



1
00:00:05,349 --> 00:00:03,669
good morning and once again welcome back

2
00:00:07,110 --> 00:00:05,359
to nasa's johnson space center in

3
00:00:10,070 --> 00:00:07,120
houston as we continue to take a look at

4
00:00:11,509 --> 00:00:10,080
the sts-131 mission and discovery's

5
00:00:13,110 --> 00:00:11,519
upcoming flight to the international

6
00:00:14,789 --> 00:00:13,120
space station here now to give us more

7
00:00:16,710 --> 00:00:14,799
details about all the spacewalks that

8
00:00:18,950 --> 00:00:16,720
are planned for this flight is the lead

9
00:00:20,390 --> 00:00:18,960
spacewalk officer for this mission david

10
00:00:22,070 --> 00:00:20,400
cohen go ahead dave

11
00:00:25,029 --> 00:00:22,080
good morning my name is david cohen i'm

12
00:00:27,109 --> 00:00:25,039
the eva lead for sts-131 we'll be doing

13
00:00:28,870 --> 00:00:27,119

a three space walks on the mission

14

00:00:31,349 --> 00:00:28,880

our primary objective being to changing

15

00:00:33,790 --> 00:00:31,359

out the starboard ammonia tank assembly

16

00:00:35,990 --> 00:00:33,800

we changed out the port money tank on

17

00:00:37,670 --> 00:00:36,000

sts-128 so we'll be doing the other one

18

00:00:38,950 --> 00:00:37,680

on this one that's going to take us

19

00:00:40,709 --> 00:00:38,960

about we'll take we'll take us three

20

00:00:42,869 --> 00:00:40,719

evas

21

00:00:44,310 --> 00:00:42,879

the amount intake itself is roughly

22

00:00:45,830 --> 00:00:44,320

actually the size and weight of a first

23

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

generation smart car so it's a fairly

24

00:00:49,990 --> 00:00:47,600

big box we'll be changing out so we'll

25

00:00:53,029 --> 00:00:50,000

be using the robotic arm to do that

26

00:00:54,630 --> 00:00:53,039

we'll be using the arm all three evas

27

00:00:56,869 --> 00:00:54,640

just uh real quickly before we get into

28

00:00:59,430 --> 00:00:56,879

the evas our crew is going to be

29

00:01:01,910 --> 00:00:59,440

rick mastracchio will be our ev1 wearing

30

00:01:04,070 --> 00:01:01,920

the red stripe this is actually his

31

00:01:06,390 --> 00:01:04,080

third space flight he's done three va's

32

00:01:07,990 --> 00:01:06,400

before on sts-118

33

00:01:10,550 --> 00:01:08,000

ev2 wearing the white stripes will be

34

00:01:12,310 --> 00:01:10,560

clay anderson he's also done three evas

35

00:01:13,910 --> 00:01:12,320

he was an expedition 15 crew member so

36

00:01:15,429 --> 00:01:13,920

this will be his second flight and he

37

00:01:18,070 --> 00:01:15,439

actually did two of those evas with the

38

00:01:19,190 --> 00:01:18,080

sts-118 crew so rick and clay are very

39

00:01:22,469 --> 00:01:19,200

experienced crew members and actually

40

00:01:24,469 --> 00:01:22,479

experienced in doing evas together

41

00:01:26,710 --> 00:01:24,479

dottie metcalf lindenberger will be our

42

00:01:28,630 --> 00:01:26,720

uh intravecular activity crew member so

43

00:01:31,109 --> 00:01:28,640

our task iv and she will be

44

00:01:31,990 --> 00:01:31,119

choreographing the day and taking the ev

45

00:01:33,590 --> 00:01:32,000

crew

46

00:01:35,190 --> 00:01:33,600

through the procedures

47

00:01:36,950 --> 00:01:35,200

and jim dutton who's the pilot on the

48

00:01:38,390 --> 00:01:36,960

flight will be our suit iv so he'll be

49

00:01:39,270 --> 00:01:38,400

responsible for suiting out brick and

50

00:01:41,270 --> 00:01:39,280

clay

51
00:01:42,870 --> 00:01:41,280
into their spaces before the space walks

52
00:01:44,069 --> 00:01:42,880
and getting them out after the space

53
00:01:45,830 --> 00:01:44,079
walks

54
00:01:50,310 --> 00:01:45,840
so we can take a look at the eva one

55
00:01:53,590 --> 00:01:52,310
the crew will start off as we do all evs

56
00:02:00,630 --> 00:01:53,600
from space station from the joint

57
00:02:04,870 --> 00:02:01,990
the first thing he's going to do is head

58
00:02:06,389 --> 00:02:04,880
up to the old starboard ammonia tank and

59
00:02:08,309 --> 00:02:06,399
he's going to grab a fixed grapple bar

60
00:02:09,510 --> 00:02:08,319
which you see flashing in blue he's

61
00:02:11,270 --> 00:02:09,520
going to unbolt that from the old

62
00:02:12,869 --> 00:02:11,280
ammonia tank

63
00:02:14,550 --> 00:02:12,879

and he'll actually take this over to the

64

00:02:15,750 --> 00:02:14,560

payload bay

65

00:02:18,150 --> 00:02:15,760

and we'll be using this fixed scrap of

66

00:02:20,630 --> 00:02:18,160

bar this is what allows the the station

67

00:02:22,150 --> 00:02:20,640

robotic arm to grapple the ammonia tank

68

00:02:24,229 --> 00:02:22,160

like i said before we'll be using the

69

00:02:25,990 --> 00:02:24,239

robotic arm to move the ammonia tank for

70

00:02:27,910 --> 00:02:26,000

all three evas since it's so big and

71

00:02:29,589 --> 00:02:27,920

heavy

72

00:02:32,949 --> 00:02:29,599

so rick will grab that fixed grapple bar

73

00:02:34,630 --> 00:02:32,959

and he'll translate down space station

74

00:02:36,550 --> 00:02:34,640

he will do a tether swap to a second

75

00:02:38,309 --> 00:02:36,560

safety tether on the japanese experiment

76

00:02:39,589 --> 00:02:38,319

module then he'll head down to the

77

00:02:40,630 --> 00:02:39,599

payload bay

78

00:02:42,070 --> 00:02:40,640

once he gets there he's going to go

79

00:02:44,070 --> 00:02:42,080

after the payload bait he's going to

80

00:02:46,790 --> 00:02:44,080

temporarily stow that fgb that fixed

81

00:02:48,869 --> 00:02:46,800

gravel bar on the lmc and the lmc is a

82

00:02:50,470 --> 00:02:48,879

platform that we're used to launch the

83

00:02:55,270 --> 00:02:50,480

new ammonia tank which is the big white

84

00:02:58,790 --> 00:02:56,949

while he's doing that clay is going to

85

00:03:00,630 --> 00:02:58,800

follow him out of the airlock and clay

86

00:03:02,149 --> 00:03:00,640

will also head up to the old starboard

87

00:03:03,030 --> 00:03:02,159

ammonia tank

88

00:03:05,030 --> 00:03:03,040

and

89

00:03:06,949 --> 00:03:05,040

he is going to

90

00:03:08,470 --> 00:03:06,959

disconnect the nitrogen lines and the

91

00:03:10,229 --> 00:03:08,480

ammonia lines that go to that ammonia

92

00:03:12,070 --> 00:03:10,239

tank

93

00:03:15,910 --> 00:03:12,080

this is just in preparation for eva2

94

00:03:17,270 --> 00:03:15,920

when we actually swap out this tank

95

00:03:18,869 --> 00:03:17,280

so once he's done disconnecting those

96

00:03:20,550 --> 00:03:18,879

four lines he'll put the the thermal

97

00:03:22,790 --> 00:03:20,560

cover back over him he'll go to the

98

00:03:25,110 --> 00:03:22,800

forward side of the truss

99

00:03:27,430 --> 00:03:25,120

to a cedar cart see the card is a mobile

100

00:03:28,789 --> 00:03:27,440

eva work platform that we use and he's

101
00:03:30,789 --> 00:03:28,799
going to grab an articulated portable

102
00:03:32,550 --> 00:03:30,799
foot restraint or just a foot restraint

103
00:03:34,550 --> 00:03:32,560
from that seed to cart put it on his

104
00:03:39,270 --> 00:03:34,560
body restraint tether and he'll take

105
00:03:43,190 --> 00:03:41,509
so on his way there just as rick did

106
00:03:44,630 --> 00:03:43,200
clay will do a tether swap to a second

107
00:03:46,470 --> 00:03:44,640
tether to allow him to reach the payload

108
00:03:48,309 --> 00:03:46,480
bay except he'll do it on top of the

109
00:03:49,830 --> 00:03:48,319
node 2 module

110
00:03:55,589 --> 00:03:49,840
then he'll head down and meet rick in

111
00:03:58,630 --> 00:03:57,509
and once he's at the lmc

112
00:04:00,710 --> 00:03:58,640
clay is going to install his foot

113
00:04:03,030 --> 00:04:00,720

restraint into a worksite interface or a

114

00:04:07,190 --> 00:04:04,710

and while clay is doing that rick is

115

00:04:09,190 --> 00:04:07,200

going to bolt that fixed grapple bar to

116

00:04:10,710 --> 00:04:09,200

the side of the ammonia tank you can see

117

00:04:11,670 --> 00:04:10,720

the fixed ground bar is flashing in blue

118

00:04:13,990 --> 00:04:11,680

here

119

00:04:15,589 --> 00:04:14,000

so bolt that on and this is again what

120

00:04:18,310 --> 00:04:15,599

the arm will use to grapple the ammonia

121

00:04:20,069 --> 00:04:18,320

tank so we can move it

122

00:04:22,390 --> 00:04:20,079

simultaneously clay will be installing

123

00:04:23,990 --> 00:04:22,400

that full restraint into the lmc

124

00:04:26,629 --> 00:04:24,000

once he gets it installed he will pop

125

00:04:28,150 --> 00:04:26,639

into it and

126

00:04:30,070 --> 00:04:28,160

rick and clay will then unbolt the four

127

00:04:31,270 --> 00:04:30,080

bolts that hold the ammonia tank to the

128

00:04:32,790 --> 00:04:31,280

lmc

129

00:04:34,950 --> 00:04:32,800

and they'll pick it up out of the soft

130

00:04:49,670 --> 00:04:34,960

docks and hand it to the arm or the arm

131

00:04:53,350 --> 00:04:51,110

once the arm has it clay's going to

132

00:04:54,550 --> 00:04:53,360

remove his foot restraint off the lmc

133

00:04:57,030 --> 00:04:54,560

he's going to take it out of the payload

134

00:05:00,629 --> 00:04:57,040

bay and put it on node 2 and just leave

135

00:05:02,150 --> 00:05:00,639

it there until he needs to get on eva3

136

00:05:03,749 --> 00:05:02,160

and while he's doing that rick is going

137

00:05:05,110 --> 00:05:03,759

to be translating out to the japanese

138

00:05:06,710 --> 00:05:05,120

experiment module to the exposed

139

00:05:08,790 --> 00:05:06,720

facility on it where he's going to

140

00:05:10,629 --> 00:05:08,800

retrieve the impact seed experiment an

141

00:05:12,550 --> 00:05:10,639

impact seed is a materials experiment

142

00:05:13,990 --> 00:05:12,560

that the japanese have out there so

143

00:05:15,510 --> 00:05:14,000

he'll go out and see it flashing in blue

144

00:05:17,749 --> 00:05:15,520

there and he'll install a cover on it to

145

00:05:19,510 --> 00:05:17,759

protect the experiment then he'll take

146

00:05:21,270 --> 00:05:19,520

it off and put it on his body restraint

147

00:05:22,550 --> 00:05:21,280

tether here's some mbl footage of him

148

00:05:24,070 --> 00:05:22,560

unbolting it

149

00:05:25,350 --> 00:05:24,080

and the experiment itself is what's in

150

00:05:27,189 --> 00:05:25,360

his left hand

151
00:05:29,189 --> 00:05:27,199
so he's using his pistol grip too to

152
00:05:30,870 --> 00:05:29,199
tool to undo the bolts on it

153
00:05:32,550 --> 00:05:30,880
and then he'll pop the experiment off

154
00:05:36,870 --> 00:05:32,560
put it on his brt

155
00:05:43,670 --> 00:05:38,390
and again the impact is what just came

156
00:05:47,430 --> 00:05:45,350
so translate back down the japanese

157
00:05:48,469 --> 00:05:47,440
module back down space station to the

158
00:05:50,310 --> 00:05:48,479
airlock and he's just going to

159
00:05:52,230 --> 00:05:50,320
temporarily stow the impact seat on the

160
00:06:00,469 --> 00:05:52,240
outside of the airlock until he puts it

161
00:06:04,150 --> 00:06:01,990
and while this is happening the arm is

162
00:06:05,510 --> 00:06:04,160
moving the new ammonia tank that we just

163
00:06:07,590 --> 00:06:05,520

took from the ev crew and the payload

164

00:06:09,350 --> 00:06:07,600

bay over to the external storage

165

00:06:11,270 --> 00:06:09,360

platform 2 or esp-2 which is just

166

00:06:12,790 --> 00:06:11,280

outside the airlock and rick and clay

167

00:06:14,550 --> 00:06:12,800

are going to meet the arm there they're

168

00:06:16,309 --> 00:06:14,560

going to take an adjustable grapple bar

169

00:06:18,629 --> 00:06:16,319

off of the spare flex hose rotary

170

00:06:21,189 --> 00:06:18,639

coupler or fhrc and they're going to

171

00:06:23,270 --> 00:06:21,199

mount this grapple bar to the ata here's

172

00:06:24,790 --> 00:06:23,280

some mbl footage of them installing that

173

00:06:27,029 --> 00:06:24,800

onto the ata

174

00:06:29,189 --> 00:06:27,039

and basically the this is going to be

175

00:06:32,070 --> 00:06:29,199

used for the poe which is the payload

176
00:06:35,270 --> 00:06:32,080
oru accommodation device on the mobile

177
00:06:37,430 --> 00:06:35,280
platform or the the mobile transporter

178
00:06:39,749 --> 00:06:37,440
it has an end effector just like the arm

179
00:06:42,469 --> 00:06:39,759
so the robotic arm will fly the ata over

180
00:06:44,870 --> 00:06:42,479
to the poa and actually the pole then

181
00:06:46,710 --> 00:06:44,880
grapple this adjustable grapple bar

182
00:06:48,550 --> 00:06:46,720
and then the arm will release the ata

183
00:06:51,830 --> 00:06:48,560
and we'll leave it there between eva 1

184
00:06:55,189 --> 00:06:53,510
while that's happening clay is going to

185
00:06:57,189 --> 00:06:55,199
come inside to the forward part of the

186
00:06:59,909 --> 00:06:57,199
truss here and he's going to unbolt two

187
00:07:01,350 --> 00:06:59,919
bolts on a rate gyro assembly so the rga

188
00:07:02,870 --> 00:07:01,360

is another box the crew will be changing

189

00:07:03,990 --> 00:07:02,880

out

190

00:07:05,350 --> 00:07:04,000

its bolt that has two bolts on the

191

00:07:06,710 --> 00:07:05,360

inside of truss and then two bolts on

192

00:07:07,909 --> 00:07:06,720

the outside of that truss so while clay

193

00:07:10,390 --> 00:07:07,919

is on the inside and the forward side of

194

00:07:14,230 --> 00:07:10,400

the truss rick will go get the spare rga

195

00:07:17,670 --> 00:07:15,430

and he's gonna he's gonna attempt stow

196

00:07:18,629 --> 00:07:17,680

the bag that has that rga in it the new

197

00:07:19,909 --> 00:07:18,639

one

198

00:07:22,309 --> 00:07:19,919

then he'll configure the work site so we

199

00:07:23,670 --> 00:07:22,319

can pull out the old one

200

00:07:25,029 --> 00:07:23,680

he'll move that flashing piece of

201
00:07:25,830 --> 00:07:25,039
equipment if he needs to get it out of

202
00:07:27,830 --> 00:07:25,840
the way

203
00:07:31,029 --> 00:07:27,840
it'll open up a thermal blanket he'll

204
00:07:33,909 --> 00:07:31,039
unbolt the failed or the old rga and

205
00:07:37,110 --> 00:07:35,270
and here's some nbl footage of him

206
00:07:40,390 --> 00:07:37,120
pulling that out

207
00:07:42,230 --> 00:07:40,400
it's a little bit smaller than an ata

208
00:07:44,070 --> 00:07:42,240
so he'll tempt that just above him and

209
00:07:46,710 --> 00:07:44,080
he'll grab the new one from the bag he

210
00:07:47,909 --> 00:07:46,720
brought out with him install the new one

211
00:07:49,510 --> 00:07:47,919
put the old one in the bag and then

212
00:07:51,670 --> 00:07:49,520
clean up the work site put the thermal

213
00:07:52,869 --> 00:07:51,680

blanket back over the rga and put an

214

00:08:05,589 --> 00:07:52,879

equipment back that he had to move to

215

00:08:09,110 --> 00:08:07,830

when he's installing the new rga he's

216

00:08:10,869 --> 00:08:09,120

going to take the old ones in the bag

217

00:08:12,629 --> 00:08:10,879

now and take the forts of the trust and

218

00:08:13,909 --> 00:08:12,639

just temporarily stow it there and it'll

219

00:08:16,390 --> 00:08:13,919

leave it and pick it up on his way

220

00:08:17,589 --> 00:08:16,400

inside the airlock later on

221

00:08:19,670 --> 00:08:17,599

once he temps does it he's going to go

222

00:08:21,270 --> 00:08:19,680

inside the truss and install the two

223

00:08:22,869 --> 00:08:21,280

bolts that clay had removed on the old

224

00:08:24,309 --> 00:08:22,879

one

225

00:08:26,309 --> 00:08:24,319

so while rick is doing this clay's going

226

00:08:27,830 --> 00:08:26,319

to be heading out to the far port side

227

00:08:30,390 --> 00:08:27,840

of the truss so heading all the way out

228

00:08:31,589 --> 00:08:30,400

to p6

229

00:08:33,909 --> 00:08:31,599

and he'll be doing some work for the

230

00:08:37,589 --> 00:08:33,919

next flight for sts-132 they're changing

231

00:08:39,110 --> 00:08:37,599

out batteries on the p6 truss segment

232

00:08:41,110 --> 00:08:39,120

there's already two foot restraints and

233

00:08:43,190 --> 00:08:41,120

two gap spanners that the crew uses to

234

00:08:44,630 --> 00:08:43,200

do the the r r the batteries they were

235

00:08:46,630 --> 00:08:44,640

out there for the last crew that did the

236

00:08:48,550 --> 00:08:46,640

one side of the battery so sts-132 will

237

00:08:49,829 --> 00:08:48,560

do the other side so clay's going to

238

00:08:51,110 --> 00:08:49,839

grab one of those foot restraints and

239

00:08:52,150 --> 00:08:51,120

one the gap spanners from one side of

240

00:08:53,190 --> 00:08:52,160

the truss

241

00:08:56,150 --> 00:08:53,200

you're just going to move around to the

242

00:08:59,829 --> 00:08:58,230

so battery removing replace takes is

243

00:09:01,590 --> 00:08:59,839

quite time consuming so anything we can

244

00:09:04,949 --> 00:09:01,600

do to help the next crew get started on

245

00:09:06,949 --> 00:09:04,959

that is a something they appreciated

246

00:09:09,190 --> 00:09:06,959

so install the gas spinner and install

247

00:09:11,030 --> 00:09:09,200

the foot restraint

248

00:09:13,110 --> 00:09:11,040

as soon as rick is done with his last

249

00:09:15,430 --> 00:09:13,120

two bolts on the ray gyro assembly he

250

00:09:17,030 --> 00:09:15,440

will head out to p6 also

251
00:09:18,949 --> 00:09:17,040
and he will grab a second full restraint

252
00:09:20,550 --> 00:09:18,959
and a second gap spanner and he will

253
00:09:23,590 --> 00:09:20,560
also move those to the other side of the

254
00:09:25,110 --> 00:09:23,600
p6 truss segment

255
00:09:26,310 --> 00:09:25,120
while rick is doing that clay is going

256
00:09:28,230 --> 00:09:26,320
to actually start

257
00:09:30,150 --> 00:09:28,240
breaking torque on

258
00:09:31,990 --> 00:09:30,160
both bolts on all six batteries so he's

259
00:09:33,430 --> 00:09:32,000
going to release the bolt by one turn

260
00:09:35,269 --> 00:09:33,440
and then just lightly tighten it up

261
00:09:36,790 --> 00:09:35,279
again these bolts are launched with

262
00:09:38,550 --> 00:09:36,800
fairly high torque

263
00:09:40,310 --> 00:09:38,560

and to help the next crew with their

264

00:09:41,509 --> 00:09:40,320

change out to go as fast as possible

265

00:09:42,949 --> 00:09:41,519

they're just going to loosen up those

266

00:09:50,150 --> 00:09:42,959

bolts a little bit so things go quicker

267

00:09:53,670 --> 00:09:51,430

and here's an animation of rick

268

00:09:55,190 --> 00:09:53,680

installing his gap spanner so i've two

269

00:09:56,470 --> 00:09:55,200

gasping is running across the series of

270

00:10:03,990 --> 00:09:56,480

batteries and then two foot restraints

271

00:10:07,030 --> 00:10:05,910

on their way after this task if they

272

00:10:08,870 --> 00:10:07,040

have time

273

00:10:10,550 --> 00:10:08,880

the crew will mate a connector between

274

00:10:12,630 --> 00:10:10,560

p4 and p5

275

00:10:13,990 --> 00:10:12,640

this allows money to flow out to the p5

276

00:10:15,190 --> 00:10:14,000

p6 segment

277

00:10:16,470 --> 00:10:15,200

but only if we have time would be get

278

00:10:17,910 --> 00:10:16,480

ahead for them

279

00:10:22,069 --> 00:10:17,920

after that they will clean up everything

280

00:10:26,630 --> 00:10:25,269

which will conclude eva 1.

281

00:10:28,389 --> 00:10:26,640

the crew will have a day in between eva

282

00:10:29,750 --> 00:10:28,399

1 and 2 and the arm i'm sure you heard

283

00:10:31,990 --> 00:10:29,760

before in the other

284

00:10:33,670 --> 00:10:32,000

briefing we'll walk off between the evas

285

00:10:35,430 --> 00:10:33,680

this will allow the arm to have access

286

00:10:37,990 --> 00:10:35,440

to the actual old

287

00:10:40,230 --> 00:10:38,000

ata worksite

288

00:10:42,470 --> 00:10:40,240

and so that the main thing for eva2 will

289

00:10:44,150 --> 00:10:42,480

be the actual swapping of the old

290

00:10:45,590 --> 00:10:44,160

ammonia tank with the new ammonia tank

291

00:10:49,509 --> 00:10:45,600

so if we take a look at the video for

292

00:10:57,350 --> 00:10:51,509

so on eva 2 uh

293

00:11:01,030 --> 00:10:58,630

and the first thing that i'll do is

294

00:11:02,550 --> 00:11:01,040

wrinkle head up to the old ammonia tank

295

00:11:04,069 --> 00:11:02,560

he's going to grab a foot restraint from

296

00:11:05,350 --> 00:11:04,079

the airlock it's flashing blue there

297

00:11:07,829 --> 00:11:05,360

he's going to put it just below the old

298

00:11:09,430 --> 00:11:07,839

ammonia tank he's going to ingress it

299

00:11:11,910 --> 00:11:09,440

clay will go up and meet him at the

300

00:11:14,069 --> 00:11:11,920

ammoni tank and they'll undo the four

301

00:11:16,069 --> 00:11:14,079

bolts that hold it into the truss and

302

00:11:18,310 --> 00:11:16,079

lift it up here's some mbl footage of

303

00:11:19,910 --> 00:11:18,320

rick lifting it off the truss

304

00:11:22,150 --> 00:11:19,920

it's a pretty big box so they move it

305

00:11:23,590 --> 00:11:22,160

pretty slowly

306

00:11:25,190 --> 00:11:23,600

they'll hand it off to the arm and the

307

00:11:30,069 --> 00:11:25,200

arm will grapple a fixed grapple bar

308

00:11:33,030 --> 00:11:31,350

and the arm's going to maneuver the

309

00:11:34,790 --> 00:11:33,040

money tank away from the trust and to

310

00:11:36,710 --> 00:11:34,800

the forward side of the truss

311

00:11:38,870 --> 00:11:36,720

so rick and clay will follow the arm

312

00:11:40,790 --> 00:11:38,880

from the back side to the forward side

313

00:11:43,269 --> 00:11:40,800

and on his way rick's going to uncouple

314

00:11:44,550 --> 00:11:43,279

a cedar cart from the mobile transporter

315

00:11:46,069 --> 00:11:44,560

and he's going to move that cd card

316

00:11:47,509 --> 00:11:46,079

outboard or away from the mobile

317

00:11:49,030 --> 00:11:47,519

transporter

318

00:11:51,430 --> 00:11:49,040

he's going to configure it so they can

319

00:11:52,389 --> 00:11:51,440

use it to stow the old ammonia tank

320

00:11:53,990 --> 00:11:52,399

basically he's going to fold the brake

321

00:11:55,829 --> 00:11:54,000

handles down and fold the foot

322

00:11:59,030 --> 00:11:55,839

restraints clear make it as clear as

323

00:12:00,150 --> 00:11:59,040

possible as flat as possible

324

00:12:01,750 --> 00:12:00,160

while he's doing that the arm's gonna

325

00:12:03,750 --> 00:12:01,760

start maneuvering the old ammonia tank

326

00:12:04,870 --> 00:12:03,760

closest to the cart and rick and clay

327

00:12:06,550 --> 00:12:04,880

will get in position on either side of

328

00:12:08,389 --> 00:12:06,560

the seat of guard there

329

00:12:10,069 --> 00:12:08,399

and when the money tank gets close

330

00:12:12,790 --> 00:12:10,079

enough they will attach six adjustable

331

00:12:15,110 --> 00:12:12,800

equipment tethers to the old ata

332

00:12:16,710 --> 00:12:15,120

and tie it down to the cedar cart i'm

333

00:12:18,629 --> 00:12:16,720

just going to leave it tied down here

334

00:12:21,030 --> 00:12:18,639

for two or three hours while we install

335

00:12:22,710 --> 00:12:21,040

the new ata

336

00:12:24,710 --> 00:12:22,720

and you can see the equipment tethers

337

00:12:26,389 --> 00:12:24,720

flashing in blue there

338

00:12:28,710 --> 00:12:26,399

so during while this is happening the uh

339

00:12:30,870 --> 00:12:28,720

arm's gonna go get the new ammoni tank

340

00:12:32,710 --> 00:12:30,880

that it temp stowed in the poa on eva

341

00:12:33,990 --> 00:12:32,720

one it takes him a little bit of time to

342

00:12:36,550 --> 00:12:34,000

do that so rick and clay are gonna

343

00:12:39,110 --> 00:12:36,560

translate to the bottom side of the port

344

00:12:41,030 --> 00:12:39,120

p1 segment and they're going to install

345

00:12:43,350 --> 00:12:41,040

radiator grapple fixture stowage beams

346

00:12:44,310 --> 00:12:43,360

two of them on the actual port radiator

347

00:12:47,670 --> 00:12:44,320

beam

348

00:12:49,269 --> 00:12:47,680

in blue there are used to temp stow a

349

00:12:50,790 --> 00:12:49,279

grapple fixture that we'd use if we ever

350

00:12:52,550 --> 00:12:50,800

had to change out a radiator in the

351
00:12:53,910 --> 00:12:52,560
future

352
00:12:55,350 --> 00:12:53,920
so that'll take them about half an hour

353
00:12:57,350 --> 00:12:55,360
give the arm enough time to grab that

354
00:12:58,870 --> 00:12:57,360
new ammonia tank out of the poa and

355
00:13:00,550 --> 00:12:58,880
maneuver it down to the truss just a

356
00:13:02,310 --> 00:13:00,560
little bit inboard of the old ammonia

357
00:13:03,590 --> 00:13:02,320
tank

358
00:13:05,350 --> 00:13:03,600
we're glad they're going to get that

359
00:13:07,990 --> 00:13:05,360
adjustable grapple bar they put on on

360
00:13:10,069 --> 00:13:08,000
eva1 take it off and just temp stowed in

361
00:13:11,110 --> 00:13:10,079
the truss

362
00:13:12,710 --> 00:13:11,120
while they're doing that the arm is

363
00:13:15,110 --> 00:13:12,720

going to maneuver that new money tank to

364

00:13:17,030 --> 00:13:15,120

the backside of s1

365

00:13:18,710 --> 00:13:17,040

to the work site where they can install

366

00:13:20,150 --> 00:13:18,720

it

367

00:13:21,670 --> 00:13:20,160

and rick and clay will follow the arm

368

00:13:23,030 --> 00:13:21,680

along

369

00:13:24,310 --> 00:13:23,040

so they'll get set up in the same

370

00:13:27,350 --> 00:13:24,320

position where they release the old

371

00:13:30,389 --> 00:13:28,790

and the arm will drive the ammonia tank

372

00:13:31,590 --> 00:13:30,399

in close to them they'll take control

373

00:13:33,430 --> 00:13:31,600

over it the armor will release the

374

00:13:45,430 --> 00:13:33,440

amount of tank and rick and clay will

375

00:13:48,790 --> 00:13:46,870

here's some mbl footage of rick and his

376

00:13:50,470 --> 00:13:48,800

foot restraint bringing that ammonia

377

00:13:52,069 --> 00:13:50,480

tank in

378

00:13:53,590 --> 00:13:52,079

once again in soft dock they'll install

379

00:13:55,110 --> 00:13:53,600

install the four bolts that hold in

380

00:13:57,030 --> 00:13:55,120

place install the two electrical

381

00:14:05,269 --> 00:13:57,040

connectors to it the two nitrogen lines

382

00:14:09,030 --> 00:14:07,670

once they're done with that uh they will

383

00:14:11,189 --> 00:14:09,040

translate back to the fourth side of the

384

00:14:13,030 --> 00:14:11,199

truss where they left the old ata

385

00:14:14,550 --> 00:14:13,040

and the arm is going to meet them there

386

00:14:16,710 --> 00:14:14,560

so they'll untie the old ata from the

387

00:14:20,790 --> 00:14:16,720

cedar cart and pick it up and hand it

388

00:14:24,629 --> 00:14:22,230

the arms isn't going to maneuver the old

389

00:14:26,069 --> 00:14:24,639

at a little bit inboard

390

00:14:27,670 --> 00:14:26,079

closer to where rick and clay left that

391

00:14:29,829 --> 00:14:27,680

adjustable grapple bar

392

00:14:31,430 --> 00:14:29,839

so they're going to go untemp stow that

393

00:14:33,910 --> 00:14:31,440

and they will install the adjustable

394

00:14:35,509 --> 00:14:33,920

gravel bar onto the old ata

395

00:14:37,910 --> 00:14:35,519

much like they did with the new at on

396

00:14:39,590 --> 00:14:37,920

eva1

397

00:14:41,990 --> 00:14:39,600

and this will allow the arm to plug the

398

00:14:53,189 --> 00:14:42,000

old ata into the poa and leave it there

399

00:14:56,069 --> 00:14:54,949

while the armor is plugging the old atm

400

00:14:58,470 --> 00:14:56,079

to the poa rick and clay are going to

401

00:15:00,230 --> 00:14:58,480

translate back to esp2

402

00:15:02,069 --> 00:15:00,240

just outside the airlock they're going

403

00:15:04,150 --> 00:15:02,079

to grab two debris shields you see

404

00:15:07,829 --> 00:15:04,160

flashing in blue these debris shields

405

00:15:09,189 --> 00:15:07,839

the sts-129 crew tied down to the esp-2

406

00:15:11,110 --> 00:15:09,199

so rick and clay are going to untie

407

00:15:13,910 --> 00:15:11,120

those put them in the airlock and follow

408

00:15:22,310 --> 00:15:13,920

those inside to ingress and finish up

409

00:15:25,829 --> 00:15:23,990

between evas the arm's gonna walk off

410

00:15:27,829 --> 00:15:25,839

once again go back to node 2 where it

411

00:15:29,749 --> 00:15:27,839

can reach the payload bay and the

412

00:15:31,189 --> 00:15:29,759

primary goal of eva 3 will be to get

413

00:15:32,870 --> 00:15:31,199

that old ata

414

00:15:35,590 --> 00:15:32,880

out of the poa and backed and bolted to

415

00:15:37,350 --> 00:15:35,600

the lmc where the new one was launched

416

00:15:44,870 --> 00:15:37,360

and do a couple other tasks so if we

417

00:15:48,550 --> 00:15:46,629

rick and clay will again come out of the

418

00:15:49,910 --> 00:15:48,560

joint airlock on eva3

419

00:15:51,030 --> 00:15:49,920

and the arm

420

00:15:52,389 --> 00:15:51,040

before they're coming out while they're

421

00:15:54,550 --> 00:15:52,399

coming out it's going to grab that old

422

00:15:56,949 --> 00:15:54,560

ata out of the poa

423

00:15:58,629 --> 00:15:56,959

and it's going to meet them at esp2 and

424

00:15:59,350 --> 00:15:58,639

wrecking clay goes straight to esp2

425

00:16:01,670 --> 00:15:59,360

where they're going to take that

426
00:16:03,509 --> 00:16:01,680
adjustable grapple bar off the ata and

427
00:16:05,670 --> 00:16:03,519
put it back on the spare fhrc where they

428
00:16:07,189 --> 00:16:05,680
got it on eva1

429
00:16:08,389 --> 00:16:07,199
so while they're installing that on the

430
00:16:10,389 --> 00:16:08,399
fhrc

431
00:16:17,829 --> 00:16:10,399
the arm is going to take that old ata

432
00:16:22,069 --> 00:16:19,350
so clay's going to grab his foot

433
00:16:23,829 --> 00:16:22,079
restraint that he left the end of eva1

434
00:16:25,030 --> 00:16:23,839
ticket with them

435
00:16:26,870 --> 00:16:25,040
and rick and clay will configure

436
00:16:29,189 --> 00:16:26,880
themselves around the lmc

437
00:16:30,710 --> 00:16:29,199
to put the old ata onto the lmc for

438
00:16:32,069 --> 00:16:30,720

return

439

00:16:37,990 --> 00:16:32,079

in the same positions they were in when

440

00:16:41,509 --> 00:16:39,110

so you can see

441

00:16:43,509 --> 00:16:41,519

clay installing the apfr here

442

00:16:44,790 --> 00:16:43,519

he'll get in the full restraint

443

00:16:46,949 --> 00:16:44,800

the arm will bring the

444

00:16:48,790 --> 00:16:46,959

ata in close the crew will take hold of

445

00:16:50,710 --> 00:16:48,800

it bring it down the soft dock and

446

00:16:55,110 --> 00:16:50,720

install the install the full four bolts

447

00:16:59,110 --> 00:16:56,949

and one and here's some nbl footage of

448

00:17:04,150 --> 00:16:59,120

rick bringing that ata down

449

00:17:07,829 --> 00:17:05,590

and once they've done that then we will

450

00:17:09,750 --> 00:17:07,839

have successfully installed a new ata

451
00:17:11,669 --> 00:17:09,760
into the s1 trust and have the old atl

452
00:17:14,390 --> 00:17:11,679
on the lmc ready for return and

453
00:17:15,990 --> 00:17:14,400
refurbishment

454
00:17:17,829 --> 00:17:16,000
so when they're done there clay is going

455
00:17:19,429 --> 00:17:17,839
to grab that fixed grapple bar off the

456
00:17:20,549 --> 00:17:19,439
ata

457
00:17:22,470 --> 00:17:20,559
it's going to put it on his body

458
00:17:25,510 --> 00:17:22,480
restraint tether he'll translate down

459
00:17:26,710 --> 00:17:25,520
the payload bay down the

460
00:17:29,029 --> 00:17:26,720
station

461
00:17:31,350 --> 00:17:29,039
and install it on the bottom side of the

462
00:17:33,270 --> 00:17:31,360
new ata that they just installed

463
00:17:35,510 --> 00:17:33,280

they put it here as just a plate a place

464

00:17:39,990 --> 00:17:35,520

to temporarily stow it until it's needed

465

00:17:43,350 --> 00:17:41,830

so here's some mbl footage of rick

466

00:17:45,590 --> 00:17:43,360

installing that fixed grapple bar onto

467

00:17:53,669 --> 00:17:45,600

the bottom side of the new ata it's now

468

00:17:57,830 --> 00:17:55,750

so while rick is doing that clay is

469

00:17:59,990 --> 00:17:57,840

going to grab his foot restraint off the

470

00:18:01,909 --> 00:18:00,000

lmc and he's going to start setting up

471

00:18:05,590 --> 00:18:01,919

to do some tasks on dexter so you can

472

00:18:08,310 --> 00:18:06,789

and here's a view of what it'll look

473

00:18:09,590 --> 00:18:08,320

like outside the cupola windows and you

474

00:18:12,070 --> 00:18:09,600

can see the foot restraint flashing in

475

00:18:13,350 --> 00:18:12,080

the background that's clay at the lmc

476
00:18:14,950 --> 00:18:13,360
and the arms can start maneuvering to

477
00:18:17,270 --> 00:18:14,960
the columbus module to the exposed

478
00:18:19,350 --> 00:18:17,280
facility on the end of the columbus

479
00:18:21,190 --> 00:18:19,360
so clay will grab that full restraint he

480
00:18:29,190 --> 00:18:21,200
will translate out to columbus himself

481
00:18:32,549 --> 00:18:30,870
and once both clay and the arm get to

482
00:18:34,390 --> 00:18:32,559
the uh the columbus

483
00:18:36,470 --> 00:18:34,400
clay will install the four restraint

484
00:18:38,150 --> 00:18:36,480
onto the arm you see the arm medium

485
00:18:39,909 --> 00:18:38,160
there and he'll get in that foot

486
00:18:41,750 --> 00:18:39,919
restraint and he's gonna

487
00:18:44,950 --> 00:18:41,760
disconnect the lightweight adapter

488
00:18:46,310 --> 00:18:44,960

plated assembly our lawapa the lapa is a

489

00:18:48,870 --> 00:18:46,320

big plate that we use to hold other

490

00:18:50,630 --> 00:18:48,880

things onto the columbus module so he'll

491

00:18:52,710 --> 00:18:50,640

unbolt it and the arm is going to fly

492

00:18:54,150 --> 00:18:52,720

him back to the payload bay

493

00:18:57,669 --> 00:18:54,160

here's another view of what that might

494

00:19:00,950 --> 00:18:57,679

look like from the cupola windows

495

00:19:03,430 --> 00:19:00,960

you can see the loop of flashing in blue

496

00:19:04,950 --> 00:19:03,440

so the arm will fly him fly clay in to

497

00:19:06,470 --> 00:19:04,960

back to the to the lmc actually it's

498

00:19:08,390 --> 00:19:06,480

going to fly him upside down because

499

00:19:10,870 --> 00:19:08,400

he's going to bolt the lopa to the

500

00:19:12,710 --> 00:19:10,880

bottom of the lmc right underneath where

501
00:19:20,549 --> 00:19:12,720
the old ammonia tank is bolted to the

502
00:19:24,390 --> 00:19:22,310
so here's some animation of showing him

503
00:19:26,470 --> 00:19:24,400
do that and here's some mbl footage what

504
00:19:35,510 --> 00:19:26,480
that looks like with clay upside down

505
00:19:38,470 --> 00:19:37,029
once clay has completed that task and

506
00:19:40,470 --> 00:19:38,480
rick will be there helping him get it in

507
00:19:43,590 --> 00:19:40,480
place at the lmc

508
00:19:45,750 --> 00:19:43,600
the arm's gonna fly clay over to dexter

509
00:19:47,190 --> 00:19:45,760
where he's gonna install a camera unit

510
00:19:48,950 --> 00:19:47,200
dexter has one camera on it right now

511
00:19:50,310 --> 00:19:48,960
and has a place for two so we'll take

512
00:19:52,549 --> 00:19:50,320
that camera that's flashing in blue and

513
00:19:53,830 --> 00:19:52,559

he'll install in a second location

514

00:19:55,350 --> 00:19:53,840

here's some mbl footage of him

515

00:19:58,070 --> 00:19:55,360

installing that camera to the white box

516

00:20:01,750 --> 00:19:59,510

that'll give dexter two cameras that he

517

00:20:03,029 --> 00:20:01,760

can use for future operations

518

00:20:04,630 --> 00:20:03,039

once he's done with that the arm is

519

00:20:05,990 --> 00:20:04,640

going to line up just a little bit where

520

00:20:07,830 --> 00:20:06,000

he's going to remove a thermal blanket

521

00:20:09,510 --> 00:20:07,840

off dexter that's no longer needed and

522

00:20:16,630 --> 00:20:09,520

he'll put that blanket in the bag that

523

00:20:19,430 --> 00:20:17,990

and once he has that camera installed

524

00:20:20,950 --> 00:20:19,440

and the blanket removed from dexter the

525

00:20:23,430 --> 00:20:20,960

arm will fly him back to the columbus

526

00:20:25,110 --> 00:20:23,440

module where he got on the arm

527

00:20:27,190 --> 00:20:25,120

and he's going to get off the arm take

528

00:20:31,990 --> 00:20:27,200

his footwork strain off and clean up the

529

00:20:35,430 --> 00:20:33,270

and he'll take his foot restraint back

530

00:20:37,190 --> 00:20:35,440

to node 2 and install it and leave it

531

00:20:50,789 --> 00:20:37,200

there

532

00:20:53,830 --> 00:20:52,230

while clay is doing these tests on

533

00:20:54,950 --> 00:20:53,840

dexter now this is a one-person

534

00:20:57,990 --> 00:20:54,960

operation

535

00:20:59,909 --> 00:20:58,000

rick has a few tasks of his own

536

00:21:01,110 --> 00:20:59,919

he'll be heading back to the lab the u.s

537

00:21:03,190 --> 00:21:01,120

lab module

538

00:21:05,190 --> 00:21:03,200

and there's a camera on a post on the

539

00:21:06,710 --> 00:21:05,200

lab and that camera has a light on it

540

00:21:08,230 --> 00:21:06,720

that's burned out

541

00:21:09,510 --> 00:21:08,240

so rick's gonna come up to that camera

542

00:21:10,950 --> 00:21:09,520

he's gonna remove the old light and

543

00:21:18,149 --> 00:21:10,960

install a new one see that light

544

00:21:21,590 --> 00:21:19,590

and here's some mbl footage of rick

545

00:21:27,190 --> 00:21:21,600

installing that light on the camera

546

00:21:29,590 --> 00:21:28,470

once he's done with that he'll head back

547

00:21:30,870 --> 00:21:29,600

to the airlock and he'll put the old

548

00:21:32,789 --> 00:21:30,880

light in the air lock and he's going to

549

00:21:34,470 --> 00:21:32,799

grab two more of those radiator grapple

550

00:21:36,310 --> 00:21:34,480

fixture stow which beams

551
00:21:37,669 --> 00:21:36,320
so on eva2 they installed two of those

552
00:21:39,669 --> 00:21:37,679
on the port side

553
00:21:41,510 --> 00:21:39,679
rick will come to the starboard radiator

554
00:21:43,510 --> 00:21:41,520
beam but at the time i come to the top

555
00:21:45,590 --> 00:21:43,520
side of it and install those two ready

556
00:21:49,430 --> 00:21:45,600
to grab fixture stowage beams

557
00:21:53,590 --> 00:21:50,870
once he's done with that he will head

558
00:21:56,070 --> 00:21:53,600
back to esp2 where he's going to grab a

559
00:21:58,070 --> 00:21:56,080
worksite extender worksite interface

560
00:21:59,510 --> 00:21:58,080
extender a wiff extender this basically

561
00:22:01,350 --> 00:21:59,520
is a device that allows us to get more

562
00:22:03,029 --> 00:22:01,360
reach with our foot restraints

563
00:22:05,430 --> 00:22:03,039

he's going to remove it from esp2 and

564

00:22:08,950 --> 00:22:05,440

take it over to the mobile base system

565

00:22:13,110 --> 00:22:10,950

and the next flight sts-132 is going to

566

00:22:14,390 --> 00:22:13,120

use the wiff extender in that location

567

00:22:25,990 --> 00:22:14,400

so this is another get ahead for the

568

00:22:29,190 --> 00:22:27,430

and rick and clay should be finishing up

569

00:22:30,950 --> 00:22:29,200

about the same time doing all these

570

00:22:34,149 --> 00:22:30,960

tasks so this will they'll head back to

571

00:22:45,830 --> 00:22:34,159

the joint airlock and finish up eva3 and

572

00:22:48,950 --> 00:22:47,350

so i'd like to take a moment also to

573

00:22:50,230 --> 00:22:48,960

thank my team for helping put these dvas

574

00:22:51,430 --> 00:22:50,240

together doing a whole lot of work over

575

00:22:53,669 --> 00:22:51,440

the last year

576

00:22:55,830 --> 00:22:53,679

john milorski and shelly mulhern and

577

00:22:57,190 --> 00:22:55,840

sabrina gilmore jordan lindsey and jay

578

00:23:00,230 --> 00:22:57,200

burger have all helped out a whole lot

579

00:23:03,430 --> 00:23:02,070

that's all i have okay we'll take some

580

00:23:04,549 --> 00:23:03,440

questions from here at the johnson space

581

00:23:06,830 --> 00:23:04,559

center first then we'll go down to the

582

00:23:10,230 --> 00:23:06,840

other centers and

583

00:23:11,590 --> 00:23:10,240

headquarters okay

584

00:23:13,430 --> 00:23:11,600

anybody over here

585

00:23:14,950 --> 00:23:13,440

okay then we'll go to the kennedy space

586

00:23:23,510 --> 00:23:14,960

center then in florida and see if there

587

00:23:23,520 --> 00:23:28,710

okay we'll go to headquarters next then

588

00:23:32,789 --> 00:23:30,470

thanks it's uh tarek malek from

589

00:23:34,630 --> 00:23:32,799

space.com space news and i just had a

590

00:23:35,669 --> 00:23:34,640

question about the ata replacement i'm

591

00:23:37,190 --> 00:23:35,679

just

592

00:23:39,190 --> 00:23:37,200

curious if there are any um i guess

593

00:23:40,710 --> 00:23:39,200

safety precautions that the

594

00:23:42,630 --> 00:23:40,720

spacewalkers have to take care of when

595

00:23:44,470 --> 00:23:42,640

they're handling the ammonia tank

596

00:23:46,789 --> 00:23:44,480

assembly uh stuff they've maybe they

597

00:23:47,510 --> 00:23:46,799

learned from the last ata replacement

598

00:23:48,710 --> 00:23:47,520

and

599

00:23:49,990 --> 00:23:48,720

if this old one is going to be

600

00:23:53,190 --> 00:23:50,000

refurbished and flown back to the

601
00:23:57,830 --> 00:23:55,070
well they actually did learn a lot from

602
00:23:59,029 --> 00:23:57,840
sts-128 that did the other ammonia tank

603
00:24:00,470 --> 00:23:59,039
so it's really good to see them do that

604
00:24:02,070 --> 00:24:00,480
it's kind of a nice dry rehearsal for

605
00:24:04,549 --> 00:24:02,080
for our mission

606
00:24:07,029 --> 00:24:04,559
it's a big oru so it's very heavy

607
00:24:09,350 --> 00:24:07,039
uh we do practice a lot to use foot

608
00:24:10,870 --> 00:24:09,360
restraints to get a stable work platform

609
00:24:13,750 --> 00:24:10,880
uh the crew is trying to always maintain

610
00:24:14,950 --> 00:24:13,760
good solid control over it um

611
00:24:17,830 --> 00:24:14,960
and as far as that being filled with

612
00:24:19,590 --> 00:24:17,840
ammonia the

613
00:24:21,750 --> 00:24:19,600

the internal side of it is filled with

614

00:24:23,029 --> 00:24:21,760

ammonia but the the qd's that they

615

00:24:24,950 --> 00:24:23,039

operate the quick disconnects where they

616

00:24:26,149 --> 00:24:24,960

actually the ev crew interfaces

617

00:24:28,230 --> 00:24:26,159

it's not doesn't have a money on the

618

00:24:30,470 --> 00:24:28,240

backside of that so it should be pretty

619

00:24:31,909 --> 00:24:30,480

safe nothing too extremely hazardous but

620

00:24:34,070 --> 00:24:31,919

again it is full of ammonia so we do

621

00:24:35,590 --> 00:24:34,080

take up precautions

622

00:24:37,350 --> 00:24:35,600

we do have those in place if we need to

623

00:24:39,830 --> 00:24:37,360

use them

624

00:24:41,110 --> 00:24:39,840

and the old ata will be flown back

625

00:24:43,190 --> 00:24:41,120

for refurbished and refilling with

626

00:24:49,029 --> 00:24:43,200

pneumonia and flowing back on one of the

627

00:24:52,230 --> 00:24:50,390

okay i think that's it from nasa

628

00:24:54,950 --> 00:24:52,240

headquarters

629

00:24:57,110 --> 00:24:54,960

bill you got one

630

00:25:00,390 --> 00:24:57,120

well yeah let's ask you a generic uh

631

00:25:02,230 --> 00:25:00,400

question bill harwood cbs news um these

632

00:25:03,669 --> 00:25:02,240

don't look like they're overly complex

633

00:25:05,190 --> 00:25:03,679

place walks but they're obviously

634

00:25:07,269 --> 00:25:05,200

tightly timed and a lot of

635

00:25:10,710 --> 00:25:07,279

interrelated activities i mean how do

636

00:25:12,230 --> 00:25:10,720

you assess the complexity of it and the

637

00:25:14,470 --> 00:25:12,240

just the overall workload to get all

638

00:25:16,549 --> 00:25:14,480

this done well that's a really good

639

00:25:18,630 --> 00:25:16,559

assessment the the tasks themselves are

640

00:25:20,470 --> 00:25:18,640

not very complicated uh we're just

641

00:25:22,310 --> 00:25:20,480

basically moving some boxes around and

642

00:25:24,870 --> 00:25:22,320

bolting them in place but the amount of

643

00:25:27,190 --> 00:25:24,880

tank it is large it's 760 pounds so it's

644

00:25:29,269 --> 00:25:27,200

a very large mass the ev crew cannot

645

00:25:31,110 --> 00:25:29,279

move it by itself therefore we have to

646

00:25:33,110 --> 00:25:31,120

use the robotic arm

647

00:25:35,590 --> 00:25:33,120

this involves us using the arm

648

00:25:38,230 --> 00:25:35,600

for all three evas and so whenever we

649

00:25:39,990 --> 00:25:38,240

tie the arm to the eva crew it increases

650

00:25:41,909 --> 00:25:40,000

the complexity especially as far as

651
00:25:43,830 --> 00:25:41,919
timeline goes so we spent a lot of time

652
00:25:45,510 --> 00:25:43,840
choreographing things in the mbl

653
00:25:47,590 --> 00:25:45,520
and the virtual reality lab to make sure

654
00:25:49,110 --> 00:25:47,600
that we are time stuff out to where the

655
00:25:50,390 --> 00:25:49,120
arm is not waiting on the eva crew or

656
00:25:51,909 --> 00:25:50,400
the eva crew is not wearing the arm too

657
00:25:53,990 --> 00:25:51,919
much so the hardest part will be that

658
00:25:55,750 --> 00:25:54,000
correlation between the two

659
00:25:58,070 --> 00:25:55,760
did these evas everything do you guys

660
00:25:59,990 --> 00:25:58,080
have anything in the in the in the bag

661
00:26:01,669 --> 00:26:00,000
for get-aheads beyond what you told us

662
00:26:02,789 --> 00:26:01,679
about or do you really or do you think

663
00:26:04,310 --> 00:26:02,799

these are going to really fill up the

664

00:26:05,909 --> 00:26:04,320

time you got allowed

665

00:26:08,149 --> 00:26:05,919

we we have a few small get ahead you

666

00:26:10,390 --> 00:26:08,159

know we're getting towards the end of

667

00:26:12,390 --> 00:26:10,400

the shuttle flight going station towards

668

00:26:14,149 --> 00:26:12,400

the end of assembly station so

669

00:26:15,830 --> 00:26:14,159

we actually don't have a whole lot of

670

00:26:18,789 --> 00:26:15,840

get-aheads but we have a few in place

671

00:26:20,710 --> 00:26:18,799

that we can do uh at various evas

672

00:26:22,870 --> 00:26:20,720

just one more just because rick and clay

673

00:26:25,190 --> 00:26:22,880

have obviously worked together before

674

00:26:27,190 --> 00:26:25,200

um does that helped in training or is it

675

00:26:28,870 --> 00:26:27,200

is it something that that was years ago

676

00:26:30,710 --> 00:26:28,880

and it's like a different it's like a

677

00:26:32,149 --> 00:26:30,720

new flight you start from scratch oh no

678

00:26:33,669 --> 00:26:32,159

absolutely i think both of them having

679

00:26:35,909 --> 00:26:33,679

experience and both of them having

680

00:26:38,149 --> 00:26:35,919

worked before on actual evas has been

681

00:26:39,750 --> 00:26:38,159

great now those two from from day one

682

00:26:41,990 --> 00:26:39,760

started working together uh just

683

00:26:43,669 --> 00:26:42,000

perfectly so i think that's a real asset

684

00:26:46,710 --> 00:26:43,679

to this flight is their experience and

685

00:26:48,630 --> 00:26:46,720

especially their experience together

686

00:26:49,990 --> 00:26:48,640

okay over here yeah eric berger with the

687

00:26:51,830 --> 00:26:50,000

houston chronicle i think you mentioned

688

00:26:53,669 --> 00:26:51,840

that the emotion excuse me the ammonia

689

00:26:55,669 --> 00:26:53,679

tank assembly was roughly the size of a

690

00:26:57,590 --> 00:26:55,679

first generation smart car

691

00:26:58,950 --> 00:26:57,600

yes okay roughly

692

00:27:00,549 --> 00:26:58,960

huge smart car is a little bigger money

693

00:27:03,110 --> 00:27:00,559

tank's a little heavier this houston

694

00:27:07,510 --> 00:27:03,120

texas the petroleum capital of the world

695

00:27:11,590 --> 00:27:07,520

is that like a vw bug or something

696

00:27:16,070 --> 00:27:13,110

okay i think that's it from here one

697

00:27:20,630 --> 00:27:18,070

uh just one more claim from question

698

00:27:22,630 --> 00:27:20,640

from mark kramer our producer

699

00:27:25,029 --> 00:27:22,640

in new york what the old

700

00:27:26,389 --> 00:27:25,039

mmod shields why are they going back in

701
00:27:27,669 --> 00:27:26,399
and what were they there for in the

702
00:27:29,909 --> 00:27:27,679
first place

703
00:27:32,310 --> 00:27:29,919
those shields were on the airlock and so

704
00:27:33,510 --> 00:27:32,320
when the sts-129 flew up they took those

705
00:27:35,909 --> 00:27:33,520
shields off the airlock and they

706
00:27:37,430 --> 00:27:35,919
installed a fifth gas tank on top of the

707
00:27:38,789 --> 00:27:37,440
airlock okay so they're just not needed

708
00:27:40,149 --> 00:27:38,799
anymore right and they're big they're

709
00:27:41,830 --> 00:27:40,159
hard to fly down so we're flying them

710
00:27:43,750 --> 00:27:41,840
down the mplm that's why they left them

711
00:27:46,149 --> 00:27:43,760
for us to do thank you that'll do it

712
00:27:47,750 --> 00:27:46,159
okay that's it from here that'll wrap up

713
00:27:49,350 --> 00:27:47,760

today's briefing thanks a lot dave

714

00:27:50,870 --> 00:27:49,360

coming up next here on nasa tv we will

715

00:27:52,549 --> 00:27:50,880

have the b-roll feed taking a look at

716

00:27:54,630 --> 00:27:52,559

all the different animation and video

717

00:27:56,710 --> 00:27:54,640

file footage for this upcoming mission

718

00:27:58,470 --> 00:27:56,720

and then coming up at 12 p.m central

719

00:28:00,310 --> 00:27:58,480

time we will have a nasa education

720

00:28:01,750 --> 00:28:00,320

overview here on nasa tv we will bring

721

00:28:04,070 --> 00:28:01,760

that to you live from here at the

722

00:28:07,190 --> 00:28:04,080

johnson space center and then at 1 pm

723

00:28:08,389 --> 00:28:07,200

central time the entire crew of sts-131

724

00:28:09,909 --> 00:28:08,399

will be here to take questions from the

725

00:28:12,789 --> 00:28:09,919

media and we will also broadcast that

726

00:28:14,149 --> 00:28:12,799

live here on nasa tv as well as always

727

00:28:15,510 --> 00:28:14,159

for the latest information on this

728

00:28:18,990 --> 00:28:15,520

mission or to learn more you can always