



1  
00:01:22,710 --> 00:00:03,030  
hi i'm steve bowen with the sds-133 crew

2  
00:01:27,749 --> 00:01:26,070  
good morning and uh

3  
00:01:29,109 --> 00:01:27,759  
well my family know i feel the same way

4  
00:01:30,390 --> 00:01:29,119  
about them

5  
00:01:31,429 --> 00:01:30,400  
and uh

6  
00:01:33,830 --> 00:01:31,439  
debbie

7  
00:01:35,429 --> 00:01:33,840  
nick jillian max did a great job picking

8  
00:01:36,550 --> 00:01:35,439  
that out and i hope to see them pretty

9  
00:01:38,310 --> 00:01:36,560  
soon

10  
00:01:40,630 --> 00:01:38,320  
uh today's been a great day to be up

11  
00:01:42,389 --> 00:01:40,640  
here we're starting the last

12  
00:01:44,149 --> 00:01:42,399  
uf module and getting ready for another

13  
00:01:45,429 --> 00:01:44,159

eva

14

00:01:50,069 --> 00:01:45,439

sounds great we're looking forward to

15

00:01:54,149 --> 00:01:51,990

this is mission control houston the

16

00:01:56,630 --> 00:01:54,159

leonardo permanent multi-purpose module

17

00:01:59,429 --> 00:01:56,640

seen here in shuttle discovery's cargo

18

00:02:01,590 --> 00:01:59,439

bay for just a few more hours

19

00:02:03,910 --> 00:02:01,600

crew is scheduled to be pulling it out

20

00:02:05,990 --> 00:02:03,920

of the cargo bay and we'll start with

21

00:02:08,469 --> 00:02:06,000

actually grabbing onto it with the space

22

00:02:09,830 --> 00:02:08,479

station robotic arm which you can see

23

00:02:13,030 --> 00:02:09,840

perched just in front of it in the

24

00:02:15,190 --> 00:02:13,040

center of the screen at 708 am and then

25

00:02:18,070 --> 00:02:15,200

actually pulling it out of the cargo bay

26

00:02:19,990 --> 00:02:18,080

just before 7 45 am central time

27

00:02:21,190 --> 00:02:20,000

moving it to the unity node on the

28

00:02:22,390 --> 00:02:21,200

international space station where

29

00:02:24,710 --> 00:02:22,400

they'll be installing it on the

30

00:02:26,949 --> 00:02:24,720

earth-facing port

31

00:02:29,030 --> 00:02:26,959

so how was your eva yesterday ebay

32

00:02:30,869 --> 00:02:29,040

yesterday was just plain awesome and

33

00:02:32,150 --> 00:02:30,879

what was the best part

34

00:02:33,509 --> 00:02:32,160

that's probably gonna say was going up

35

00:02:34,949 --> 00:02:33,519

the airlock door just getting that view

36

00:02:36,150 --> 00:02:34,959

for the first time

37

00:02:37,830 --> 00:02:36,160

see the whole universe is kind of

38

00:02:39,509 --> 00:02:37,840

wrapped around you so you did a great

39

00:02:40,710 --> 00:02:39,519

job yesterday but what was your

40

00:02:42,790 --> 00:02:40,720

motivation

41

00:02:43,830 --> 00:02:42,800

what about your crime the fact that you

42

00:02:46,470 --> 00:02:43,840

said if i didn't do a good job you

43

00:02:48,869 --> 00:02:46,480

wouldn't let me back in the airlock

44

00:02:52,150 --> 00:02:48,879

exactly negative motivation drives this

45

00:02:54,229 --> 00:02:52,160

crew fear is my prime motivator

46

00:02:56,470 --> 00:02:54,239

here's mike barrett yes

47

00:02:58,229 --> 00:02:56,480

who has about 18 things for breakfast

48

00:02:59,350 --> 00:02:58,239

what are you having this morning

49

00:03:00,949 --> 00:02:59,360

well

50

00:03:03,110 --> 00:03:00,959

steve bowen stopped at the starbucks and

51  
00:03:05,270 --> 00:03:03,120  
bought us all coffee oh good that's

52  
00:03:07,670 --> 00:03:05,280  
where we're starting great and let's see

53  
00:03:09,350 --> 00:03:07,680  
we're having granola uh-huh crunchy

54  
00:03:11,430 --> 00:03:09,360  
until you're rehydrated

55  
00:03:13,670 --> 00:03:11,440  
scrambled eggs pretty much everything is

56  
00:03:15,509 --> 00:03:13,680  
crunchy until you rehydrate it

57  
00:03:18,070 --> 00:03:15,519  
and let's see what else we have down

58  
00:03:20,149 --> 00:03:18,080  
here

59  
00:03:21,430 --> 00:03:20,159  
citrus fruit salad

60  
00:03:22,869 --> 00:03:21,440  
and this isn't just the first one i

61  
00:03:25,350 --> 00:03:22,879  
wouldn't recommend this at first fruit

62  
00:03:27,910 --> 00:03:25,360  
salad was that right no but that's me

63  
00:03:29,509 --> 00:03:27,920

yeah we'll give it a try

64

00:03:30,789 --> 00:03:29,519

how about you bim

65

00:03:33,270 --> 00:03:30,799

i got some of the

66

00:03:35,509 --> 00:03:33,280

tasty stuff that alvin had water water

67

00:03:37,270 --> 00:03:35,519

good i've also got in the heater over

68

00:03:39,589 --> 00:03:37,280

here got some

69

00:03:41,990 --> 00:03:39,599

eggs going on taking what mike has is

70

00:03:43,509 --> 00:03:42,000

putting water in it heating it up

71

00:03:45,509 --> 00:03:43,519

material

72

00:03:48,789 --> 00:03:45,519

and i'm gonna have some yogurt that's

73

00:03:54,149 --> 00:03:50,869

steve i know you love the camera and the

74

00:03:57,990 --> 00:03:56,229

what are you up to this morning

75

00:04:03,190 --> 00:03:58,000

i finished my breakfast you finished

76  
00:04:05,990 --> 00:04:04,869  
waffles all right so what are you gonna

77  
00:04:07,509 --> 00:04:06,000  
do today

78  
00:04:08,710 --> 00:04:07,519  
get ready for the ball get ready for the

79  
00:04:15,110 --> 00:04:08,720  
morning stay out of their way that's a

80  
00:04:19,990 --> 00:04:17,830  
it's the start of a new day

81  
00:04:21,830 --> 00:04:20,000  
and what are you doing today well today

82  
00:04:24,390 --> 00:04:21,840  
mike and i are going to remove or remove

83  
00:04:25,909 --> 00:04:24,400  
the pmm which is the big module that's

84  
00:04:27,030 --> 00:04:25,919  
currently in the payload bay of

85  
00:04:28,629 --> 00:04:27,040  
discovery

86  
00:04:29,990 --> 00:04:28,639  
over to the station and that will

87  
00:04:32,629 --> 00:04:30,000  
complete

88  
00:04:34,469 --> 00:04:32,639

the assembly of the iss

89

00:04:36,469 --> 00:04:34,479

and what's your motivation

90

00:04:37,749 --> 00:04:36,479

my motivation my motivation for doing

91

00:04:41,189 --> 00:04:37,759

well today

92

00:04:43,430 --> 00:04:41,199

well we want to make sure that uh

93

00:04:45,990 --> 00:04:43,440

station can continue through 2020 at

94

00:04:47,590 --> 00:04:46,000

least and uh that would be to continue

95

00:04:49,189 --> 00:04:47,600

with the science and uh great stuff

96

00:04:51,350 --> 00:04:49,199

that's going on what's your real

97

00:04:53,030 --> 00:04:51,360

personal i thought real person

98

00:04:54,830 --> 00:04:53,040

i thought al's motivation was better

99

00:04:56,550 --> 00:04:54,840

than that what sales motivation world

100

00:04:58,469 --> 00:04:56,560

peace

101  
00:04:59,830 --> 00:04:58,479  
if he didn't do a good job because i

102  
00:05:01,909 --> 00:04:59,840  
told him if he didn't do a good job i

103  
00:05:03,270 --> 00:05:01,919  
wouldn't let him back in the airlock

104  
00:05:04,150 --> 00:05:03,280  
oh so

105  
00:05:06,070 --> 00:05:04,160  
yeah

106  
00:05:16,070 --> 00:05:06,080  
but i was standing next to you

107  
00:05:19,590 --> 00:05:17,990  
and if you guys are set we'll go ahead

108  
00:05:22,469 --> 00:05:19,600  
and start marching through step one of

109  
00:05:26,230 --> 00:05:22,479  
the pmm unbiased install

110  
00:05:28,150 --> 00:05:26,240  
on the big loop ground control complete

111  
00:05:34,390 --> 00:05:28,160  
okay copy that hal uh we'll give you a

112  
00:05:39,510 --> 00:05:36,310  
this pmm is uh

113  
00:05:40,950 --> 00:05:39,520

fairly large in size is 21 feet long 15

114

00:05:42,230 --> 00:05:40,960

feet in diameter

115

00:05:44,070 --> 00:05:42,240

it's bringing up quite a number of

116

00:05:46,230 --> 00:05:44,080

supplies it has

117

00:05:47,990 --> 00:05:46,240

14 racks inside which includes express

118

00:05:49,029 --> 00:05:48,000

rack number eight which is an experiment

119

00:05:51,510 --> 00:05:49,039

rack

120

00:05:54,150 --> 00:05:51,520

there are six resupply storage platforms

121

00:05:56,150 --> 00:05:54,160

five resupply storage racks

122

00:05:57,510 --> 00:05:56,160

and two integrated stowage platforms so

123

00:05:59,510 --> 00:05:57,520

quite a bit of equipment coming up

124

00:06:01,670 --> 00:05:59,520

including robonaut 2

125

00:06:03,350 --> 00:06:01,680

but it is bound for the earth-facing

126  
00:06:05,510 --> 00:06:03,360  
side of unity

127  
00:06:07,749 --> 00:06:05,520  
our robotics controllers today are mike

128  
00:06:09,350 --> 00:06:07,759  
barrett nicole stott

129  
00:06:11,590 --> 00:06:09,360  
both of them used to live on board the

130  
00:06:14,870 --> 00:06:11,600  
international space station

131  
00:06:16,790 --> 00:06:14,880  
now members of sts-133

132  
00:06:25,029 --> 00:06:16,800  
houston discovery on the big loop robo

133  
00:06:28,550 --> 00:06:27,110  
a robotics officer here inside mission

134  
00:06:30,150 --> 00:06:28,560  
control confirming that the grapple is

135  
00:06:32,550 --> 00:06:30,160  
in progress

136  
00:06:35,350 --> 00:06:32,560  
mike barrett nicole stott

137  
00:06:37,430 --> 00:06:35,360  
getting ready to uh finish up this part

138  
00:06:49,430 --> 00:06:37,440

of the procedure to get pmm grappled by

139

00:06:53,589 --> 00:06:51,270

this is mission control houston getting

140

00:06:54,870 --> 00:06:53,599

an excellent view there this 28 000

141

00:06:56,790 --> 00:06:54,880

pound

142

00:07:00,710 --> 00:06:56,800

permanent multi-purpose model that used

143

00:07:02,390 --> 00:07:00,720

to be the leonardo multipurpose module

144

00:07:04,629 --> 00:07:02,400

there at the end is the common birthing

145

00:07:07,029 --> 00:07:04,639

mechanism eric boe and katie coleman are

146

00:07:09,430 --> 00:07:07,039

going to be responsible for powering up

147

00:07:12,150 --> 00:07:09,440

the twin sister of that cbm that is on

148

00:07:13,830 --> 00:07:12,160

the bottom side of unity those two

149

00:07:16,070 --> 00:07:13,840

pieces of equipment will meet and that

150

00:07:20,309 --> 00:07:16,080

is what will form the hard connection

151  
00:07:23,510 --> 00:07:20,319  
between the pmm and unity

152  
00:07:24,790 --> 00:07:23,520  
this pmm will be the last

153  
00:07:26,629 --> 00:07:24,800  
major

154  
00:07:29,029 --> 00:07:26,639  
interior portion of the space station

155  
00:07:30,950 --> 00:07:29,039  
that a space shuttle will ever deliver

156  
00:07:32,950 --> 00:07:30,960  
it will expand the station by twenty

157  
00:07:34,150 --> 00:07:32,960  
four hundred and seventy two cubic feet

158  
00:07:36,629 --> 00:07:34,160  
provide uh

159  
00:07:40,070 --> 00:07:36,639  
some important cargo storage

160  
00:07:45,270 --> 00:07:42,950  
so what are you guys doing mike we are

161  
00:07:47,110 --> 00:07:45,280  
installing the last u.s module

162  
00:07:49,749 --> 00:07:47,120  
contribution to the international space

163  
00:07:51,510 --> 00:07:49,759

station is that right that is right

164

00:07:53,909 --> 00:07:51,520

that's happening today

165

00:07:55,670 --> 00:07:53,919

uh it is actually the last u.s module it

166

00:07:57,510 --> 00:07:55,680

was built in italy

167

00:07:59,270 --> 00:07:57,520

leonardo i wonder if i can get it out

168

00:08:02,469 --> 00:07:59,280

the window here i think you probably can

169

00:08:04,230 --> 00:08:02,479

you may want to go to night setting

170

00:08:05,270 --> 00:08:04,240

can you reach that yeah sure can let's

171

00:08:10,150 --> 00:08:05,280

see

172

00:08:12,710 --> 00:08:11,430

you're at night

173

00:08:15,430 --> 00:08:12,720

thank you

174

00:08:17,990 --> 00:08:15,440

so here's a shot of our pmm coming in

175

00:08:19,589 --> 00:08:18,000

you can see it's just about in position

176

00:08:22,469 --> 00:08:19,599

the red glowing light in the bottom of

177

00:08:26,309 --> 00:08:22,479

the screen is the cbcs the target with

178

00:08:27,670 --> 00:08:26,319

the light that is going too

179

00:08:29,350 --> 00:08:27,680

it's neat that we have a camera that

180

00:08:31,430 --> 00:08:29,360

helps that's mounted there that helps

181

00:08:33,190 --> 00:08:31,440

guide us in

182

00:08:35,909 --> 00:08:33,200

here's at the top of the window you can

183

00:08:38,389 --> 00:08:35,919

see the rest of the pmm coming in

184

00:08:46,949 --> 00:08:38,399

and uh all right so how about the

185

00:08:51,269 --> 00:08:49,190

here's where mike and nikki are working

186

00:08:52,790 --> 00:08:51,279

on it

187

00:08:55,670 --> 00:08:52,800

just put it into its position they're

188

00:08:56,949 --> 00:08:55,680

gonna drive it in manually here shortly

189

00:08:59,430 --> 00:08:56,959

there's a look at this beautiful

190

00:09:01,269 --> 00:08:59,440

robotics workstation

191

00:09:02,710 --> 00:09:01,279

can you see it

192

00:09:04,630 --> 00:09:02,720

pretty good

193

00:09:06,550 --> 00:09:04,640

there's the controls that mike's working

194

00:09:08,470 --> 00:09:06,560

on

195

00:09:10,310 --> 00:09:08,480

his hands

196

00:09:11,509 --> 00:09:10,320

we're positioned but we're still damping

197

00:09:13,750 --> 00:09:11,519

a little bit so let's just give it a

198

00:09:15,509 --> 00:09:13,760

couple of potatoes

199

00:09:17,670 --> 00:09:15,519

a little tiny bit of angle bounce but

200

00:09:20,230 --> 00:09:17,680

it's pretty stable

201  
00:09:23,910 --> 00:09:20,240  
and here's a shot of our heroes at work

202  
00:09:26,070 --> 00:09:23,920  
which is really hard to shoot there's my

203  
00:09:27,910 --> 00:09:26,080  
wave to the camera big smiles hello nice

204  
00:09:30,310 --> 00:09:27,920  
people they look happy

205  
00:09:34,230 --> 00:09:30,320  
we are happy there's happiness that's

206  
00:09:39,110 --> 00:09:36,949  
hey crew is steering the cameras around

207  
00:09:41,670 --> 00:09:39,120  
to get a better look of this pmm they

208  
00:09:43,269 --> 00:09:41,680  
are running ahead of the timeline so

209  
00:09:44,870 --> 00:09:43,279  
today's installation

210  
00:09:47,910 --> 00:09:44,880  
will probably take place earlier than

211  
00:09:51,829 --> 00:09:50,310  
as we mentioned this is a historic

212  
00:09:54,630 --> 00:09:51,839  
occurrence for the space shuttle this

213  
00:09:56,230 --> 00:09:54,640

will be the last interior volume

214

00:09:57,590 --> 00:09:56,240

that a space shuttle will ever install

215

00:09:59,509 --> 00:09:57,600

and deliver to the station you can kind

216

00:10:01,750 --> 00:09:59,519

of think of it as the last room

217

00:10:03,030 --> 00:10:01,760

that a space shuttle will ever install

218

00:10:04,550 --> 00:10:03,040

on the station

219

00:10:06,230 --> 00:10:04,560

after all these years of constructing

220

00:10:07,750 --> 00:10:06,240

this entire orbiting complex it comes

221

00:10:09,750 --> 00:10:07,760

down to this

222

00:10:11,350 --> 00:10:09,760

of course 134 will deliver another piece

223

00:10:14,310 --> 00:10:11,360

of experiment the alpha magnetic

224

00:10:16,710 --> 00:10:14,320

spectrometer and 135 will bring up some

225

00:10:18,230 --> 00:10:16,720

cargo supplies but this is a

226

00:10:20,069 --> 00:10:18,240

big day for space shuttle discovery

227

00:10:21,430 --> 00:10:20,079

during its final mission to be able to

228

00:10:22,710 --> 00:10:21,440

provide

229

00:10:24,949 --> 00:10:22,720

this last

230

00:10:26,790 --> 00:10:24,959

piece of expansion to the u.s segment of

231

00:10:29,110 --> 00:10:26,800

the international space station the crew

232

00:10:30,949 --> 00:10:29,120

has been given the go to maneuver to the

233

00:10:32,389 --> 00:10:30,959

ready to latch position

234

00:10:34,150 --> 00:10:32,399

once it gets there they will take a look

235

00:10:35,670 --> 00:10:34,160

make sure everything is ready to proceed

236

00:10:41,910 --> 00:10:35,680

and then they will go ahead and latch

237

00:10:49,670 --> 00:10:43,350

houston and discovery on the big loop

238

00:10:49,680 --> 00:10:56,870

houston we're watching

239

00:11:03,190 --> 00:10:58,230

and houston we have ramped that motion

240

00:11:03,200 --> 00:11:07,910

houston concurs good work

241

00:11:07,920 --> 00:11:11,190

thank you for your help

242

00:11:15,829 --> 00:11:13,509

so mike barrett and nicole stott's

243

00:11:18,790 --> 00:11:15,839

role so far on hold they've done a good

244

00:11:22,630 --> 00:11:18,800

job of getting the pmm over to unity

245

00:11:27,829 --> 00:11:25,910

happy uh go maneuvers complete the rtl

246

00:11:30,870 --> 00:11:27,839

and go for first stage capture and good

247

00:11:33,910 --> 00:11:32,470

thank you

248

00:11:35,110 --> 00:11:33,920

eric bowe and katie coleman are going to

249

00:11:36,470 --> 00:11:35,120

be working on the common birthing

250

00:11:51,509 --> 00:11:36,480

mechanism this is what will actually

251  
00:11:56,389 --> 00:11:53,110  
and nicole and mike on the big move for

252  
00:11:58,470 --> 00:11:56,399  
the ssr mess you are go for ssrms mode

253  
00:12:00,629 --> 00:11:58,480  
to limp

254  
00:12:02,550 --> 00:12:00,639  
how we go for mode dilemma so what are

255  
00:12:05,590 --> 00:12:02,560  
you guys doing

256  
00:12:07,110 --> 00:12:05,600  
now we're basically taking the uh pmm

257  
00:12:21,750 --> 00:12:07,120  
and we're driving some bolts which are

258  
00:12:26,550 --> 00:12:23,910  
they changed the

259  
00:12:27,750 --> 00:12:26,560  
when did that how come nobody told me

260  
00:12:29,430 --> 00:12:27,760  
when did that happen the big thing in

261  
00:12:32,230 --> 00:12:29,440  
the back isn't coming home with you we

262  
00:12:35,670 --> 00:12:33,829  
so we don't get to bring anything home

263  
00:12:36,870 --> 00:12:35,680

complete your go for second stage

264

00:12:38,629 --> 00:12:36,880

capture

265

00:12:41,030 --> 00:12:38,639

i can bring my crew home copy go for

266

00:12:43,590 --> 00:12:41,040

second stage capture

267

00:12:45,030 --> 00:12:43,600

so five figures

268

00:12:46,949 --> 00:12:45,040

now what's that thing you got in your

269

00:12:48,949 --> 00:12:46,959

hand this is a mini workstation this is

270

00:12:51,590 --> 00:12:48,959

my tool box we're going out the door for

271

00:12:53,269 --> 00:12:51,600

space walking yeah give a quick tour

272

00:12:56,949 --> 00:12:53,279

with this is called a

273

00:12:58,389 --> 00:12:56,959

this is a brt which stands for

274

00:13:00,230 --> 00:12:58,399

body restraint

275

00:13:02,870 --> 00:13:00,240

each other tools basically it can go

276

00:13:04,470 --> 00:13:02,880

from being floppy

277

00:13:26,629 --> 00:13:04,480

if you crank it down

278

00:13:29,350 --> 00:13:28,150

equipment tethers for grabbing onto

279

00:13:30,870 --> 00:13:29,360

things and holding those things don't

280

00:13:32,389 --> 00:13:30,880

float away

281

00:13:34,550 --> 00:13:32,399

got this thing called end effector but

282

00:13:36,310 --> 00:13:34,560

we call it a grabber daddy this way to

283

00:13:37,430 --> 00:13:36,320

keep us attached to structure so when

284

00:13:41,189 --> 00:13:37,440

we're trying to do things our hands

285

00:13:44,150 --> 00:13:42,629

things up here called bunny ears or just

286

00:13:47,110 --> 00:13:44,160

place them put your stuff they don't

287

00:13:48,069 --> 00:13:47,120

smack reach up smack you in

288

00:13:49,189 --> 00:13:48,079

and over here is the face

289

00:13:51,990 --> 00:13:49,199

arm

290

00:13:53,670 --> 00:13:52,000

where you can put either a camera or a

291

00:13:55,829 --> 00:13:53,680

power tool here can we turn that down

292

00:13:57,269 --> 00:13:55,839

just a little bit because i can't

293

00:14:01,590 --> 00:13:57,279

turn it off this clips onto the front

294

00:14:04,470 --> 00:14:02,870

oh yeah everything's right there in

295

00:14:06,550 --> 00:14:04,480

front of you so you can see it and grab

296

00:14:08,150 --> 00:14:06,560

it right here you grab it all and uh and

297

00:14:10,069 --> 00:14:08,160

use it and then you customize it for

298

00:14:14,069 --> 00:14:10,079

what you're doing whatever you need

299

00:14:17,189 --> 00:14:14,079

design works extremely well okay cool

300

00:14:18,870 --> 00:14:17,199

there sure is a lot of stuff in here

301  
00:14:22,470 --> 00:14:18,880  
you know what all this stuff is

302  
00:14:24,069 --> 00:14:22,480  
um next procedure is 1.115.

303  
00:14:25,189 --> 00:14:24,079  
you got a lot of stuff here

304  
00:14:27,269 --> 00:14:25,199  
in the airline we're going to be working

305  
00:14:41,509 --> 00:14:27,279  
with this

306  
00:14:44,550 --> 00:14:42,790  
so these guys are prepping for

307  
00:14:47,269 --> 00:14:44,560  
tomorrow's eva they're going to go out

308  
00:14:48,790 --> 00:14:47,279  
and okay at 1.115 like she's going to go

309  
00:14:51,030 --> 00:14:48,800  
get the uh

310  
00:14:52,550 --> 00:14:51,040  
lightweight adapter plate assembly off

311  
00:14:54,069 --> 00:14:52,560  
of the columbus bring it back into the

312  
00:14:55,910 --> 00:14:54,079  
orbiter

313  
00:14:58,710 --> 00:14:55,920

al is going to do a whole bunch of

314

00:15:00,230 --> 00:14:58,720

things all over the station and a whole

315

00:15:02,710 --> 00:15:00,240

bunch of cleanup activities and

316

00:15:04,790 --> 00:15:02,720

get-aheads and things like that so

317

00:15:07,110 --> 00:15:04,800

another exciting eba today with lots of

318

00:15:09,030 --> 00:15:07,120

eva lots of robotics and uh this guy's

319

00:15:11,030 --> 00:15:09,040

going to go out and do a great job

320

00:15:14,550 --> 00:15:11,040

i'll stow position pressurization valve

321

00:15:18,790 --> 00:15:15,670

ratchet

322

00:15:21,829 --> 00:15:20,870

pull out the top panel pull out the

323

00:15:25,189 --> 00:15:21,839

width

324

00:15:29,910 --> 00:15:28,710

you got that one this guy pull up yep

325

00:15:37,110 --> 00:15:29,920

i actually don't you don't pull it yeah

326

00:15:37,120 --> 00:15:46,790

yeah it's just kind of

327

00:15:46,800 --> 00:16:06,870

you can take that

328

00:16:06,880 --> 00:16:15,990

yep

329

00:16:21,110 --> 00:16:18,150

now the fun comes with robonaut still

330

00:16:22,389 --> 00:16:21,120

hopefully with the seat belt on

331

00:16:24,870 --> 00:16:22,399

yeah i think he's in the window he's

332

00:16:26,710 --> 00:16:24,880

looking through the window oh yeah

333

00:16:32,150 --> 00:16:26,720

it's been four months

334

00:16:38,710 --> 00:16:34,389

all right pulleys clevis brackets

335

00:16:42,310 --> 00:16:40,389

where are we going to put that thing you

336

00:16:43,670 --> 00:16:42,320

and figure two and figure it out we get

337

00:16:46,150 --> 00:16:43,680

those first but we'll take a look at the

338

00:16:48,870 --> 00:16:46,160

inside always thinking it's got to go

339

00:16:52,150 --> 00:16:49,990

so paulo what are you working on there

340

00:16:54,949 --> 00:16:52,160

today

341

00:16:58,710 --> 00:16:56,389

hansel uh

342

00:17:01,350 --> 00:16:58,720

wanted to reconfigure this facility uh

343

00:17:02,150 --> 00:17:01,360

to run a set of experiments so what i've

344

00:17:04,949 --> 00:17:02,160

done

345

00:17:08,069 --> 00:17:04,959

i have removed the previous experiment

346

00:17:09,829 --> 00:17:08,079

which is encapsulated inside this uh

347

00:17:12,630 --> 00:17:09,839

sealed box

348

00:17:13,909 --> 00:17:12,640

uh the expander runs inside in a control

349

00:17:17,429 --> 00:17:13,919

environment

350

00:17:21,110 --> 00:17:17,439

and then the results are actually

351  
00:17:22,949 --> 00:17:21,120  
documented by this microscope there are

352  
00:17:24,710 --> 00:17:22,959  
several lights inside that goes inside

353  
00:17:27,110 --> 00:17:24,720  
and look at the detail of what happens

354  
00:17:28,230 --> 00:17:27,120  
in detail so what i've done here is

355  
00:17:29,830 --> 00:17:28,240  
removed

356  
00:17:31,750 --> 00:17:29,840  
the previous chamber the container

357  
00:17:32,549 --> 00:17:31,760  
previous experiment and store the new

358  
00:17:34,630 --> 00:17:32,559  
one

359  
00:17:37,669 --> 00:17:34,640  
is in preparation for running this must

360  
00:17:37,679 --> 00:17:40,789  
thank you very much

361  
00:17:59,669 --> 00:17:43,669  
you guys were equalizing with the pmm

362  
00:18:03,270 --> 00:18:01,750  
yep

363  
00:18:21,430 --> 00:18:03,280

it smells like

364

00:18:25,270 --> 00:18:22,950

so what you doing there i think we just

365

00:18:27,830 --> 00:18:25,280

faced it there's a heat shield for these

366

00:18:29,830 --> 00:18:27,840

portable foot restraints we use outside

367

00:18:31,510 --> 00:18:29,840

and what they figured out was that

368

00:18:33,830 --> 00:18:31,520

it doesn't get hot enough to merit a

369

00:18:35,430 --> 00:18:33,840

heat shield out to it as a source of

370

00:18:37,110 --> 00:18:35,440

potential energy so this is if there was

371

00:18:38,630 --> 00:18:37,120

any kind of grounding path this would

372

00:18:39,750 --> 00:18:38,640

block it so you might

373

00:18:41,990 --> 00:18:39,760

possibly

374

00:18:43,590 --> 00:18:42,000

shock yourself getting off of this foot

375

00:18:45,110 --> 00:18:43,600

restraint and so they want to remove

376

00:18:46,789 --> 00:18:45,120

these heat shields now so these things

377

00:18:48,789 --> 00:18:46,799

can crown themselves out on stations so

378

00:18:50,870 --> 00:18:48,799

i'm removing this and sending it back

379

00:18:53,669 --> 00:18:50,880

down to houston on the bar so how much

380

00:18:54,710 --> 00:18:53,679

does that hold foot restraint weight

381

00:18:56,950 --> 00:18:54,720

i mean just

382

00:18:58,549 --> 00:18:56,960

you know that's what 100 pounds i think

383

00:19:00,150 --> 00:18:58,559

i think it's pretty good

384

00:19:01,190 --> 00:19:00,160

25 pounds

385

00:19:04,150 --> 00:19:01,200

oh more than that that's what you're

386

00:19:06,470 --> 00:19:05,590

now you can just yeah i pulled the

387

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

points

388

00:19:10,070 --> 00:19:08,400

of things you can see this big chunk

389

00:19:11,430 --> 00:19:10,080

did you guys bring it in yesterday yeah

390

00:19:13,830 --> 00:19:11,440

it brought this one yesterday on the

391

00:19:15,110 --> 00:19:13,840

back of this

392

00:19:16,150 --> 00:19:15,120

so it's been out in space for a long

393

00:19:17,270 --> 00:19:16,160

time it's been sitting out here for a

394

00:19:18,789 --> 00:19:17,280

good long time

395

00:19:32,630 --> 00:19:18,799

all right i'm just trying to work this

396

00:19:35,590 --> 00:19:34,549

um i didn't use one yesterday i don't

397

00:19:37,350 --> 00:19:35,600

know the first time i'll use the

398

00:19:39,510 --> 00:19:37,360

footprint will be tomorrow okay so i'll

399

00:19:43,510 --> 00:19:39,520

be able to tell you that

400

00:19:46,950 --> 00:19:45,350

as lindsay and bo get ready to open the

401  
00:19:49,270 --> 00:19:46,960  
hatch in the pmm

402  
00:19:50,470 --> 00:19:49,280  
there are crewmates who are nearby in

403  
00:19:53,909 --> 00:19:50,480  
the

404  
00:19:55,110 --> 00:19:53,919  
review

405  
00:19:56,630 --> 00:19:55,120  
i have uh

406  
00:19:58,549 --> 00:19:56,640  
called a timeout

407  
00:20:01,430 --> 00:19:58,559  
come out to watch one of those guys you

408  
00:20:05,029 --> 00:20:03,909  
let's do it

409  
00:20:16,710 --> 00:20:05,039  
ready

410  
00:20:23,510 --> 00:20:20,710  
5 17 p.m houston time the hatch is open

411  
00:20:25,669 --> 00:20:23,520  
into the permanent multipurpose module

412  
00:20:26,950 --> 00:20:25,679  
the final pressurized module of the u.s

413  
00:20:58,230 --> 00:20:26,960

section of the international space

414

00:20:58,240 --> 00:21:00,950

all right

415

00:21:04,789 --> 00:21:02,950

right let me get this really quick

416

00:21:06,390 --> 00:21:04,799

you get to grab simple yeah yeah can you

417

00:21:09,750 --> 00:21:06,400

look it back in the procedure

418

00:21:13,990 --> 00:21:11,590

is nice and cool finish opening the hats

419

00:21:28,710 --> 00:21:14,000

for decal nine to two and did we do all

420

00:21:51,750 --> 00:21:30,230

yeah and that's i think the biggest

421

00:22:18,310 --> 00:21:52,870

all right

422

00:22:18,320 --> 00:22:31,669

get in there

423

00:22:31,679 --> 00:22:41,669

um

424

00:22:59,990 --> 00:22:44,870

we get to rename it michelangelo

425

00:23:17,990 --> 00:23:01,510

what's the maximum occupancy in this

426

00:23:33,830 --> 00:23:20,630

this is great holy cow

427

00:23:40,549 --> 00:23:36,149

there's gonna be room to play the patch

428

00:24:15,990 --> 00:23:42,870

it's going to be fudgy jumping

429

00:24:20,230 --> 00:24:17,590

there you go now get a picture of him

430

00:24:24,310 --> 00:24:22,230

we had him here we had a bridge get a

431

00:24:25,110 --> 00:24:24,320

picture of himself

432

00:24:27,350 --> 00:24:25,120

man

433

00:24:33,830 --> 00:24:27,360

there we go oh look at that how nice

434

00:24:39,430 --> 00:24:35,669

so how can you smile of course it's on

435

00:24:44,149 --> 00:24:41,750

there's a robot

436

00:24:56,630 --> 00:24:44,159

baby let's do it

437

00:25:00,470 --> 00:24:58,630

you can set up a camera you set up a

438

00:25:02,950 --> 00:25:00,480

camera understand

439

00:25:04,470 --> 00:25:02,960

you can have people like that right here

440

00:25:05,510 --> 00:25:04,480

we all spread out like we did that was

441

00:25:08,230 --> 00:25:05,520

cool

442

00:25:09,350 --> 00:25:08,240

very good pictures

443

00:25:12,549 --> 00:25:09,360

yeah i'm saying

444

00:25:12,559 --> 00:25:26,870

everyone

445

00:25:26,880 --> 00:25:53,990

write

446

00:25:57,269 --> 00:25:55,510

no i mean we have one with a flashlight

447

00:25:59,110 --> 00:25:57,279

there too

448

00:26:00,950 --> 00:25:59,120

kitty yep

449

00:26:02,710 --> 00:26:00,960

coming

450

00:26:06,470 --> 00:26:02,720

everybody put your head in this just

451  
00:26:06,480 --> 00:26:19,190  
where'd he get you're gonna do it

452  
00:26:21,909 --> 00:26:20,390  
right i mean

453  
00:26:23,350 --> 00:26:21,919  
if you set intervalometer on that thing

454  
00:26:25,990 --> 00:26:23,360  
to take ever you know a shot every

455  
00:26:28,390 --> 00:26:26,000  
couple of seconds

456  
00:26:31,269 --> 00:26:28,400  
so now that we're in the pmm steve is

457  
00:26:33,830 --> 00:26:31,279  
doing his pre-eva exercises

458  
00:26:35,430 --> 00:26:33,840  
for tomorrow

459  
00:26:37,990 --> 00:26:35,440  
practicing we have to do that he's

460  
00:26:41,350 --> 00:26:38,000  
practicing he's practicing translating

461  
00:26:44,149 --> 00:26:42,470  
where'd you go

462  
00:26:48,149 --> 00:26:44,159  
go back and do some more

463  
00:26:53,510 --> 00:26:50,070

let me do that this is what steve's been

464

00:26:55,190 --> 00:26:53,520

teaching now all day long today

465

00:27:00,470 --> 00:26:55,200

you don't need tethers

466

00:27:00,480 --> 00:27:15,510

and here he comes see i'm sinking