

324
00:11:42,870 --> 00:11:40,959
evas are a collection of different tasks

325
00:11:45,670 --> 00:11:42,880
that just weren't able to be

326
00:11:47,269 --> 00:11:45,680
accomplished on previous evas and so

327
00:11:49,030 --> 00:11:47,279
we've got some time to do it so we're

328
00:11:50,710 --> 00:11:49,040
going to take care of these also there

329
00:11:53,190 --> 00:11:50,720
was a

330
00:11:55,829 --> 00:11:53,200
some grounding wire that had been seen

331
00:11:59,430 --> 00:11:55,839
previously that looks like it's popped

332
00:12:03,190 --> 00:11:59,440
up on one of the electrical electrical

333
00:12:05,350 --> 00:12:03,200
connector areas on the the fgb pdgf so

334
00:12:06,870 --> 00:12:05,360
we're going to try to remove that and

335
00:12:08,790 --> 00:12:06,880
pull it out of the way

336
00:12:10,230 --> 00:12:08,800
thus once we're complete with this it'll

337
00:12:15,590 --> 00:12:10,240
enable us to

338
00:12:20,150 --> 00:12:18,230

the the last big task that both of these

339
00:12:23,670 --> 00:12:20,160
crew members will do together

340
00:12:25,990 --> 00:12:23,680
is uh relocating a wireless video system

341
00:12:27,910 --> 00:12:26,000
external transceiver assembly

342
00:12:30,150 --> 00:12:27,920
we call it the weta we're going to take

343
00:12:31,350 --> 00:12:30,160
it from the p1 location and put it on to

344
00:12:34,389 --> 00:12:31,360
node 2.

345
00:12:36,870 --> 00:12:34,399
this is in preparation for eventual plan

346
00:12:39,829 --> 00:12:36,880
to relocate some of the modules

347
00:12:41,990 --> 00:12:39,839
to free up some docking ports for future

348
00:12:46,069 --> 00:12:42,000
visiting vehicles

349
00:12:48,389 --> 00:12:46,079
this is part of a get-ahead task for

350
00:12:50,550 --> 00:12:48,399
something way in the future

351
00:12:53,110 --> 00:12:50,560
and finally the last thing we're going

352
00:12:53,910 --> 00:12:53,120
to do is uh remove some mli covering

353
00:12:55,509 --> 00:12:53,920
from

354
00:12:57,430 --> 00:12:55,519
an mbsu

355
00:13:00,470 --> 00:12:57,440
main bus switching unit that's back out

356
00:13:02,389 --> 00:13:00,480
on the starboard truss near the missy 8

357
00:13:04,949 --> 00:13:02,399
work site again this is our opportunity

358
00:13:07,670 --> 00:13:04,959
to take some more photos of ams

359
00:13:09,110 --> 00:13:07,680
and this removing this mli and tying it

360
00:13:11,910 --> 00:13:09,120
out of the way

361
00:13:12,870 --> 00:13:11,920
provides us an opportunity to remotely

362
00:13:14,389 --> 00:13:12,880
using the

363
00:13:16,069 --> 00:13:14,399

spdm

364
00:13:16,870 --> 00:13:16,079
take this mbsu

365
00:13:18,949 --> 00:13:16,880
and

366
00:13:21,190 --> 00:13:18,959
eventually bring it back inside for iva

367
00:13:22,710 --> 00:13:21,200
repair so that we can

368
00:13:24,310 --> 00:13:22,720
we don't have to keep flying spares up

369
00:13:26,150 --> 00:13:24,320
we can fix something that we have on

370
00:13:27,750 --> 00:13:26,160
orbit and

371
00:13:29,910 --> 00:13:27,760
refurbish it and reuse it again in the

372
00:13:31,350 --> 00:13:29,920
future

373
00:13:33,670 --> 00:13:31,360
and so those

374
00:13:35,829 --> 00:13:33,680
comprise the the main tasks we have for

375
00:13:37,829 --> 00:13:35,839
the second eva

376
00:13:39,430 --> 00:13:37,839
at this point

377
00:13:41,030 --> 00:13:39,440
i'll uh if you want to look at some of

378
00:13:42,790 --> 00:13:41,040
the graphics again showing some of the

379
00:13:45,030 --> 00:13:42,800
work site locations

380
00:13:47,750 --> 00:13:45,040
most of these again are in in and around

381
00:13:49,670 --> 00:13:47,760
the the center line of the station

382
00:13:50,710 --> 00:13:49,680
the z1 jumpers part two of course on the

383
00:13:53,030 --> 00:13:50,720
z1

384
00:13:55,350 --> 00:13:53,040
we're going to be in and around the node

385
00:13:57,590 --> 00:13:55,360
1 node 3

386
00:14:00,150 --> 00:13:57,600
pma1 junction areas when we're routing

387
00:14:01,750 --> 00:14:00,160
these mlm power and ethernet cables

388
00:14:05,509 --> 00:14:01,760

going out to the

389
00:14:09,189 --> 00:14:05,519
the interface between pma1 and fgb

390
00:14:11,750 --> 00:14:09,199
if you want to go to the next next slide

391
00:14:13,269 --> 00:14:11,760
and again mbsu mli out again on the

392
00:14:16,069 --> 00:14:13,279
starboard side

393
00:14:17,910 --> 00:14:16,079
the wet install bringing it from p1 back

394
00:14:19,509 --> 00:14:17,920
to the node 2 area

395
00:14:21,110 --> 00:14:19,519
and so this gives you kind of a sense

396
00:14:22,550 --> 00:14:21,120
we're moving around

397
00:14:24,550 --> 00:14:22,560
around the station but we're staying

398
00:14:27,350 --> 00:14:24,560
inboard of both of the solar array

399
00:14:29,670 --> 00:14:27,360
rotary joints on both evas so we're not

400
00:14:31,670 --> 00:14:29,680
going outboard of those

401
00:14:33,829 --> 00:14:31,680
and that that pretty much does it for

402
00:14:35,829 --> 00:14:33,839
the the summary of what we're doing on

403
00:14:38,230 --> 00:14:35,839
both of these evas

404
00:14:39,509 --> 00:14:38,240
so at this point i'll pass it over to

405
00:14:41,430 --> 00:14:39,519
ernie bell who's going to talk to you

406
00:14:45,670 --> 00:14:41,440
more detail about how we're going to do

407
00:14:47,750 --> 00:14:45,680
things on eva 22.

408
00:14:49,269 --> 00:14:47,760
all right well good afternoon um i just

409
00:14:51,430 --> 00:14:49,279
want to say we have an excellent eba

410
00:14:53,590 --> 00:14:51,440
team put together here for ebay 22. i

411
00:14:55,670 --> 00:14:53,600
want to point out a couple folks that uh

412
00:14:57,110 --> 00:14:55,680
are helping us lead up this effort on

413
00:14:59,590 --> 00:14:57,120

the task side of things we have alex

414
00:15:01,110 --> 00:14:59,600
canelacos supported with grant schlesser

415
00:15:03,430 --> 00:15:01,120
and scott ray

416
00:15:05,670 --> 00:15:03,440
and then for the eva systems side we

417
00:15:07,829 --> 00:15:05,680
have lead of john milarski and he's

418
00:15:09,430 --> 00:15:07,839
supported by sandy fletcher

419
00:15:10,710 --> 00:15:09,440
additionally the increment team has been

420
00:15:11,670 --> 00:15:10,720
helping us out a lot get everything

421
00:15:13,750 --> 00:15:11,680
ready

422
00:15:15,110 --> 00:15:13,760
for these guys to go outside and just

423
00:15:16,629 --> 00:15:15,120
wanted to mention reagan cheney and

424
00:15:18,629 --> 00:15:16,639
brian mate are doing an excellent job

425
00:15:20,150 --> 00:15:18,639
getting all that together

426
00:15:22,310 --> 00:15:20,160
we had the opportunity to recently talk

427
00:15:24,150 --> 00:15:22,320
with the crew and they are definitely

428
00:15:25,670 --> 00:15:24,160
looking forward to this eva

429
00:15:27,750 --> 00:15:25,680
and they are ready to go we have a

430
00:15:29,430 --> 00:15:27,760
couple more opportunities uh to do so

431
00:15:31,350 --> 00:15:29,440
again just to make sure everything's

432
00:15:32,870 --> 00:15:31,360
cleared up and ready for them for next

433
00:15:34,870 --> 00:15:32,880
tuesday

434
00:15:37,189 --> 00:15:34,880
as david mentioned uh chris cassidy is

435
00:15:39,269 --> 00:15:37,199
going to be eb1 on his

436
00:15:40,710 --> 00:15:39,279
time outside and luca parmitano will be

437
00:15:41,990 --> 00:15:40,720
ev2

438
00:15:43,990 --> 00:15:42,000

we have quite a bit of robotic

439
00:15:46,710 --> 00:15:44,000
operations going on

440
00:15:49,189 --> 00:15:46,720
on eva 22 and for this karen nyberg will

441
00:15:51,509 --> 00:15:49,199
be supporting the crew by

442
00:15:52,870 --> 00:15:51,519
controlling the remote arm the robotic

443
00:15:54,389 --> 00:15:52,880
arm

444
00:15:56,230 --> 00:15:54,399
we're actually gonna have a ground

445
00:15:57,990 --> 00:15:56,240
um crew member who'll be reading the

446
00:16:01,269 --> 00:15:58,000
procedures that's shane kimbrough he'll

447
00:16:04,310 --> 00:16:01,279
be doing so from mission control

448
00:16:06,389 --> 00:16:04,320
so this time uh we have a uh a video of

449
00:16:07,590 --> 00:16:06,399
the activities for this eva and let's go

450
00:16:10,870 --> 00:16:07,600
ahead and uh

451
00:16:16,230 --> 00:16:13,590
so we'll start out eva 22 chris is going

452
00:16:18,230 --> 00:16:16,240
to be wearing the red stripes

453
00:16:20,790 --> 00:16:18,240
he's going to be egressing first and

454
00:16:26,069 --> 00:16:20,800
he's going to do so with the spare space

455
00:16:29,189 --> 00:16:27,749
luca parmitano then he's going to be

456
00:16:31,910 --> 00:16:29,199
wearing the plane suit will he grasp

457
00:16:34,829 --> 00:16:31,920
second and he'll take with him a cover

458
00:16:36,550 --> 00:16:34,839
for one of the missing experiments the

459
00:16:38,550 --> 00:16:36,560
ormate

460
00:16:40,550 --> 00:16:38,560
so the first task for chris he'll uh

461
00:16:43,269 --> 00:16:40,560
translate aft on the airlock and up to

462
00:16:44,710 --> 00:16:43,279
the top of z1

463
00:16:47,189 --> 00:16:44,720

and he's going to get in position to

464
00:16:48,790 --> 00:16:47,199
replace the failed sgt rc

465
00:16:51,509 --> 00:16:48,800
so he'll first stow

466
00:16:54,150 --> 00:16:51,519
the bag with the replacement sdtrc on

467
00:16:56,230 --> 00:16:54,160
top of the z1 truss

468
00:16:58,470 --> 00:16:56,240
you'll set up a temporary hardware

469
00:17:03,509 --> 00:16:58,480
stanchion which you'll then attach the

470
00:17:09,189 --> 00:17:06,309
so he retrieves it and places it on top

471
00:17:11,829 --> 00:17:09,199
he'll then move over to the failed unit

472
00:17:13,750 --> 00:17:11,839
and get in position to release it via

473
00:17:15,510 --> 00:17:13,760
three bolts here you actually see a

474
00:17:19,270 --> 00:17:15,520
picture of chris in the neutral buoyancy

475
00:17:21,270 --> 00:17:19,280
lab practicing this actual procedure

476
00:17:23,829 --> 00:17:21,280
once he's removed the failed one he'll

477
00:17:26,470 --> 00:17:23,839
grab the spare and install it into the

478
00:17:28,470 --> 00:17:26,480
same location

479
00:17:31,190 --> 00:17:28,480
and once complete he'll sew the failed

480
00:17:33,669 --> 00:17:31,200
inside the bag

481
00:17:36,630 --> 00:17:33,679
place the hardware stanchion

482
00:17:38,310 --> 00:17:36,640
inside the bag and close it up

483
00:17:40,150 --> 00:17:38,320
once complete with the task he'll return

484
00:17:42,950 --> 00:17:40,160
to the airlock where he'll stow this

485
00:17:45,510 --> 00:17:42,960
entire bag inside

486
00:17:47,990 --> 00:17:45,520
now while chris has been working on the

487
00:17:50,310 --> 00:17:48,000
sdtrc luca has translated up the

488
00:17:51,350 --> 00:17:50,320

cetaspur to outboard side starboard

489
00:17:53,270 --> 00:17:51,360
truss

490
00:17:54,150 --> 00:17:53,280
to the express logistics carrier number

491
00:17:57,110 --> 00:17:54,160
two

492
00:17:59,590 --> 00:17:57,120
where the missy experiment is located

493
00:18:01,830 --> 00:17:59,600
this actually includes two items the

494
00:18:04,390 --> 00:18:01,840
optical reflector materials experiment

495
00:18:07,510 --> 00:18:04,400
or the ormate and the payload experiment

496
00:18:09,270 --> 00:18:07,520
container the pec

497
00:18:12,789 --> 00:18:09,280
so he'll get up onto position there in

498
00:18:14,150 --> 00:18:12,799
the forward zenith side of elc2

499
00:18:15,190 --> 00:18:14,160
and first thing he'll do is take some

500
00:18:17,909 --> 00:18:15,200
pictures

501
00:18:20,230 --> 00:18:17,919
of the material the material experiment

502
00:18:21,990 --> 00:18:20,240
he'll also look over it inboard and take

503
00:18:24,710 --> 00:18:22,000
some photos of the

504
00:18:27,270 --> 00:18:24,720
ams as david had mentioned earlier

505
00:18:28,549 --> 00:18:27,280
put a cover on the ormate remove it and

506
00:18:31,350 --> 00:18:28,559
place it on his

507
00:18:34,070 --> 00:18:31,360
mini workstation

508
00:18:35,750 --> 00:18:34,080
he'll then close the peck

509
00:18:38,070 --> 00:18:35,760
where the experiment was actually inside

510
00:18:40,470 --> 00:18:38,080
of it now

511
00:18:43,669 --> 00:18:40,480
and here's a photo of the experiment on

512
00:18:45,909 --> 00:18:43,679
orbit so you can see the hardware

513
00:18:49,750 --> 00:18:45,919

he'll demate two cables from the peck

514
00:18:51,669 --> 00:18:49,760
and connect them to the base

515
00:18:54,789 --> 00:18:51,679
at this point he'll release the payload

516
00:18:57,990 --> 00:18:54,799
and stow it on his body restraint tether

517
00:18:59,510 --> 00:18:58,000
and translate back to the airlock

518
00:19:01,990 --> 00:18:59,520
at the airlock he'll actually stow both

519
00:19:03,990 --> 00:19:02,000
the ormate and the peck inside

520
00:19:05,750 --> 00:19:04,000
and we can expect both the crew to be

521
00:19:08,789 --> 00:19:05,760
back at the airlock together at about

522
00:19:11,909 --> 00:19:10,230
they'll then begin their next task which

523
00:19:13,110 --> 00:19:11,919
is the starboard radiator grapple bar

524
00:19:16,070 --> 00:19:13,120
install

525
00:19:18,470 --> 00:19:16,080
for this chris will translate up

526
00:19:20,549 --> 00:19:18,480
to the starboard cedar cart

527
00:19:22,070 --> 00:19:20,559
with a large oru bag that he's going to

528
00:19:23,669 --> 00:19:22,080
use for the

529
00:19:27,830 --> 00:19:23,679
some flight support equipment brackets

530
00:19:30,310 --> 00:19:27,840
that he'll later remove from the rgbs

531
00:19:32,230 --> 00:19:30,320
so he'll place this bag onto cedar cart

532
00:19:34,630 --> 00:19:32,240
he's going to actually take out a large

533
00:19:37,909 --> 00:19:34,640
or a handling device

534
00:19:39,909 --> 00:19:37,919
go up onto the mobile base system and

535
00:19:43,270 --> 00:19:39,919
place this handling

536
00:19:45,590 --> 00:19:43,280
fixture or scoop onto the mass camera

537
00:19:48,950 --> 00:19:45,600
this is for use later by luca

538
00:19:51,590 --> 00:19:48,960

and then go back to the cedar cart

539
00:19:53,350 --> 00:19:51,600
meanwhile luca has been retrieving a

540
00:19:54,950 --> 00:19:53,360
foot restraint

541
00:19:56,870 --> 00:19:54,960
he'll actually gather this from the

542
00:19:59,750 --> 00:19:56,880
forward side of the external stoic

543
00:20:01,190 --> 00:19:59,760
platform number two

544
00:20:03,029 --> 00:20:01,200
he'll put on his

545
00:20:05,830 --> 00:20:03,039
brt

546
00:20:07,909 --> 00:20:05,840
and then translate outport just slightly

547
00:20:09,270 --> 00:20:07,919
poor to where chris has been working

548
00:20:12,470 --> 00:20:09,280
where he'll

549
00:20:13,750 --> 00:20:12,480
begin steps to ingress the arm so once

550
00:20:15,830 --> 00:20:13,760
he's on location he'll put the foot

551
00:20:18,070 --> 00:20:15,840
restraint at the end of the arm

552
00:20:20,390 --> 00:20:18,080
and then he'll in grace ingress the foot

553
00:20:22,070 --> 00:20:20,400
restraint

554
00:20:23,590 --> 00:20:22,080
at which point karen's going to fly him

555
00:20:25,669 --> 00:20:23,600
over and get him in position where he'll

556
00:20:28,310 --> 00:20:25,679
be able to take control of the first of

557
00:20:30,149 --> 00:20:28,320
two rgbs

558
00:20:32,070 --> 00:20:30,159
meanwhile chris is

559
00:20:34,470 --> 00:20:32,080
moving around breaking torque onto four

560
00:20:36,390 --> 00:20:34,480
bolts that hold this for first rgb to

561
00:20:37,830 --> 00:20:36,400
the second one

562
00:20:40,630 --> 00:20:37,840
on the forward side there you see him

563
00:20:46,789 --> 00:20:40,640

he'll release to two bolts

564
00:20:51,029 --> 00:20:48,789
and then move back inboard

565
00:20:56,070 --> 00:20:51,039
so that luca can move into position to

566
00:21:00,390 --> 00:20:58,230
once luca takes control of it chris will

567
00:21:03,350 --> 00:21:00,400
release the second two bolts

568
00:21:05,909 --> 00:21:03,360
karen will fly luca out

569
00:21:07,830 --> 00:21:05,919
and luke will then reposition the rgb

570
00:21:11,029 --> 00:21:07,840
into the a better

571
00:21:13,510 --> 00:21:11,039
attitude for installation over on the

572
00:21:16,870 --> 00:21:13,520
starboard thermal radiator rotary joint

573
00:21:18,549 --> 00:21:16,880
or the target

574
00:21:20,950 --> 00:21:18,559
and this arm maneuver here is going to

575
00:21:23,350 --> 00:21:20,960
be about a 15 minute maneuver

576
00:21:26,310 --> 00:21:23,360
so he'll fly up over the station and get

577
00:21:30,149 --> 00:21:28,630
now during this maneuver

578
00:21:33,110 --> 00:21:30,159
chris is actually going to remove the

579
00:21:34,870 --> 00:21:33,120
two flight uh support equipment brackets

580
00:21:36,070 --> 00:21:34,880
that were used to hold the two rgbs

581
00:21:37,909 --> 00:21:36,080
together

582
00:21:39,990 --> 00:21:37,919
he'll stow them back in the large oru

583
00:21:45,350 --> 00:21:40,000
bag which is over there on the uh cedar

584
00:21:55,110 --> 00:21:47,110
there's the first one and now working on

585
00:21:58,789 --> 00:21:56,870
once he has those both removed he's

586
00:22:00,470 --> 00:21:58,799
going to translate outboard on the

587
00:22:02,470 --> 00:22:00,480
starboard side of the truss

588
00:22:15,350 --> 00:22:02,480

and he'll meet up with luca

589
00:22:19,430 --> 00:22:17,669
so once in position

590
00:22:21,750 --> 00:22:19,440
the two of them will work together to

591
00:22:24,470 --> 00:22:21,760
align the rgb onto stow bolts

592
00:22:26,710 --> 00:22:24,480
on the stow beams

593
00:22:28,390 --> 00:22:26,720
see there and then they will iteratively

594
00:22:29,669 --> 00:22:28,400
work back and forth to secure the two

595
00:22:30,789 --> 00:22:29,679
bolts

596
00:22:34,870 --> 00:22:30,799
to

597
00:22:39,430 --> 00:22:34,880
from the neutral buoyancy lab of this

598
00:22:43,190 --> 00:22:41,110
once complete luke will be flown back

599
00:22:51,990 --> 00:22:43,200
towards the second rgb which is still

600
00:22:54,950 --> 00:22:53,430
during the maneuver

601
00:23:04,070 --> 00:22:54,960
chris is actually going to translate

602
00:23:07,669 --> 00:23:05,990
and once he gets down to the airlock

603
00:23:09,590 --> 00:23:07,679
he'll translate to the zenith forward

604
00:23:11,590 --> 00:23:09,600
high pressure gas tank

605
00:23:14,149 --> 00:23:11,600
and here he'll retrieve the

606
00:23:15,909 --> 00:23:14,159
mlm power cable

607
00:23:18,549 --> 00:23:15,919
this was previously staged there by suni

608
00:23:20,070 --> 00:23:18,559
williams on evi 18.

609
00:23:23,110 --> 00:23:20,080
the task here is to route the cable

610
00:23:25,990 --> 00:23:23,120
along the starboard side of node 1

611
00:23:27,990 --> 00:23:26,000
and onto the pma1 or pressurized mating

612
00:23:36,789 --> 00:23:28,000
adapter number one on the outside of

613
00:23:40,310 --> 00:23:38,470

once chris gets this task complete he's

614
00:23:42,470 --> 00:23:40,320
going to translate back towards the port

615
00:23:44,870 --> 00:23:42,480
cedar cart where he was earlier to help

616
00:23:48,710 --> 00:23:44,880
with the release of the second rgb from

617
00:23:53,350 --> 00:23:51,269
but first um luca on the flight over to

618
00:23:55,830 --> 00:23:53,360
the second rgb is going to be brought in

619
00:23:57,190 --> 00:23:55,840
to remove a failed mass camera on the

620
00:23:59,350 --> 00:23:57,200
mbs

621
00:24:01,430 --> 00:23:59,360
he'll drive a single bolt

622
00:24:03,110 --> 00:24:01,440
that'll release that camera and then

623
00:24:04,630 --> 00:24:03,120
karen will fly him away and the rest of

624
00:24:11,669 --> 00:24:04,640
the way over to

625
00:24:15,350 --> 00:24:13,350
and once he's in position

626
00:24:19,430 --> 00:24:15,360
he'll actually hand the camera off to

627
00:24:23,669 --> 00:24:22,230
chris will then retreat aft

628
00:24:26,149 --> 00:24:23,679
near the cedar cart

629
00:24:28,710 --> 00:24:26,159
luca will take control of the rgb

630
00:24:31,110 --> 00:24:28,720
chris will help work clearances and

631
00:24:33,510 --> 00:24:31,120
they'll fly him out away from the poa

632
00:24:36,470 --> 00:24:33,520
again luca will rotate the rgb for the

633
00:24:47,110 --> 00:24:36,480
installation this time over on the

634
00:24:50,549 --> 00:24:49,029
this flight here is actually about a 27

635
00:24:52,149 --> 00:24:50,559
minute maneuver so it's a pretty long

636
00:24:53,029 --> 00:24:52,159
arm maneuver

637
00:24:54,870 --> 00:24:53,039
um

638
00:24:57,430 --> 00:24:54,880

so there is again some time for chris to

639
00:24:58,470 --> 00:24:57,440
go and work some other tasks

640
00:24:59,909 --> 00:24:58,480
during this

641
00:25:02,710 --> 00:24:59,919
flight then chris will return to the

642
00:25:06,230 --> 00:25:02,720
airlock drop off the failed camera grab

643
00:25:08,470 --> 00:25:06,240
two bags one being a pma2 cover bag and

644
00:25:10,149 --> 00:25:08,480
the other a crew lock bag

645
00:25:12,470 --> 00:25:10,159
translate out to the forward end of

646
00:25:15,430 --> 00:25:12,480
station where pma2 is

647
00:25:16,950 --> 00:25:15,440
and drop off the pma2 cover bag it's not

648
00:25:18,630 --> 00:25:16,960
going to install the cover yet but he

649
00:25:19,669 --> 00:25:18,640
will stage the bag

650
00:25:22,549 --> 00:25:19,679
at this point he's going to begin

651
00:25:24,549 --> 00:25:22,559
transferring back to the port targe

652
00:25:25,750 --> 00:25:24,559
along the way he'll drop off his crew

653
00:25:27,830 --> 00:25:25,760
lock bag

654
00:25:31,510 --> 00:25:27,840
it's for use later with the z1 why

655
00:25:36,549 --> 00:25:33,430
translate the rest of the way out to the

656
00:25:40,630 --> 00:25:38,950
and timing working out

657
00:25:43,990 --> 00:25:40,640
luca will be arriving right around this

658
00:25:48,390 --> 00:25:45,990
so they'll get again work together to

659
00:25:49,750 --> 00:25:48,400
stow this rgb in the same fashion that

660
00:25:51,669 --> 00:25:49,760
they did the first one

661
00:25:53,190 --> 00:25:51,679
they'll work to align it onto the

662
00:25:55,590 --> 00:25:53,200
stow beams

663
00:25:57,990 --> 00:25:55,600

and then take turns iteratively driving

664
00:26:00,230 --> 00:25:58,000
the two bolts to secure it to the targe

665
00:26:01,510 --> 00:26:00,240
beam

666
00:26:03,669 --> 00:26:01,520
at this point

667
00:26:06,310 --> 00:26:03,679
luca will be flown back to the same

668
00:26:11,350 --> 00:26:06,320
location where he ingressed the arm it's

669
00:26:15,909 --> 00:26:13,029
be a slightly different orientation but

670
00:26:18,789 --> 00:26:15,919
essentially the same location

671
00:26:20,630 --> 00:26:18,799
he'll egress the foot restraint

672
00:26:23,750 --> 00:26:20,640
and then remove the foot restraint from

673
00:26:25,350 --> 00:26:23,760
the arm and take it back down to esp2

674
00:26:31,990 --> 00:26:25,360
where he retrieved it from earlier in

675
00:26:36,070 --> 00:26:34,070
at this point chris has translated back

676
00:26:38,549 --> 00:26:36,080
picked up his crewlock bag

677
00:26:39,669 --> 00:26:38,559
and is heading around to the aft side of

678
00:26:41,909 --> 00:26:39,679
node one

679
00:26:45,909 --> 00:26:41,919
to a bag there called auxiliary bag

680
00:26:52,950 --> 00:26:45,919
number one where he's going to retrieve

681
00:26:57,029 --> 00:26:55,110
so retrieve those two cables and

682
00:27:05,350 --> 00:26:57,039
translate up over the top of node one to

683
00:27:09,110 --> 00:27:06,950
once he gets on the worksite first thing

684
00:27:11,190 --> 00:27:09,120
he's going to need to do is to reorient

685
00:27:12,950 --> 00:27:11,200
a foot restraint out of the way and then

686
00:27:14,789 --> 00:27:12,960
he'll stage his crewlock bag there's

687
00:27:15,510 --> 00:27:14,799
just a few tools and caps and such for

688
00:27:23,190 --> 00:27:15,520

the

689
00:27:26,230 --> 00:27:23,200
he'll actually do a complete install of

690
00:27:28,470 --> 00:27:26,240
the nader cable or the ford bravo cable

691
00:27:30,950 --> 00:27:28,480
he'll do a partial install of the three

692
00:27:33,830 --> 00:27:30,960
bravo cable or the zenith one that one's

693
00:27:35,269 --> 00:27:33,840
actually gonna be completed on ebay

694
00:27:38,549 --> 00:27:35,279
at this point he returns to the airlock

695
00:27:41,830 --> 00:27:40,070
at this point is another sink point for

696
00:27:44,630 --> 00:27:41,840
the crew where they'll both translate

697
00:27:45,909 --> 00:27:44,640
forward on station out to the pma2

698
00:27:47,909 --> 00:27:45,919
location

699
00:27:50,470 --> 00:27:47,919
where they'll work in conjunction to

700
00:27:52,230 --> 00:27:50,480
install the pma2 cover around the

701
00:27:53,510 --> 00:27:52,240
forward end

702
00:27:57,510 --> 00:27:53,520
of the

703
00:27:59,190 --> 00:27:57,520
there's basically a number of velcro

704
00:28:00,549 --> 00:27:59,200
straps that they're going to cinch down

705
00:28:02,070 --> 00:28:00,559
onto the handrails around the

706
00:28:03,350 --> 00:28:02,080
circumference

707
00:28:05,430 --> 00:28:03,360
one of the crew members then will pick

708
00:28:09,190 --> 00:28:05,440
up the pma2 cover bag

709
00:28:14,830 --> 00:28:11,430
this cover this bag will be stowed

710
00:28:16,789 --> 00:28:14,840
inside the airlock and brought inside at

711
00:28:19,190 --> 00:28:16,799
ingress the other crew member is

712
00:28:21,750 --> 00:28:19,200
actually going to translate back

713
00:28:24,950 --> 00:28:21,760

to the port cedar cart where the large

714
00:28:27,430 --> 00:28:24,960
ru bag which contains those fse brackets

715
00:28:30,070 --> 00:28:27,440
is going to pick up that bag

716
00:28:31,430 --> 00:28:30,080
and then take it down to the air lock

717
00:28:33,430 --> 00:28:31,440
now this bag actually won't be brought

718
00:28:35,510 --> 00:28:33,440
inside on this eva

719
00:28:37,029 --> 00:28:35,520
the airlock's getting pretty full so

720
00:28:39,750 --> 00:28:37,039
instead the crew is going to stow it on

721
00:28:40,870 --> 00:28:39,760
the starboard end there of the uh of the

722
00:28:41,990 --> 00:28:40,880
air lock

723
00:28:45,269 --> 00:28:42,000
see right there where the handrails are

724
00:28:47,029 --> 00:28:45,279
flashing and now place the bag there

725
00:28:49,350 --> 00:28:47,039
once it's complete

726
00:28:51,590 --> 00:28:49,360
luca will ingress first

727
00:28:53,110 --> 00:28:51,600
chris will ingress second

728
00:28:55,350 --> 00:28:53,120
close the hatch

729
00:28:57,190 --> 00:28:55,360
and this will complete

730
00:29:01,830 --> 00:28:57,200
the eva2

731
00:29:08,149 --> 00:29:04,950
so that that's a big overview there of

732
00:29:10,549 --> 00:29:08,159
the eba 22.

733
00:29:12,470 --> 00:29:10,559
i actually have a couple items if

734
00:29:14,870 --> 00:29:12,480
i guess yeah i'll go ahead and show here

735
00:29:16,549 --> 00:29:14,880
for this eba a lot of the items that

736
00:29:18,710 --> 00:29:16,559
they're working with are fairly large

737
00:29:20,710 --> 00:29:18,720
but of the smaller ones it's a couple

738
00:29:21,830 --> 00:29:20,720

mock-ups of uh

739
00:29:24,230 --> 00:29:21,840
from the pool

740
00:29:25,510 --> 00:29:24,240
the z1y bypass jumper install as david

741
00:29:27,190 --> 00:29:25,520
had mentioned is a

742
00:29:29,430 --> 00:29:27,200
fairly important task to provide

743
00:29:31,110 --> 00:29:29,440
redundancy for the station future but

744
00:29:34,149 --> 00:29:31,120
what it comes down to is it's just

745
00:29:36,789 --> 00:29:34,159
simply two cables of about this length

746
00:29:38,470 --> 00:29:36,799
one end with a y to provide a redundancy

747
00:29:40,470 --> 00:29:38,480
from one location or another for power

748
00:29:41,830 --> 00:29:40,480
and then the output so that's really

749
00:29:42,950 --> 00:29:41,840
about all it amounts to is installing

750
00:29:44,789 --> 00:29:42,960
two of those

751
00:29:46,950 --> 00:29:44,799
which seems pretty simple hopefully it

752
00:29:48,070 --> 00:29:46,960
will be

753
00:29:49,669 --> 00:29:48,080
and then the other item that was

754
00:29:51,110 --> 00:29:49,679
actually uh

755
00:29:54,149 --> 00:29:51,120
small enough to bring in here show you

756
00:29:55,750 --> 00:29:54,159
guys is the ormaid experiment and for

757
00:29:58,389 --> 00:29:55,760
this experiment there is actually a

758
00:30:00,789 --> 00:29:58,399
cover that the crew

759
00:30:03,830 --> 00:30:00,799
this is a mock-up again from the mbl

760
00:30:09,190 --> 00:30:05,750
experiment would be here and then luca

761
00:30:11,669 --> 00:30:09,200
would actually install a cover onto it

762
00:30:13,590 --> 00:30:11,679
when he's out the work site

763
00:30:15,190 --> 00:30:13,600

use that to protect the material samples

764
00:30:19,669 --> 00:30:15,200
and experiment that's inside of it and

765
00:30:23,110 --> 00:30:21,510
oh boy

766
00:30:24,310 --> 00:30:23,120
it's

767
00:30:26,310 --> 00:30:24,320
i'm going to have to double check on

768
00:30:28,950 --> 00:30:26,320
that it's the size here though it's

769
00:30:31,990 --> 00:30:31,029
something like that maybe yeah somewhere

770
00:30:34,149 --> 00:30:32,000
in that range it might be a little bit

771
00:30:35,190 --> 00:30:34,159
heavier than that i think that a laptop

772
00:30:36,549 --> 00:30:35,200
yeah

773
00:30:38,470 --> 00:30:36,559
so that's the two pieces of hardware i

774
00:30:40,310 --> 00:30:38,480
was able to bring in the rgbs are pretty

775
00:30:42,710 --> 00:30:40,320
good size so i didn't exactly want to

776
00:30:45,350 --> 00:30:42,720
have this up here at the desk

777
00:30:46,950 --> 00:30:45,360
yeah or a couple hundred pounds or so

778
00:30:48,549 --> 00:30:46,960
so

779
00:30:52,310 --> 00:30:48,559
at this point um i can go ahead and turn

780
00:30:54,389 --> 00:30:52,320
it over to karina for eva 23. all right

781
00:30:56,070 --> 00:30:54,399
thanks ernie

782
00:30:58,870 --> 00:30:56,080
i'd like to start by thanking my

783
00:31:02,389 --> 00:30:58,880
excellent eva team for ev23 which is my

784
00:31:05,350 --> 00:31:02,399
task lead sandy moore task 2 scott ray

785
00:31:07,830 --> 00:31:05,360
and my emu systems lead david simon and

786
00:31:10,470 --> 00:31:07,840
i will second ernie's thanks to the lead

787
00:31:12,149 --> 00:31:10,480
eva team for increment 36 grant slusser

788
00:31:13,990 --> 00:31:12,159

as the lead with brian maderer and

789
00:31:15,350 --> 00:31:14,000
reagan cheney helping him out because

790
00:31:17,029 --> 00:31:15,360
they're doing all the preparations for

791
00:31:18,950 --> 00:31:17,039
these evas on board coordinating with

792
00:31:20,630 --> 00:31:18,960
the crew

793
00:31:22,470 --> 00:31:20,640
in addition i'd like to thank astronauts

794
00:31:24,870 --> 00:31:22,480
doug wheelock and david st jack for

795
00:31:27,509 --> 00:31:24,880
their terrific help in uh developing the

796
00:31:29,590 --> 00:31:27,519
timeline for eva 23 this eva was

797
00:31:31,350 --> 00:31:29,600
envisioned at the point when chris and

798
00:31:32,470 --> 00:31:31,360
luca were nearly finished with their

799
00:31:33,669 --> 00:31:32,480
training

800
00:31:35,430 --> 00:31:33,679
and so

801
00:31:36,950 --> 00:31:35,440
doug and david did all the hard work in

802
00:31:38,630 --> 00:31:36,960
the neutral buoyancy lab to help us

803
00:31:40,149 --> 00:31:38,640
develop the timeline

804
00:31:41,909 --> 00:31:40,159
and shane kimbrough will also be the

805
00:31:44,230 --> 00:31:41,919
ground iv reading out the procedures for

806
00:31:45,669 --> 00:31:44,240
evi23 as well

807
00:31:51,110 --> 00:31:45,679
and with that if we can bring up the

808
00:31:56,470 --> 00:31:54,549
so on us eva 23 ev2 luca parmitano will

809
00:31:58,389 --> 00:31:56,480
egress the airlock first he'll be

810
00:32:00,070 --> 00:31:58,399
wearing the pure white suit

811
00:32:01,509 --> 00:32:00,080
he'll bring out a bag containing some

812
00:32:02,950 --> 00:32:01,519
cables that he'll be installing during

813
00:32:04,470 --> 00:32:02,960

the eva

814
00:32:07,190 --> 00:32:04,480
and then attach his own and chris's

815
00:32:09,750 --> 00:32:07,200
safety tethers outside the airlock

816
00:32:11,430 --> 00:32:09,760
ev-1 chris cassidy wearing the red suit

817
00:32:13,269 --> 00:32:11,440
red striped suit will egress and

818
00:32:15,590 --> 00:32:13,279
retrieve two more large bags from the

819
00:32:16,710 --> 00:32:15,600
airlock one contains the four radiator

820
00:32:18,630 --> 00:32:16,720
v-guides

821
00:32:19,909 --> 00:32:18,640
and the other is an empty bag which will

822
00:32:21,669 --> 00:32:19,919
in which he'll stow the main bus

823
00:32:23,909 --> 00:32:21,679
switching unit multi-layer insulation

824
00:32:26,149 --> 00:32:23,919
towards the end of the eva

825
00:32:30,549 --> 00:32:26,159
chris will translate up over the airlock

826
00:32:33,590 --> 00:32:32,149
and then down to the port side of z1

827
00:32:35,830 --> 00:32:33,600
where he will work on the second of the

828
00:32:37,909 --> 00:32:35,840
two y bypass jumpers and now this one

829
00:32:40,230 --> 00:32:37,919
will have been temporarily stowed on the

830
00:32:42,630 --> 00:32:40,240
previous eva as as ernie mentioned he'll

831
00:32:44,630 --> 00:32:42,640
be working with the upper cables in this

832
00:32:46,230 --> 00:32:44,640
view

833
00:32:47,350 --> 00:32:46,240
and what he's actually going to do is

834
00:32:48,789 --> 00:32:47,360
swap

835
00:32:50,310 --> 00:32:48,799
two connectors

836
00:32:51,509 --> 00:32:50,320
in this graphic here the the two

837
00:32:53,509 --> 00:32:51,519
connectors indicated by the

838
00:32:55,110 --> 00:32:53,519

double-headed arrow will swap and then

839
00:32:57,830 --> 00:32:55,120
the two connectors in the blue circles

840
00:32:59,830 --> 00:32:57,840
will swap and in the end then the green

841
00:33:02,149 --> 00:32:59,840
cable will have been replaced by the y

842
00:33:05,590 --> 00:33:02,159
bypass jumper in red which provides

843
00:33:07,430 --> 00:33:05,600
powers from two different sources

844
00:33:08,630 --> 00:33:07,440
meanwhile luca will take his bag of

845
00:33:10,870 --> 00:33:08,640
cables

846
00:33:14,549 --> 00:33:10,880
from the airlock and translate under the

847
00:33:19,509 --> 00:33:17,669
he'll go to its upper aft end cone

848
00:33:20,950 --> 00:33:19,519
where he'll temporarily stow that bag

849
00:33:24,310 --> 00:33:20,960
and you can see the two handrails he'll

850
00:33:26,230 --> 00:33:24,320
stow it between blinking here

851
00:33:28,149 --> 00:33:26,240
then he'll retrieve the multi-purpose

852
00:33:30,230 --> 00:33:28,159
laboratory module ethernet cable from

853
00:33:32,470 --> 00:33:30,240
the bag and translate to the forward end

854
00:33:34,389 --> 00:33:32,480
cone of unity

855
00:33:35,990 --> 00:33:34,399
where he'll connect the cable to a spare

856
00:33:38,389 --> 00:33:36,000
ethernet connector that is located in

857
00:33:40,470 --> 00:33:38,399
the corner between us lab and the unity

858
00:33:42,149 --> 00:33:40,480
and tranquility nodes

859
00:33:44,070 --> 00:33:42,159
luca will lay the cable out as he

860
00:33:45,350 --> 00:33:44,080
translates back aft towards the russian

861
00:33:46,870 --> 00:33:45,360
segment

862
00:33:48,789 --> 00:33:46,880
and he'll be restraining the cable onto

863
00:33:50,710 --> 00:33:48,799

handrails and other structure using eva

864
00:33:52,310 --> 00:33:50,720
wire ties

865
00:33:54,230 --> 00:33:52,320
this mlm ethernet cable actually

866
00:33:55,669 --> 00:33:54,240
includes four additional extra

867
00:33:57,590 --> 00:33:55,679
connectors on its forward end that can

868
00:33:59,509 --> 00:33:57,600
be used for future ethernet expansion

869
00:34:01,509 --> 00:33:59,519
capability

870
00:34:03,990 --> 00:34:01,519
when luca reaches the forward end of the

871
00:34:05,830 --> 00:34:04,000
zarya russian module he will tie off the

872
00:34:07,190 --> 00:34:05,840
end of the cable on a handrail where a

873
00:34:09,270 --> 00:34:07,200
russian crew will complete the

874
00:34:16,710 --> 00:34:09,280
connection to a cable they will route

875
00:34:20,389 --> 00:34:18,710
after chris finishes with the z1y bypass

876
00:34:22,069 --> 00:34:20,399
jumper he'll return to the airlock to

877
00:34:24,629 --> 00:34:22,079
retrieve the large bag containing the

878
00:34:26,230 --> 00:34:24,639
four v guides

879
00:34:29,270 --> 00:34:26,240
and he'll head out

880
00:34:31,109 --> 00:34:29,280
over the lab and out to the port 1 or p1

881
00:34:32,629 --> 00:34:31,119
truss

882
00:34:34,310 --> 00:34:32,639
you can see the translation path he'll

883
00:34:36,310 --> 00:34:34,320
be taking highlighted by the handrails

884
00:34:38,389 --> 00:34:36,320
blinking there and then he'll go down to

885
00:34:39,430 --> 00:34:38,399
the nader side or the bottom side of the

886
00:34:40,950 --> 00:34:39,440
truss

887
00:34:42,470 --> 00:34:40,960
where he and luca installed one of the

888
00:34:44,470 --> 00:34:42,480

radiator grapple bars on the previous

889
00:34:46,710 --> 00:34:44,480
eva

890
00:34:48,629 --> 00:34:46,720
once he's there he'll bolt the four v

891
00:34:50,790 --> 00:34:48,639
guides onto stowage brackets attached to

892
00:34:55,750 --> 00:34:50,800
the grapple bar

893
00:34:58,630 --> 00:34:55,760
each one has two bolts that zip into the

894
00:35:00,310 --> 00:34:58,640
nut first and then the eva power tool or

895
00:35:03,190 --> 00:35:00,320
pistol grip tool is used to provide the

896
00:35:04,630 --> 00:35:03,200
final torque

897
00:35:06,950 --> 00:35:04,640
while chris is working with the radiator

898
00:35:08,630 --> 00:35:06,960
v-guides luca will continue with several

899
00:35:10,870 --> 00:35:08,640
tasks to finish the outfitting of the

900
00:35:12,710 --> 00:35:10,880
power and data grapple fixture or pdgf

901
00:35:14,069 --> 00:35:12,720
on the zarya module

902
00:35:16,390 --> 00:35:14,079
and first he's going to be checking for

903
00:35:17,750 --> 00:35:16,400
a misconfigured grounding wire inside

904
00:35:19,430 --> 00:35:17,760
one of the connector doors which you see

905
00:35:21,030 --> 00:35:19,440
blinking here

906
00:35:23,270 --> 00:35:21,040
mike fossum actually cleared one of the

907
00:35:25,190 --> 00:35:23,280
connector doors on sts-135 you can see

908
00:35:26,710 --> 00:35:25,200
that one in the upper right photo with a

909
00:35:28,630 --> 00:35:26,720
little white wire that's poking out of

910
00:35:30,069 --> 00:35:28,640
the door there but the yellow arrows

911
00:35:32,630 --> 00:35:30,079
point to a couple little white dots that

912
00:35:34,630 --> 00:35:32,640
we can see behind the other door and we

913
00:35:36,630 --> 00:35:34,640

think that although mike inspected it

914
00:35:38,390 --> 00:35:36,640
and appeared clear it's possible that

915
00:35:40,630 --> 00:35:38,400
the door just pushed that wire out of

916
00:35:42,870 --> 00:35:40,640
the way so in this video you can see

917
00:35:45,030 --> 00:35:42,880
what luca will have to do is

918
00:35:46,790 --> 00:35:45,040
peel back the multi-layer insulation

919
00:35:48,550 --> 00:35:46,800
around the pdgf

920
00:35:49,750 --> 00:35:48,560
and he'll use the large hook from his

921
00:35:51,430 --> 00:35:49,760
waist tether

922
00:35:52,710 --> 00:35:51,440
in order to open the connector doors so

923
00:35:54,150 --> 00:35:52,720
he doesn't have to stick his fingers

924
00:35:55,829 --> 00:35:54,160
inside there

925
00:35:57,430 --> 00:35:55,839
and he'll do an inspection to see if he

926
00:35:59,190 --> 00:35:57,440
sees anything

927
00:36:01,270 --> 00:35:59,200
but then because the door may have

928
00:36:03,270 --> 00:36:01,280
actually pushed that wire out of the way

929
00:36:05,109 --> 00:36:03,280
we will locate it it's it's a grounding

930
00:36:07,109 --> 00:36:05,119
wire for the multi-layer insulation and

931
00:36:08,950 --> 00:36:07,119
just gently pull it out make sure

932
00:36:11,109 --> 00:36:08,960
there's no loose wire inside that

933
00:36:14,950 --> 00:36:11,119
connector cavity and he'll twist it

934
00:36:17,829 --> 00:36:14,960
around to keep it out of out of the way

935
00:36:19,430 --> 00:36:17,839
and then restrain it in place by putting

936
00:36:21,270 --> 00:36:19,440
the

937
00:36:27,510 --> 00:36:21,280
multi-layer insulation back

938
00:36:30,550 --> 00:36:29,430

and then he'll do one final look inside

939
00:36:37,190 --> 00:36:30,560
the connector to make sure everything

940
00:36:41,030 --> 00:36:39,190
once he's complete with that task luca

941
00:36:43,349 --> 00:36:41,040
will release a short segment of the data

942
00:36:45,750 --> 00:36:43,359
cable for the pdgf and route it forward

943
00:36:47,430 --> 00:36:45,760
onto the pressurized mating adapter this

944
00:36:48,550 --> 00:36:47,440
one's actually attached to the pdgf

945
00:36:51,190 --> 00:36:48,560
already

946
00:36:52,710 --> 00:36:51,200
and he'll attach that to a handrail on

947
00:36:54,870 --> 00:36:52,720
the pma

948
00:36:57,750 --> 00:36:54,880
then he'll return to his cable bag and

949
00:36:59,430 --> 00:36:57,760
retrieve the 1553 data cable

950
00:37:01,670 --> 00:36:59,440
which he will attach to that short

951
00:37:04,150 --> 00:37:01,680
pigtail and this actually

952
00:37:05,910 --> 00:37:04,160
uses russian style connectors on those

953
00:37:07,910 --> 00:37:05,920
two cables there

954
00:37:09,829 --> 00:37:07,920
and then he'll route the cable across

955
00:37:12,790 --> 00:37:09,839
the pressurized mating adapter over to a

956
00:37:14,950 --> 00:37:12,800
connector panel on the tranquility node

957
00:37:16,230 --> 00:37:14,960
and the 1553 cable is actually a pair of

958
00:37:18,870 --> 00:37:16,240
cables that have been taped together

959
00:37:20,470 --> 00:37:18,880
just to make them easier to route by eva

960
00:37:22,310 --> 00:37:20,480
and it provides two data channels for

961
00:37:23,910 --> 00:37:22,320
the pdgf

962
00:37:25,430 --> 00:37:23,920
so after luca has connected the two

963
00:37:27,270 --> 00:37:25,440

cables the ground will do a quick check

964
00:37:28,630 --> 00:37:27,280
to verify good communication on both

965
00:37:30,230 --> 00:37:28,640
channels

966
00:37:33,030 --> 00:37:30,240
while that's being done luca will clean

967
00:37:38,550 --> 00:37:33,040
up his work site

968
00:37:42,950 --> 00:37:40,390
he'll stow that in the air lock and then

969
00:37:45,430 --> 00:37:42,960
translate out to meet chris at the p1

970
00:37:47,510 --> 00:37:45,440
truss for the wireless video system

971
00:37:49,190 --> 00:37:47,520
external transceiver assembly or weta

972
00:37:50,630 --> 00:37:49,200
antenna relocation test so this is on

973
00:37:52,150 --> 00:37:50,640
the zenith side

974
00:37:53,910 --> 00:37:52,160
just above where chris was working on

975
00:37:55,589 --> 00:37:53,920
the v guides

976
00:37:58,790 --> 00:37:55,599
and the crew will work together to

977
00:38:00,470 --> 00:37:58,800
demate three connectors from p1

978
00:38:01,990 --> 00:38:00,480
and then release a single large bolt

979
00:38:05,030 --> 00:38:02,000
that holds the antenna stanchion to the

980
00:38:06,390 --> 00:38:05,040
space station

981
00:38:08,069 --> 00:38:06,400
they'll position the wetta and its

982
00:38:09,270 --> 00:38:08,079
stanchion on chris's body restraint

983
00:38:11,750 --> 00:38:09,280
tether

984
00:38:12,630 --> 00:38:11,760
and retrieve their tool bags and then

985
00:38:14,470 --> 00:38:12,640
they will

986
00:38:17,109 --> 00:38:14,480
carefully together translate down

987
00:38:18,710 --> 00:38:17,119
towards the node two harmony aft and

988
00:38:20,550 --> 00:38:18,720

cone you can see the translation path

989
00:38:22,069 --> 00:38:20,560
they'll be taking and we have them do

990
00:38:24,310 --> 00:38:22,079
this together just because the antenna

991
00:38:25,510 --> 00:38:24,320
is very large and so it helps chris to

992
00:38:28,710 --> 00:38:25,520
make sure that it doesn't get bumped

993
00:38:32,950 --> 00:38:30,870
once at the harmony's upper aft end

994
00:38:33,910 --> 00:38:32,960
they'll return the antenna to a vertical

995
00:38:35,510 --> 00:38:33,920
position

996
00:38:37,349 --> 00:38:35,520
and drive the bolt to secure it in the

997
00:38:40,069 --> 00:38:37,359
harmony module you'll see the

998
00:38:41,510 --> 00:38:40,079
neutral buoyancy lab footage

999
00:38:44,950 --> 00:38:41,520
of them working with this antenna and

1000
00:38:46,630 --> 00:38:44,960
it's about seven feet long so

1001
00:38:48,069 --> 00:38:46,640
uh it's also one of the three antennas

1002
00:38:49,510 --> 00:38:48,079
that provide our helmet camera video

1003
00:38:51,510 --> 00:38:49,520
during spacewalks

1004
00:38:52,950 --> 00:38:51,520
and when this antenna is installed the

1005
00:38:54,470 --> 00:38:52,960
crew will then remate the three

1006
00:38:56,550 --> 00:38:54,480
connectors to a connector panel on

1007
00:38:58,550 --> 00:38:56,560
harmony and which provides power to the

1008
00:39:00,870 --> 00:38:58,560
antenna as well as the video signal back

1009
00:39:02,150 --> 00:39:00,880
to us and then they'll retrieve their

1010
00:39:05,510 --> 00:39:02,160
tool bags

1011
00:39:09,670 --> 00:39:07,109
chris will stow the bag that can carry

1012
00:39:11,430 --> 00:39:09,680
the v-guides and retrieve a large empty

1013
00:39:13,670 --> 00:39:11,440

bag for the main bus switching unit

1014
00:39:14,790 --> 00:39:13,680
multi-layer insulation

1015
00:39:16,470 --> 00:39:14,800
and then

1016
00:39:18,230 --> 00:39:16,480
he will be heading out to the express

1017
00:39:21,750 --> 00:39:18,240
logistics carrier number two on the

1018
00:39:26,790 --> 00:39:21,760
zenith side of the starboard three truss

1019
00:39:31,349 --> 00:39:28,630
and you can also see the alpha magnetic

1020
00:39:33,109 --> 00:39:31,359
spectrometer ams right next to that work

1021
00:39:34,630 --> 00:39:33,119
site

1022
00:39:36,390 --> 00:39:34,640
this is the current location of the

1023
00:39:39,109 --> 00:39:36,400
failed main bus switching unit that was

1024
00:39:41,109 --> 00:39:39,119
changed out on u.s evas 18 and 19 in

1025
00:39:42,470 --> 00:39:41,119
august of 2012

1026
00:39:44,470 --> 00:39:42,480
and chris will be removing a large

1027
00:39:46,630 --> 00:39:44,480
insulation blanket from the mbsu he'll

1028
00:39:48,390 --> 00:39:46,640
stow it inside of his bag

1029
00:39:50,470 --> 00:39:48,400
and then he'll use some eva wire ties to

1030
00:39:52,150 --> 00:39:50,480
restrain the flaps around the perimeter

1031
00:39:54,390 --> 00:39:52,160
of the mbsu so they don't get in the way

1032
00:39:56,150 --> 00:39:54,400
of robotic interfaces

1033
00:39:59,829 --> 00:39:56,160
and it can be brought inside robotically

1034
00:40:03,109 --> 00:40:01,349
during this time luca will either be

1035
00:40:05,030 --> 00:40:03,119
finishing up the pdgf tasks he was

1036
00:40:06,790 --> 00:40:05,040
working on earlier or he may assist

1037
00:40:08,790 --> 00:40:06,800
chris in completing the blanket removal

1038
00:40:10,390 --> 00:40:08,800

tasks and taking additional photos of

1039
00:40:12,150 --> 00:40:10,400
the ams

1040
00:40:14,870 --> 00:40:12,160
and that's the end of the plan timeline

1041
00:40:17,190 --> 00:40:14,880
we do have some get-aheads a key one is

1042
00:40:18,790 --> 00:40:17,200
the replacement of the camera on the

1043
00:40:20,870 --> 00:40:18,800
forward corner of the japanese

1044
00:40:23,270 --> 00:40:20,880
experiment mode experiment module

1045
00:40:24,950 --> 00:40:23,280
exposed facility chris cassidy actually

1046
00:40:26,550 --> 00:40:24,960
installed this camera on his previous

1047
00:40:28,630 --> 00:40:26,560
shuttle mission so he's very familiar

1048
00:40:30,230 --> 00:40:28,640
with that work site

1049
00:40:31,910 --> 00:40:30,240
and then the crew will return to the air

1050
00:40:33,270 --> 00:40:31,920
lock they'll stow their hardware

1051
00:40:35,270 --> 00:40:33,280
including the

1052
00:40:38,870 --> 00:40:35,280
radiator grapple bar fsc bag that was

1053
00:40:46,710 --> 00:40:38,880
left outside from eva 22 and ingress and

1054
00:40:50,309 --> 00:40:48,630
okay well with that we'll go ahead and

1055
00:40:51,670 --> 00:40:50,319
open things up for questions we'll start

1056
00:40:53,670 --> 00:40:51,680
with reporters here in the room then

1057
00:40:54,550 --> 00:40:53,680
move to the phone bridge as always if

1058
00:40:56,309 --> 00:40:54,560
you could state your name and

1059
00:40:58,069 --> 00:40:56,319
affiliation and who the question is for

1060
00:41:00,069 --> 00:40:58,079
it would be much appreciated we'll start

1061
00:41:02,069 --> 00:41:00,079
right up here up front uh ginus and

1062
00:41:04,550 --> 00:41:02,079
sarah abc news you mentioned you wanted

1063
00:41:06,550 --> 00:41:04,560

to take some shots of ams

1064
00:41:08,309 --> 00:41:06,560
what's the motivation for that curiosity

1065
00:41:09,990 --> 00:41:08,319
or is there a scientific occurrence to

1066
00:41:11,670 --> 00:41:10,000
it

1067
00:41:13,030 --> 00:41:11,680
yeah my understanding is not a

1068
00:41:14,950 --> 00:41:13,040
scientific

1069
00:41:16,630 --> 00:41:14,960
reason

1070
00:41:18,069 --> 00:41:16,640
they've seen some discoloration on the

1071
00:41:19,670 --> 00:41:18,079
radiators they're not sure if that was

1072
00:41:21,829 --> 00:41:19,680
something ground processing or some

1073
00:41:23,190 --> 00:41:21,839
phenomenon that's happened on orbit so

1074
00:41:25,109 --> 00:41:23,200
they've asked if we could just get some

1075
00:41:26,950 --> 00:41:25,119
photos since we'll be near the work site

1076
00:41:28,630 --> 00:41:26,960
and we'll have good angles

1077
00:41:30,470 --> 00:41:28,640
when we're out on the

1078
00:41:31,109 --> 00:41:30,480
starboard side near the missy eight in

1079
00:41:37,750 --> 00:41:31,119
the

1080
00:41:37,760 --> 00:41:42,230
uh jim oberger nbc a couple of questions

1081
00:41:45,670 --> 00:41:43,190
is it

1082
00:41:47,430 --> 00:41:45,680
correct correct to suggest a theme of a

1083
00:41:49,510 --> 00:41:47,440
lot of this work is to

1084
00:41:52,150 --> 00:41:49,520
modify the station hardware and layout

1085
00:41:54,069 --> 00:41:52,160
to increase the depth of single fail

1086
00:41:56,550 --> 00:41:54,079
tolerance for the future in other words

1087
00:41:58,950 --> 00:41:56,560
you're doing a lot of rewiring to

1088
00:42:01,510 --> 00:41:58,960

anticipation of future failures to make

1089
00:42:03,910 --> 00:42:01,520
it easier to to react to them is that a

1090
00:42:06,230 --> 00:42:03,920
correct interpretation

1091
00:42:08,069 --> 00:42:06,240
yeah i'd say it's twofold one it is

1092
00:42:09,990 --> 00:42:08,079
making it more robust which is what

1093
00:42:11,990 --> 00:42:10,000
you're getting at the other thing is

1094
00:42:16,550 --> 00:42:12,000
some of the tasks that we mentioned are

1095
00:42:19,190 --> 00:42:16,560
intended to prepare us for future uh

1096
00:42:21,349 --> 00:42:19,200
relocations and and

1097
00:42:22,630 --> 00:42:21,359
realignment of things to make station

1098
00:42:26,069 --> 00:42:22,640
more

1099
00:42:27,270 --> 00:42:26,079
usable by visiting vehicles

1100
00:42:29,349 --> 00:42:27,280
thank you and the second thing i was

1101
00:42:31,190 --> 00:42:29,359
trying to flash a sign here about some

1102
00:42:33,349 --> 00:42:31,200
of the big items you're handling the

1103
00:42:35,829 --> 00:42:33,359
seven foot antenna there's other boxes

1104
00:42:37,349 --> 00:42:35,839
those are those are crewman size boxes

1105
00:42:40,390 --> 00:42:37,359
what kind of mask we're talking about

1106
00:42:42,150 --> 00:42:40,400
with these large objects

1107
00:42:43,430 --> 00:42:42,160
can we find out i mean i don't need that

1108
00:42:47,589 --> 00:42:43,440
off the top of my head it's not for not

1109
00:42:50,069 --> 00:42:48,309
okay

1110
00:42:52,390 --> 00:42:50,079
i can tell you the uh the weta and

1111
00:42:54,630 --> 00:42:52,400
stanchion combined is about 168 pounds

1112
00:42:56,870 --> 00:42:54,640
so it's not overly large in comparison

1113
00:43:00,150 --> 00:42:56,880

to some things that we've handled

1114
00:43:02,069 --> 00:43:00,160
yeah wireless video system

1115
00:43:03,430 --> 00:43:02,079
the antenna and the and the stanchion

1116
00:43:05,910 --> 00:43:03,440
it's really just because the antenna

1117
00:43:07,430 --> 00:43:05,920
stands up off of the space station on

1118
00:43:09,430 --> 00:43:07,440
this long stanchion so that's about

1119
00:43:11,510 --> 00:43:09,440
seven feet long

1120
00:43:14,309 --> 00:43:11,520
and there's no plan jettison or release

1121
00:43:18,630 --> 00:43:17,030
we'll keep watching for it

1122
00:43:20,870 --> 00:43:18,640
thank you very much it's spectacular

1123
00:43:23,190 --> 00:43:20,880
graphics and it was a very easy to

1124
00:43:26,150 --> 00:43:23,200
follow the preparation for that is a big

1125
00:43:28,950 --> 00:43:26,160
kudos to whoever worked out that's very

1126
00:43:32,309 --> 00:43:30,710
thanks mark

1127
00:43:33,510 --> 00:43:32,319
for aviation week i had a couple of

1128
00:43:34,630 --> 00:43:33,520
questions

1129
00:43:42,309 --> 00:43:34,640
the

1130
00:43:44,309 --> 00:43:42,319
will it occur

1131
00:43:46,390 --> 00:43:44,319
during some of the spacewalks on the

1132
00:43:48,390 --> 00:43:46,400
russian side that are planned i think

1133
00:43:49,750 --> 00:43:48,400
for august at this point or even later

1134
00:43:51,589 --> 00:43:49,760
this year

1135
00:43:53,349 --> 00:43:51,599
yeah they're going to be the russians

1136
00:43:55,670 --> 00:43:53,359
are going to pick up where we leave off

1137
00:43:57,589 --> 00:43:55,680
later on this year

1138
00:44:01,670 --> 00:43:57,599

they'll have that all in place before

1139
00:44:06,069 --> 00:44:03,589
i think this question is for you too

1140
00:44:09,589 --> 00:44:07,829
i wish i wouldn't wonder if you could go

1141
00:44:15,030 --> 00:44:09,599
with the z1

1142
00:44:18,790 --> 00:44:17,349
the reason for for doing that it's it's

1143
00:44:21,910 --> 00:44:18,800
again it sounds like some of the things

1144
00:44:23,510 --> 00:44:21,920
jim uh spoke about in terms of being

1145
00:44:25,990 --> 00:44:23,520
ready to

1146
00:44:27,829 --> 00:44:26,000
deal with an external electrical issue

1147
00:44:28,550 --> 00:44:27,839
if you need to but be able to deal with

1148
00:44:31,430 --> 00:44:28,560
it

1149
00:44:33,510 --> 00:44:31,440
inside or inside and robotically i got

1150
00:44:34,950 --> 00:44:33,520
lost in there to be honest

1151
00:44:36,630 --> 00:44:34,960
okay yeah the

1152
00:44:38,710 --> 00:44:36,640
the uh i see i don't know if it's easy

1153
00:44:39,829 --> 00:44:38,720
to pull up a graphic there's karina had

1154
00:44:42,150 --> 00:44:39,839
one

1155
00:44:44,150 --> 00:44:42,160
in hers but while while she's doing that

1156
00:44:46,309 --> 00:44:44,160
the uh the purpose is there's some

1157
00:44:49,030 --> 00:44:46,319
external um

1158
00:44:52,950 --> 00:44:49,040
uh power boxes we call them ddc's uh dc

1159
00:44:56,230 --> 00:44:52,960
dc converter units that distribute power

1160
00:44:58,069 --> 00:44:56,240
to loads both externally and internally

1161
00:45:00,309 --> 00:44:58,079
there are a couple of them that if we

1162
00:45:02,230 --> 00:45:00,319
were to lose them for some reason and

1163
00:45:04,870 --> 00:45:02,240

we've had issues in the past where

1164
00:45:06,630 --> 00:45:04,880
things may have gone offline or whatever

1165
00:45:10,309 --> 00:45:06,640
in order to recover some of these

1166
00:45:11,349 --> 00:45:10,319
critical loads that they supply power to

1167
00:45:14,790 --> 00:45:11,359
such as a

1168
00:45:19,910 --> 00:45:16,630
the s-band

1169
00:45:22,150 --> 00:45:19,920
the sgt rc that we're actually replacing

1170
00:45:25,030 --> 00:45:22,160
and the escant which is the big uh ku

1171
00:45:26,710 --> 00:45:25,040
band dish antenna that it attaches to

1172
00:45:28,710 --> 00:45:26,720
those will go offline if we lose that

1173
00:45:30,950 --> 00:45:28,720
decu so

1174
00:45:34,069 --> 00:45:30,960
what we're doing is we're rerouting kind

1175
00:45:35,910 --> 00:45:34,079
of between the ddcu and some of the

1176
00:45:38,150 --> 00:45:35,920
downstream other power distribution

1177
00:45:40,790 --> 00:45:38,160
boxes we're inserting this y cable that

1178
00:45:42,950 --> 00:45:40,800
would that enables us

1179
00:45:44,829 --> 00:45:42,960
uh once you do some internal wiring

1180
00:45:47,829 --> 00:45:44,839
which has already been done

1181
00:45:49,829 --> 00:45:47,839
to reroute the power distribution the

1182
00:45:52,309 --> 00:45:49,839
power of these loads i mentioned

1183
00:45:55,190 --> 00:45:52,319
just with switching a cable inside and

1184
00:45:58,150 --> 00:45:55,200
so it makes it much more robust and and

1185
00:45:59,589 --> 00:45:58,160
here's here's what karina's showing

1186
00:46:02,069 --> 00:45:59,599
there's two sets of cables that are

1187
00:46:04,230 --> 00:46:02,079
required one the blue one the red

1188
00:46:05,670 --> 00:46:04,240

that uh provide us the ability to

1189
00:46:07,270 --> 00:46:05,680
reroute

1190
00:46:08,870 --> 00:46:07,280
power to provide

1191
00:46:10,470 --> 00:46:08,880
alternate source of power to these

1192
00:46:14,470 --> 00:46:10,480
critical loads should one of these

1193
00:46:20,870 --> 00:46:16,630
kind of follow this is this is a design

1194
00:46:24,069 --> 00:46:22,309
eric berger with the houston chronicle i

1195
00:46:25,430 --> 00:46:24,079
would echo jim's comments about the

1196
00:46:27,270 --> 00:46:25,440
quality of the graphics and i would just

1197
00:46:29,349 --> 00:46:27,280
ask a general question

1198
00:46:31,109 --> 00:46:29,359
i'm curious how much eva training the

1199
00:46:33,349 --> 00:46:31,119
astronauts on the station get versus

1200
00:46:35,750 --> 00:46:33,359
those they're going on planned shuttle

1201
00:46:36,790 --> 00:46:35,760
missions who have designated tasks when

1202
00:46:38,950 --> 00:46:36,800
they were when they were building the

1203
00:46:39,990 --> 00:46:38,960
station do the iss crew members get more

1204
00:46:41,670 --> 00:46:40,000
or less

1205
00:46:43,270 --> 00:46:41,680
eva train

1206
00:46:45,109 --> 00:46:43,280
well i'd have to say

1207
00:46:47,430 --> 00:46:45,119
in general they get less it's more

1208
00:46:49,349 --> 00:46:47,440
generic training that they get for

1209
00:46:50,710 --> 00:46:49,359
station crew members now chris has

1210
00:46:52,710 --> 00:46:50,720
actually been up on shuttle flights so

1211
00:46:54,390 --> 00:46:52,720
he's had ebay experience during shuttle

1212
00:46:56,550 --> 00:46:54,400
flights

1213
00:46:58,550 --> 00:46:56,560

freeva 22

1214
00:46:59,910 --> 00:46:58,560
chris and luca actually worked together

1215
00:47:02,309 --> 00:46:59,920
i believe it was on

1216
00:47:03,349 --> 00:47:02,319
two different nbl runs with this

1217
00:47:05,990 --> 00:47:03,359
timeline that they're going to see on

1218
00:47:08,829 --> 00:47:06,000
ebay 22. so they've actually trained the

1219
00:47:11,670 --> 00:47:08,839
specific tasks on this

1220
00:47:14,470 --> 00:47:11,680
ebay they additionally had another run

1221
00:47:16,069 --> 00:47:14,480
individually with other crew members but

1222
00:47:18,870 --> 00:47:16,079
with the same task so they've actually

1223
00:47:21,030 --> 00:47:18,880
seen the cva three times already on the

1224
00:47:23,510 --> 00:47:21,040
ground

1225
00:47:25,190 --> 00:47:23,520
generally we'd have five to seven runs

1226
00:47:27,589 --> 00:47:25,200
for a shuttle crew

1227
00:47:29,670 --> 00:47:27,599
so but you incorporate the generic

1228
00:47:31,750 --> 00:47:29,680
training that they have and they are

1229
00:47:33,990 --> 00:47:31,760
more than ready for these evas a lot of

1230
00:47:36,150 --> 00:47:34,000
generic type of tasks actually associate

1231
00:47:40,710 --> 00:47:36,160
with these type of evas

1232
00:47:44,150 --> 00:47:42,790
okay let's go to the phone bridge real

1233
00:47:47,750 --> 00:47:44,160
quick i think we have mike wahl from

1234
00:47:49,829 --> 00:47:47,760
space.com mike can you hear me

1235
00:47:52,309 --> 00:47:49,839
oh yeah hi guys thanks thanks for doing

1236
00:47:54,069 --> 00:47:52,319
this um this this goes out to pretty

1237
00:47:55,829 --> 00:47:54,079
much anybody who would want to comment

1238
00:47:58,069 --> 00:47:55,839

on it do you guys

1239
00:48:01,190 --> 00:47:58,079
actually see any implications from the

1240
00:48:02,870 --> 00:48:01,200
crash of the proton rocket on monday or

1241
00:48:05,670 --> 00:48:02,880
is that something that that's not going

1242
00:48:07,349 --> 00:48:05,680
to factor in at all to your plants

1243
00:48:09,270 --> 00:48:07,359
yes david

1244
00:48:10,630 --> 00:48:09,280
no there's there's no implications to

1245
00:48:11,750 --> 00:48:10,640
our evas

1246
00:48:14,309 --> 00:48:11,760
and uh

1247
00:48:19,349 --> 00:48:14,319
frankly i i defer anything else on that

1248
00:48:22,470 --> 00:48:21,349
thank you

1249
00:48:24,230 --> 00:48:22,480
all right we'll come to the room for

1250
00:48:25,270 --> 00:48:24,240
follow-ups jim

1251
00:48:26,950 --> 00:48:25,280
yeah there's a whole bunch of

1252
00:48:29,750 --> 00:48:26,960
interesting follow-ups here how you

1253
00:48:31,349 --> 00:48:29,760
discussed in training uh

1254
00:48:33,670 --> 00:48:31,359
although there's more generic training

1255
00:48:35,910 --> 00:48:33,680
and less task training

1256
00:48:37,750 --> 00:48:35,920
aren't these tasks now being designed to

1257
00:48:40,790 --> 00:48:37,760
actually rely on existing generic

1258
00:48:43,430 --> 00:48:40,800
training profiles so that it would be

1259
00:48:45,190 --> 00:48:43,440
wrong to say that the generic training

1260
00:48:47,349 --> 00:48:45,200
is not all that helpful for specific

1261
00:48:50,390 --> 00:48:47,359
training because you are designing the

1262
00:48:52,710 --> 00:48:50,400
current tasks to rely on generic

1263
00:48:53,510 --> 00:48:52,720

training procedures is that uh

1264
00:48:55,750 --> 00:48:53,520
something that you're doing

1265
00:48:57,589 --> 00:48:55,760
philosophically

1266
00:49:00,630 --> 00:48:57,599
i think i'll give a shot answer and i'll

1267
00:49:03,109 --> 00:49:00,640
let karina follow up here too

1268
00:49:04,470 --> 00:49:03,119
generically yes there is a

1269
00:49:05,829 --> 00:49:04,480
protoc or a

1270
00:49:08,710 --> 00:49:05,839
set of training runs that they'll go

1271
00:49:11,190 --> 00:49:08,720
through which will prepare them for a

1272
00:49:13,109 --> 00:49:11,200
number of evas that they may need to do

1273
00:49:14,630 --> 00:49:13,119
on station that they may not anticipate

1274
00:49:16,950 --> 00:49:14,640
having to do once they get until they

1275
00:49:18,230 --> 00:49:16,960
get there so the generic training will

1276
00:49:20,710 --> 00:49:18,240
cover a lot of things like generic

1277
00:49:23,030 --> 00:49:20,720
electrical connectors bolts

1278
00:49:25,910 --> 00:49:23,040
you know other types of work that they

1279
00:49:28,630 --> 00:49:25,920
may have to do the use of the tools

1280
00:49:30,630 --> 00:49:28,640
these evas happen to encompass

1281
00:49:32,470 --> 00:49:30,640
tasks that pretty much the extent of

1282
00:49:34,470 --> 00:49:32,480
training needed for them is for most

1283
00:49:37,109 --> 00:49:34,480
part generic type of training

1284
00:49:38,790 --> 00:49:37,119
now if there was more extensive or more

1285
00:49:39,910 --> 00:49:38,800
elaborate type of tasks that would be

1286
00:49:41,990 --> 00:49:39,920
required

1287
00:49:43,829 --> 00:49:42,000
it's possible we may specifically train

1288
00:49:47,190 --> 00:49:43,839

a specific crew to once they get on

1289
00:49:48,630 --> 00:49:47,200
orbit to perform that task

1290
00:49:49,510 --> 00:49:48,640
i think that hopefully that answers your

1291
00:49:53,510 --> 00:49:49,520
question but karina might have

1292
00:49:57,270 --> 00:49:54,870
in your mouth but that that seems like

1293
00:49:59,270 --> 00:49:57,280
the way you're going so that it would be

1294
00:50:01,270 --> 00:49:59,280
it would just because they're only three

1295
00:50:03,109 --> 00:50:01,280
tasks runs

1296
00:50:04,710 --> 00:50:03,119
specific runs for this this training

1297
00:50:06,230 --> 00:50:04,720
compared to five to seven for shuttle

1298
00:50:06,950 --> 00:50:06,240
crews does not mean the crew is only

1299
00:50:08,549 --> 00:50:06,960
half

1300
00:50:15,589 --> 00:50:08,559
well prepared that's correct they're

1301
00:50:19,910 --> 00:50:17,349
yeah they're training you might use the

1302
00:50:21,829 --> 00:50:19,920
term skills-based training as what they

1303
00:50:23,750 --> 00:50:21,839
get generically um and one of the

1304
00:50:25,349 --> 00:50:23,760
advantages then of training a specific

1305
00:50:28,069 --> 00:50:25,359
timeline is the choreography of the

1306
00:50:30,549 --> 00:50:28,079
timeline and how the tasks

1307
00:50:32,549 --> 00:50:30,559
work out together and we can do a lot of

1308
00:50:34,870 --> 00:50:32,559
that with a crew like i mentioned doug

1309
00:50:35,750 --> 00:50:34,880
and david helped us develop eva 23 and

1310
00:50:37,430 --> 00:50:35,760
so

1311
00:50:39,430 --> 00:50:37,440
from that development then we provide

1312
00:50:40,390 --> 00:50:39,440
information to the crew on board with

1313
00:50:42,230 --> 00:50:40,400

you know

1314
00:50:43,990 --> 00:50:42,240
just little details about how things

1315
00:50:46,069 --> 00:50:44,000
line up together in a specific timeline

1316
00:50:47,589 --> 00:50:46,079
but the tasks and what they're doing is

1317
00:50:48,950 --> 00:50:47,599
really covered by their skills based

1318
00:50:50,309 --> 00:50:48,960
training

1319
00:50:51,510 --> 00:50:50,319
thank you

1320
00:50:53,670 --> 00:50:51,520
all right mark

1321
00:50:55,829 --> 00:50:53,680
thanks uh mark caro for aviation week

1322
00:50:58,309 --> 00:50:55,839
again i had a couple of questions one

1323
00:51:01,030 --> 00:50:58,319
the the activities near the ams do you

1324
00:51:04,309 --> 00:51:01,040
have to power that uh observatory off

1325
00:51:05,510 --> 00:51:04,319
during that or does it remain

1326
00:51:06,549 --> 00:51:05,520
on

1327
00:51:08,549 --> 00:51:06,559
and

1328
00:51:10,870 --> 00:51:08,559
this is another explainer question the b

1329
00:51:12,230 --> 00:51:10,880
guides i understand are part of the i

1330
00:51:14,790 --> 00:51:12,240
guess

1331
00:51:17,750 --> 00:51:14,800
preparation for possible

1332
00:51:19,990 --> 00:51:17,760
change out of radiators um how do they

1333
00:51:23,030 --> 00:51:20,000
how do they work

1334
00:51:24,950 --> 00:51:23,040
what how does that you know i'm not sure

1335
00:51:26,790 --> 00:51:24,960
you guys want to try yeah

1336
00:51:28,309 --> 00:51:26,800
kind of may work together um

1337
00:51:31,030 --> 00:51:28,319
the v guides

1338
00:51:32,790 --> 00:51:31,040

on ebay 23 are being stowed on a radio

1339
00:51:34,710 --> 00:51:32,800
grapple bar which is just a temporary

1340
00:51:36,710 --> 00:51:34,720
stowage location that's not the location

1341
00:51:38,790 --> 00:51:36,720
they would be used in if we had to do a

1342
00:51:40,790 --> 00:51:38,800
radiator rnr i think would be a

1343
00:51:42,790 --> 00:51:40,800
clarifying point

1344
00:51:43,910 --> 00:51:42,800
for the radiator r r itself that

1345
00:51:45,910 --> 00:51:43,920
actually be

1346
00:51:48,230 --> 00:51:45,920
located two on either side of whichever

1347
00:51:49,430 --> 00:51:48,240
particular radiator needed to be

1348
00:51:51,990 --> 00:51:49,440
replaced

1349
00:51:54,950 --> 00:51:52,000
and used as a guidance um

1350
00:51:57,829 --> 00:51:54,960
for the uh removing and then uh changing

1351
00:52:02,470 --> 00:51:59,430
so there's actually some

1352
00:52:03,349 --> 00:52:02,480
some bars on the grapple bar itself that

1353
00:52:06,309 --> 00:52:03,359
kind of

1354
00:52:08,150 --> 00:52:06,319
go down the v guides and they help align

1355
00:52:12,630 --> 00:52:08,160
it as they as the rms would bring the

1356
00:52:16,390 --> 00:52:15,430
all right any more follow-ups

1357
00:52:17,829 --> 00:52:16,400
okay

1358
00:52:18,710 --> 00:52:17,839
then with that we'll go ahead and wrap

1359
00:52:20,710 --> 00:52:18,720
up

1360
00:52:23,270 --> 00:52:20,720
nasa tv coverage for both spacewalks

1361
00:52:25,270 --> 00:52:23,280
will begin at 6 a.m central time first

1362
00:52:27,829 --> 00:52:25,280
one coming up on july 9th the second on

1363
00:52:30,870 --> 00:52:27,839

july 16th both spacewalk scheduled to

1364
00:52:33,109 --> 00:52:30,880
start at 7 10 a.m central 8 10 a.m

1365
00:52:34,309 --> 00:52:33,119
eastern as always you can learn more

1366
00:52:35,829 --> 00:52:34,319
about these spacewalks and the

1367
00:52:38,950 --> 00:52:35,839
international space station by going to