



1
00:00:07,940 --> 00:00:04,730
hello I'm Sonny Williams I'm up here on

2
00:00:09,890 --> 00:00:07,950
the International Space Station no want

3
00:00:12,890 --> 00:00:09,900
to say where we are so right now we're

4
00:00:14,870 --> 00:00:12,900
in the Japanese laboratory it's one

5
00:00:16,640 --> 00:00:14,880
laboratory out of many here on the

6
00:00:19,370 --> 00:00:16,650
International Space Station it's

7
00:00:20,870 --> 00:00:19,380
actually on the left-hand side if I was

8
00:00:23,179 --> 00:00:20,880
International Space Station and I was

9
00:00:24,620 --> 00:00:23,189
flying through space like this my left

10
00:00:36,229 --> 00:00:24,630
hand would be where the Japanese

11
00:00:38,000 --> 00:00:36,239
laboratory is so now again we're on the

12
00:00:39,889 --> 00:00:38,010
right hand side all the way on the right

13
00:00:42,860 --> 00:00:39,899

of the International Space Station this

14

00:00:44,840 --> 00:00:42,870

is Columbus the European module it has

15

00:00:46,459 --> 00:00:44,850

science experiments all over you could

16

00:00:48,350 --> 00:00:46,469

see it looks a little bit crowded and

17

00:00:52,860 --> 00:00:48,360

here we do a lot of our medical

18

00:00:59,370 --> 00:00:55,940

so this is no - this is a really cool

19

00:01:01,500 --> 00:00:59,380

module of course most of these modules

20

00:01:03,420 --> 00:01:01,510

you'll see they have four sides and

21

00:01:06,900 --> 00:01:03,430

they're put together that way we could

22

00:01:10,560 --> 00:01:06,910

sort of wat work on a flat plane either

23

00:01:12,450 --> 00:01:10,570

a wall a floor another wall or the

24

00:01:14,460 --> 00:01:12,460

ceiling but you know again all you have

25

00:01:17,430 --> 00:01:14,470

to do is turn yourself and your

26

00:01:18,930 --> 00:01:17,440

reference changes the reason I'm

27

00:01:22,260 --> 00:01:18,940

bringing that up is because this is

28

00:01:24,150 --> 00:01:22,270

where four out of six of us sleep and so

29

00:01:26,420 --> 00:01:24,160

people always ask about sleeping in

30

00:01:29,160 --> 00:01:26,430

space do you lie down are you in a bed

31

00:01:30,810 --> 00:01:29,170

not really because it doesn't matter you

32

00:01:33,180 --> 00:01:30,820

don't really have the sensation of lying

33

00:01:36,120 --> 00:01:33,190

down you just sit in your sleeping bag

34

00:01:39,870 --> 00:01:36,130

so here's one sleep station right here

35

00:01:44,670 --> 00:01:39,880

I'm going in right now you can follow me

36

00:01:51,060 --> 00:01:48,180

so I'm inside it's sort of like a little

37

00:01:53,310 --> 00:01:51,070

phone booth but it's pretty comfy I've

38

00:01:55,500 --> 00:01:53,320

got a sleeping bag right here that we

39

00:01:57,330 --> 00:01:55,510

sleep in so we don't have a sort of like

40

00:01:59,250 --> 00:01:57,340

a little bit of a cover and we don't fly

41

00:02:00,510 --> 00:01:59,260

all over the place

42

00:02:03,270 --> 00:02:00,520

but you know you can sleep in any

43

00:02:05,070 --> 00:02:03,280

orientation I have it sleeping feeling

44

00:02:06,690 --> 00:02:05,080

like I'm standing up right now but like

45

00:02:11,250 --> 00:02:06,700

you saw I'm on the floor but it doesn't

46

00:02:11,760 --> 00:02:11,260

matter if I turn over and I sleep upside

47

00:02:13,380 --> 00:02:11,770

down

48

00:02:15,030 --> 00:02:13,390

I can't have it I don't have any

49

00:02:16,920 --> 00:02:15,040

sensation in my head that tells me that

50

00:02:20,070 --> 00:02:16,930

I'm upside down so it really doesn't

51
00:02:22,260 --> 00:02:20,080
matter the sleep station is also like a

52
00:02:24,750 --> 00:02:22,270
little office we've got a computer in

53
00:02:27,210 --> 00:02:24,760
here as you can see we've got a couple

54
00:02:29,430 --> 00:02:27,220
little toys I've got some books I've got

55
00:02:35,020 --> 00:02:29,440
some clothes and other things that make

56
00:02:42,740 --> 00:02:37,960
and just for reference that's one sleep

57
00:02:44,970 --> 00:02:42,750
station this one's another

58
00:02:47,650 --> 00:02:44,980
right here

59
00:02:52,120 --> 00:02:47,660
there's one on the ceiling if you want

60
00:02:58,210 --> 00:02:52,130
to call it right here and then there's a

61
00:02:59,800 --> 00:02:58,220
fourth on the other wall over here so

62
00:03:02,890 --> 00:02:59,810
all of us sleep in a little bit of a

63
00:03:15,820 --> 00:03:02,900

circle all right come on back there's

64

00:03:20,620 --> 00:03:19,030

here we are in the u.s. laboratory again

65

00:03:23,440 --> 00:03:20,630

this is a laboratory with science

66

00:03:25,930 --> 00:03:23,450

experience on all of the walls here all

67

00:03:28,330 --> 00:03:25,940

sorts of stuff that we do and one of the

68

00:03:30,160 --> 00:03:28,340

things we also do is we exercise we have

69

00:03:32,920 --> 00:03:30,170

some exercise equipment on board the

70

00:03:36,310 --> 00:03:32,930

space station we need to do that because

71

00:03:38,560 --> 00:03:36,320

we lose bone density and muscle mass

72

00:03:41,010 --> 00:03:38,570

while we're up here and that's a result

73

00:03:44,560 --> 00:03:41,020

of not having to fight against gravity

74

00:03:46,690 --> 00:03:44,570

so how we keep ourselves in shape are

75

00:03:49,060 --> 00:03:46,700

with a bike a treadmill and a

76

00:03:51,820 --> 00:03:49,070

weightlifting machine this is the bike

77

00:03:53,320 --> 00:03:51,830

you notice the clip the pedals so all

78

00:03:55,770 --> 00:03:53,330

you need to do is actually clip your

79

00:03:58,480 --> 00:03:55,780

feet in and then you can start pedaling

80

00:04:00,790 --> 00:03:58,490

you don't need a seat because you don't

81

00:04:02,890 --> 00:04:00,800

sit down actually I haven't sat down for

82

00:04:04,210 --> 00:04:02,900

six months now so you don't need any any

83

00:04:06,550 --> 00:04:04,220

type of seat just make sure you're

84

00:04:08,110 --> 00:04:06,560

you're held in with your pedals you

85

00:04:10,210 --> 00:04:08,120

probably see that the bike bounces

86

00:04:13,510 --> 00:04:10,220

around a little bit as I move it it's

87

00:04:16,800 --> 00:04:13,520

not steady and held to the wall firmly

88

00:04:19,110 --> 00:04:16,810

and the reason for that is

89

00:04:20,670 --> 00:04:19,120

the space station is pretty big you saw

90

00:04:22,680 --> 00:04:20,680

that there's also solar arrays on the

91

00:04:24,720 --> 00:04:22,690

space station if we start putting any

92

00:04:26,400 --> 00:04:24,730

forces into the space station it's going

93

00:04:29,640 --> 00:04:26,410

to make those solar arrays bounce around

94

00:04:31,620 --> 00:04:29,650

a little bit so to prevent that the

95

00:04:33,090 --> 00:04:31,630

machines bounce around a little bit move

96

00:04:36,030 --> 00:04:33,100

around a little bit and that way we

97

00:04:37,650 --> 00:04:36,040

don't put any forces on to the structure

98

00:04:40,560 --> 00:04:37,660

of the spacecraft out to the solar

99

00:04:59,159 --> 00:04:40,570

arrays all right a little farther on

100

00:05:02,909 --> 00:05:01,320

here's a pretty cool place this is sort

101
00:05:05,520 --> 00:05:02,919
of like in your house where everybody

102
00:05:07,619 --> 00:05:05,530
meets in the morning after you wash your

103
00:05:10,140 --> 00:05:07,629
face brush your teeth you want to find

104
00:05:10,800 --> 00:05:10,150
something for breakfast and this is our

105
00:05:13,019 --> 00:05:10,810
kitchen

106
00:05:15,629 --> 00:05:13,029
you might notice there's all sorts of

107
00:05:17,279 --> 00:05:15,639
foods here it's like opening the

108
00:05:19,439 --> 00:05:17,289
refrigerator you got all your different

109
00:05:26,640 --> 00:05:19,449
stuff that you want to have drinks meats

110
00:05:27,749 --> 00:05:26,650
eggs vegetables cereals bread snacks and

111
00:05:30,600 --> 00:05:27,759
that's a good place that's where you

112
00:05:32,999 --> 00:05:30,610
find all the candy side dishes and then

113
00:05:34,409 --> 00:05:33,009

some little power bars just in case so

114

00:05:37,499 --> 00:05:34,419

we have all this type of food

115

00:05:39,480 --> 00:05:37,509

some of it is dehydrated and so we have

116

00:05:42,450 --> 00:05:39,490

to hydrate it fill it up with water some

117

00:05:45,719 --> 00:05:42,460

of it is already made and then all we

118

00:05:47,490 --> 00:05:45,729

have to do is heat it up so something

119

00:05:51,240 --> 00:05:47,500

like this I'm pulling out barbecued beef

120

00:05:54,450 --> 00:05:51,250

brisket pretty yummy not only is this

121

00:05:56,339 --> 00:05:54,460

food made in the US but we also have

122

00:05:58,739 --> 00:05:56,349

food here from Japan

123

00:06:00,209 --> 00:05:58,749

we've got Russian food as you can see

124

00:06:03,269 --> 00:06:00,219

all these red containers are filled with

125

00:06:05,219 --> 00:06:03,279

food that's from Russia and now we get

126
00:06:07,619 --> 00:06:05,229
some of our specialty stuff some things

127
00:06:10,230 --> 00:06:07,629
that we like some of our favorite stuff

128
00:06:12,689 --> 00:06:10,240
that your family can send up in fact I

129
00:06:14,639 --> 00:06:12,699
like fluffernutter's and so I got sent

130
00:06:16,950 --> 00:06:14,649
up some fluff so I could make my fluff

131
00:06:26,730 --> 00:06:16,960
another with peanut butter so you have a

132
00:06:32,290 --> 00:06:30,430
I'm here with my two buddies in the

133
00:06:35,499 --> 00:06:32,300
airlock actually these are two

134
00:06:38,110 --> 00:06:35,509
spacesuits that are ready primed up to

135
00:06:39,790 --> 00:06:38,120
go outside as we call it to go do a

136
00:06:42,040 --> 00:06:39,800
spacewalk in case we have to do any

137
00:06:44,379 --> 00:06:42,050
thing outside some of the things we do

138
00:06:47,619 --> 00:06:44,389

Outsiders just like inside repairs we

139

00:06:49,930 --> 00:06:47,629

have a lot of electrical boxes and

140

00:06:51,790 --> 00:06:49,940

machinery and solar arrays in fact that

141

00:06:54,339 --> 00:06:51,800

I talked about earlier that are outside

142

00:06:57,640 --> 00:06:54,349

and sometimes they don't work quite

143

00:07:00,100 --> 00:06:57,650

right remember space is really cold and

144

00:07:02,350 --> 00:07:00,110

really hot and it's also the vacuum of

145

00:07:04,390 --> 00:07:02,360

space with no pressure and so some of

146

00:07:06,790 --> 00:07:04,400

the equipment doesn't work well all the

147

00:07:09,010 --> 00:07:06,800

time so we might have to go out and do a

148

00:07:12,249 --> 00:07:09,020

spacewalk right behind me is actually

149

00:07:13,749 --> 00:07:12,259

the hatch that you go out into space and

150

00:07:15,129 --> 00:07:13,759

right now we have it filled up with a

151
00:07:18,249 --> 00:07:15,139
couple other spacesuits because we've

152
00:07:20,260 --> 00:07:18,259
got four of them up here and some of our

153
00:07:22,390 --> 00:07:20,270
tools but right behind here is the hatch

154
00:07:25,689 --> 00:07:22,400
in which you actually go right outside

155
00:07:27,430 --> 00:07:25,699
into the vacuum of space the spacesuit

156
00:07:30,159 --> 00:07:27,440
is pretty big as you can see it's like

157
00:07:32,260 --> 00:07:30,169
being a football player part of the

158
00:07:34,689 --> 00:07:32,270
reason it's so big and bulky is because

159
00:07:36,670 --> 00:07:34,699
of this backside this backpack it's like

160
00:07:38,769 --> 00:07:36,680
going on a hike with a backpack but the

161
00:07:41,709 --> 00:07:38,779
backpack and the suit weighs about 300

162
00:07:43,689 --> 00:07:41,719
pounds luckily in space nothing really

163
00:07:46,149 --> 00:07:43,699

weighs anything so you don't feel that

164

00:07:48,399 --> 00:07:46,159

it's so heavy but we need to have such a

165

00:07:51,969 --> 00:07:48,409

big suit because that guy back there is

166

00:07:53,980 --> 00:07:51,979

essentially the heart of the spacecraft

167

00:07:56,709 --> 00:07:53,990

this I call this actually a spacecraft

168

00:07:58,809 --> 00:07:56,719

it has all the oxygen for you it has all

169

00:08:00,809 --> 00:07:58,819

the carbon dioxide removal system for

170

00:08:03,070 --> 00:08:00,819

you it also has a heating and cooling

171

00:08:05,740 --> 00:08:03,080

system to make sure the regulate our

172

00:08:08,740 --> 00:08:05,750

body temperatures while we're outside it

173

00:08:10,719 --> 00:08:08,750

also has a computer so it tells you on a

174

00:08:12,159 --> 00:08:10,729

display here if there's anything that is

175

00:08:13,689 --> 00:08:12,169

going wrong with the suit if we're

176

00:08:15,639 --> 00:08:13,699

running out of oxygen if we have too

177

00:08:18,309 --> 00:08:15,649

much carbon dioxide

178

00:08:20,709 --> 00:08:18,319

or any type of electrical problem so

179

00:08:23,169 --> 00:08:20,719

it's a pretty awesome little spacecraft

180

00:08:25,179 --> 00:08:23,179

and actually got to go out use my

181

00:08:27,609 --> 00:08:25,189

spacecraft little spacecraft a couple

182

00:08:32,649 --> 00:08:27,619

times and it worked like a charm lucky

183

00:08:34,149 --> 00:08:32,659

that it works very nice you might want

184

00:08:36,339 --> 00:08:34,159

to see what the helmet looks like it's

185

00:08:38,499 --> 00:08:36,349

pretty cool too we don't usually go out

186

00:08:41,709 --> 00:08:38,509

like this so you usually can see when

187

00:08:46,090 --> 00:08:41,719

the helmets open so you can see what it

188

00:08:48,280 --> 00:08:46,100

looks like inside somebody's little head

189

00:08:49,840 --> 00:08:48,290

would be inside of here so you can see

190

00:08:51,460 --> 00:08:49,850

you can turn your head all the way

191

00:08:53,999 --> 00:08:51,470

around while you're inside of there but

192

00:08:56,230 --> 00:08:54,009

the helmet stays still so it's

193

00:08:59,470 --> 00:08:56,240

determined you're you're how far you

194

00:09:00,879 --> 00:08:59,480

could see and it's usually pretty sunny

195

00:09:03,309 --> 00:09:00,889

out there so we have to wear our

196

00:09:05,110 --> 00:09:03,319

sunglasses and this is our sunglasses

197

00:09:07,090 --> 00:09:05,120

right here which make you look pretty

198

00:09:11,860 --> 00:09:07,100

cool

199

00:09:18,040 --> 00:09:14,880

here we are at the throne this is

200

00:09:19,450 --> 00:09:18,050

awesome you might see the little you

201
00:09:22,540 --> 00:09:19,460
might have noticed a little moon on the

202
00:09:25,710 --> 00:09:22,550
outside this is our orbital outhouse

203
00:09:29,910 --> 00:09:28,140
and of course it serves for two

204
00:09:35,999 --> 00:09:29,920
functions

205
00:09:38,220 --> 00:09:36,009
number two right here I'll show you but

206
00:09:40,530 --> 00:09:38,230
you see it's pretty small so you have to

207
00:09:43,079 --> 00:09:40,540
have pretty good aim and you'd be bit be

208
00:09:46,470 --> 00:09:43,089
ready to make sure things get let go the

209
00:09:48,809 --> 00:09:46,480
right direction and it smells a little

210
00:09:50,819 --> 00:09:48,819
bit so I'm closing it up and that's of

211
00:09:55,409 --> 00:09:50,829
course for number two and this guy right

212
00:09:57,809 --> 00:09:55,419
here is for number one so there's sort

213
00:10:00,319 --> 00:09:57,819

of two slightly separate functions but

214

00:10:03,179 --> 00:10:00,329

you can do a little essentially both by

215

00:10:07,349 --> 00:10:03,189

hanging on right here and doing number

216

00:10:09,119 --> 00:10:07,359

one and number two I might add it's

217

00:10:11,099 --> 00:10:09,129

color coded so you really don't get it

218

00:10:17,489 --> 00:10:11,109

mixed up which is nice this is yellows

219

00:10:21,479 --> 00:10:17,499

for number one and also there's a

220

00:10:22,559 --> 00:10:21,489

selection of paper people always ask

221

00:10:23,759 --> 00:10:22,569

about toilet paper what do you do a

222

00:10:26,069 --> 00:10:23,769

toilet paper what kind of toilet paper

223

00:10:28,859 --> 00:10:26,079

do you have we have gloves just because

224

00:10:31,289 --> 00:10:28,869

sometimes it does get messy we have some

225

00:10:32,849 --> 00:10:31,299

Russian wipes which are a little bit

226

00:10:35,309 --> 00:10:32,859

coarse if you like the coarse type of

227

00:10:37,079 --> 00:10:35,319

toilet paper we have some nice tissues

228

00:10:37,829 --> 00:10:37,089

which are nice and soft if you like soft

229

00:10:41,879 --> 00:10:37,839

toilet paper

230

00:10:43,739 --> 00:10:41,889

we have Huggies just for any cleanup you

231

00:10:45,509 --> 00:10:43,749

know we're all babies once and this sort

232

00:10:48,540 --> 00:10:45,519

of helps and then if things get really

233

00:10:50,680 --> 00:10:48,550

out of control we have

234

00:10:52,180 --> 00:10:50,690

disinfectant wipes just to make sure we

235

00:10:54,790 --> 00:10:52,190

clean up here because you know just like

236

00:10:56,380 --> 00:10:54,800

the water I showed you the number one

237

00:10:59,020 --> 00:10:56,390

stuff can sort of go all over the place

238

00:11:00,400 --> 00:10:59,030

if you don't aim correctly and did I

239

00:11:02,110 --> 00:11:00,410

mention both of these have a little bit

240

00:11:05,710 --> 00:11:02,120

of section so they shouldn't keep things

241

00:11:07,240 --> 00:11:05,720

going in the right direction but like I

242

00:11:09,070 --> 00:11:07,250

said sometimes things get a little out

243

00:11:11,650 --> 00:11:09,080

of control if you are out of control

244

00:11:13,960 --> 00:11:11,660

yourself flying around so we have lots

245

00:11:18,750 --> 00:11:13,970

of protective stuff and of course you do

246

00:11:23,620 --> 00:11:20,830

so other people know that you're in

247

00:11:24,970 --> 00:11:23,630

there now I'm going to take you to one

248

00:11:26,140 --> 00:11:24,980

of the coolest places on the Space

249

00:11:37,690 --> 00:11:26,150

Station

250

00:11:44,270 --> 00:11:41,600

it's like a glass-bottom boat this is

251

00:11:49,010 --> 00:11:44,280

the cupola it stick sticks down below

252

00:11:50,780 --> 00:11:49,020

the space station it's one of those

253

00:11:52,310 --> 00:11:50,790

places you find yourself hanging out and

254

00:11:54,050 --> 00:11:52,320

all the time because all you want to do

255

00:11:55,580 --> 00:11:54,060

is look back at our planet I think some

256

00:11:57,860 --> 00:11:55,590

questions I had were about what are you

257

00:12:00,320 --> 00:11:57,870

doing your free time and you can't help

258

00:12:04,100 --> 00:12:00,330

but want to just come to the cupola and

259

00:12:04,850 --> 00:12:04,110

look outside as much as you can and a

260

00:12:07,520 --> 00:12:04,860

lot of folks

261

00:12:10,640 --> 00:12:07,530

I play this game with myself about where

262

00:12:12,830 --> 00:12:10,650

we're flying over the earth I try to

263

00:12:15,110 --> 00:12:12,840

come in here and just guess after being

264

00:12:16,520 --> 00:12:15,120

here for a little while you can sort of

265

00:12:18,440 --> 00:12:16,530

figure it out you can tell different

266

00:12:19,970 --> 00:12:18,450

cloud types over different continents

267

00:12:22,550 --> 00:12:19,980

you can tell different soil types over

268

00:12:24,800 --> 00:12:22,560

different continents so let's see and

269

00:12:26,390 --> 00:12:24,810

then of course there's a lot of ocean so

270

00:12:29,690 --> 00:12:26,400

usually we're over the ocean at first

271

00:12:35,860 --> 00:12:29,700

glance I will tell you in just a moment

272

00:12:40,269 --> 00:12:37,689

what

273

00:12:42,549 --> 00:12:40,279

there we go right now we are right over

274

00:12:44,739 --> 00:12:42,559

Africa it's a little bit cloudy as you

275

00:12:50,650 --> 00:12:44,749

can tell so we're right over the

276

00:12:52,389 --> 00:12:50,660

continent of Africa hey what's that they

277

00:12:54,579 --> 00:12:52,399

think that's a Soyuz spacecraft that's

278

00:12:58,090 --> 00:12:54,589

the spacecraft that's taking us home to

279

00:13:00,819 --> 00:12:58,100

planet Earth today oh my gosh we might

280

00:13:02,619 --> 00:13:00,829

have to go take a look at that that's

281

00:13:05,259 --> 00:13:02,629

pretty cool it's a little bit smaller

282

00:13:08,079 --> 00:13:05,269

than the rest of the spacecraft the

283

00:13:09,960 --> 00:13:08,089

space station so you'll see if we get go

284

00:13:12,189 --> 00:13:09,970

there it'll be a little bit more cramped

285

00:13:13,840 --> 00:13:12,199

so we're going you can look all the way

286

00:13:16,210 --> 00:13:13,850

back to the back of the spacecraft which

287

00:13:17,769 --> 00:13:16,220

is where the Russian segment is and then

288

00:13:21,059 --> 00:13:17,779

you could look all the way forward to

289

00:13:23,349 --> 00:13:21,069

the front of the spacecraft where the

290

00:13:25,509 --> 00:13:23,359

where the Japanese laboratory the

291

00:13:28,509 --> 00:13:25,519

European laboratory and the American

292

00:13:30,220 --> 00:13:28,519

laboratory hey one thing I didn't show

293

00:13:33,009 --> 00:13:30,230

you or I talked about but I didn't show

294

00:13:36,280 --> 00:13:33,019

you was the exercise one another piece

295

00:13:40,229 --> 00:13:36,290

of exercise device this is what we call

296

00:13:43,500 --> 00:13:40,239

the a red and with this you can lift

297

00:13:50,260 --> 00:13:46,510

based on vacuum in these cylinders just

298

00:13:52,810 --> 00:13:50,270

like you do at home at a gym for example

299

00:13:56,860 --> 00:13:52,820

if I wanted to do a squat I could do it

300

00:13:59,380 --> 00:13:56,870

like this which means some weight on

301

00:14:04,120 --> 00:13:59,390

this thing I'm not lifting with anything

302

00:14:07,059 --> 00:14:05,740

one of the cool things you could do you

303

00:14:09,670 --> 00:14:07,069

could do things that you can't do at

304

00:14:11,800 --> 00:14:09,680

home for example single leg squats with

305

00:14:15,790 --> 00:14:11,810

just one leg because the other leg

306

00:14:18,069 --> 00:14:15,800

it won't fall over so all sorts of stuff

307

00:14:20,650 --> 00:14:18,079

you can also do bench press we have a

308

00:14:27,150 --> 00:14:20,660

bench that we could add on here so you

309

00:14:29,259 --> 00:14:27,160

can work on your beach muscles alright I

310

00:14:43,010 --> 00:14:29,269

showed you the Sawyer's let's go check

311

00:14:43,020 --> 00:14:48,100

hey Aki what are you doing down there

312

00:14:51,350 --> 00:14:50,300

this is one of the cool things about

313

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

space too

314

00:14:55,730 --> 00:14:53,399

it sort of looks like there's a big old

315

00:14:57,620 --> 00:14:55,740

hole here but you don't even think twice

316

00:15:00,949 --> 00:14:57,630

about it you can just jump over the hole

317

00:15:14,360 --> 00:15:00,959

or if you want you can go jump into the

318

00:15:24,110 --> 00:15:14,370

hole I'm coming down back up again like

319

00:15:26,120 --> 00:15:24,120

Superman we were lucky we have a really

320

00:15:28,490 --> 00:15:26,130

cool big Space Station that you can fly

321

00:15:30,530 --> 00:15:28,500

around and that's actually called the

322

00:15:33,139 --> 00:15:30,540

PMM you might have saw it out the window

323

00:15:35,000 --> 00:15:33,149

is a big silver cannister what's really

324

00:15:37,910 --> 00:15:35,010

great about that is it's essentially our

325

00:15:38,600 --> 00:15:37,920

closet in our pantry or whatever you

326

00:15:40,699 --> 00:15:38,610

want to call it

327

00:15:42,650 --> 00:15:40,709

we have extra food down there we have

328

00:15:44,870 --> 00:15:42,660

extra clothes we actually throw the

329

00:15:47,389 --> 00:15:44,880

trash out down there so it's nice and

330

00:15:49,370 --> 00:15:47,399

organized and we have all of our stuff

331

00:15:51,829 --> 00:15:49,380

that we need while we're working in all

332

00:15:54,110 --> 00:15:51,839

these other modules all stowed in this

333

00:15:59,430 --> 00:15:54,120

location down here and it's a lot of fun

334

00:16:05,309 --> 00:16:03,180

the Soyuz Oh one thing we need to show

335

00:16:07,499 --> 00:16:05,319

you is our patches here well we've been

336

00:16:09,990 --> 00:16:07,509

up here we've been expedition 32 first

337

00:16:10,710 --> 00:16:10,000

and then just recently we're leaving

338

00:16:14,309 --> 00:16:10,720

will be

339

00:16:15,660 --> 00:16:14,319

we were expedition 33 and there's all

340

00:16:19,379 --> 00:16:15,670

the crew members who are up here with us

341

00:16:21,809 --> 00:16:19,389

right now myself yuri malenchenko aki

342

00:16:23,730 --> 00:16:21,819

hoshide if you couldn't read japanese

343

00:16:27,090 --> 00:16:23,740

you've guinea tarelkin if you can read

344

00:16:28,559 --> 00:16:27,100

Russian Oleg Novitsky and Kevin Ford who

345

00:16:29,970 --> 00:16:28,569

just took over as the commander of the

346

00:16:32,699 --> 00:16:29,980

space station and will be the commander

347

00:16:34,740 --> 00:16:32,709

for the next couple months and he by the

348

00:16:40,769 --> 00:16:34,750

way is behind the camera right now so

349

00:16:43,530 --> 00:16:40,779

you can say hi Kevin they were going

350

00:16:47,240 --> 00:16:43,540

into the Russian segment be ready you

351

00:16:47,250 --> 00:16:54,770

[Music]

352

00:16:59,630 --> 00:16:57,250

it goes a lot farther back than this

353

00:17:02,210 --> 00:16:59,640

we'll go take a trip and say hello to

354

00:17:03,800 --> 00:17:02,220

the boys down there in just a minute but

355

00:17:05,270 --> 00:17:03,810

let's do that first actually then we'll

356

00:17:18,290 --> 00:17:05,280

go down to the Soyuz at the very end

357

00:17:21,110 --> 00:17:18,300

this is your beginning this is the FTB

358

00:17:22,700 --> 00:17:21,120

and what's cool about this module it is

359

00:17:25,310 --> 00:17:22,710

actually the very first piece of the

360

00:17:27,470 --> 00:17:25,320

space station that came up in 1998 the

361

00:17:31,130 --> 00:17:27,480

space station has been around for about

362

00:17:34,280 --> 00:17:31,140

now man for 12 years but it's been up in

363

00:17:36,890 --> 00:17:34,290

space for about 14 years and this was

364

00:17:39,740 --> 00:17:36,900

the very first it is like the Russians

365

00:17:47,200 --> 00:17:39,750

pmm it has a lot of storage as you can

366

00:17:52,210 --> 00:17:49,960

so here we are in the heart of the space

367

00:17:55,630 --> 00:17:52,220

station really this is the service mall

368

00:17:57,700 --> 00:17:55,640

module this is the central post in case

369

00:17:59,200 --> 00:17:57,710

we had any problems I know when a couple

370

00:18:01,000 --> 00:17:59,210

of the questions are what type of things

371

00:18:02,140 --> 00:18:01,010

do you have to worry about and some of

372

00:18:04,720 --> 00:18:02,150

the things we have to worry about in

373

00:18:06,460 --> 00:18:04,730

space are fire if we had a fire if we

374

00:18:08,200 --> 00:18:06,470

had a depressurization like we were hit

375

00:18:10,810 --> 00:18:08,210

by a micrometeorite and it made a hole

376

00:18:12,850 --> 00:18:10,820

or if we had some type of toxic

377

00:18:14,800 --> 00:18:12,860

atmosphere we use ammonia for our

378

00:18:17,680 --> 00:18:14,810

radiator so there is a possibility that

379

00:18:20,080 --> 00:18:17,690

ammonia could come into the vehicle and

380

00:18:21,910 --> 00:18:20,090

then it would be bad for all of us if we

381

00:18:23,800 --> 00:18:21,920

have any of those problems we come right

382

00:18:26,710 --> 00:18:23,810

here which we call the central post it

383

00:18:29,050 --> 00:18:26,720

is the main heart of the space station

384

00:18:31,780 --> 00:18:29,060

it was also the first computers that

385

00:18:33,670 --> 00:18:31,790

came up here that ran the space station

386

00:18:36,520 --> 00:18:33,680

so behind this wall right here are these

387

00:18:39,850 --> 00:18:36,530

main computers so we gather here as a

388

00:18:41,260 --> 00:18:39,860

group of three or six and then figure

389

00:18:44,050 --> 00:18:41,270

out how we're gonna either fight the

390

00:18:46,660 --> 00:18:44,060

fire patch the hole or solve the the

391

00:18:49,690 --> 00:18:46,670

toxic spill and what's cool about this

392

00:18:53,350 --> 00:18:49,700

module of course is the central post it

393

00:18:58,600 --> 00:18:53,360

also has great windows right down toward

394

00:19:00,190 --> 00:18:58,610

Earth it has controls to fly in visiting

395

00:19:02,740 --> 00:19:00,200

spacecraft if

396

00:19:04,960 --> 00:19:02,750

some assistance right here it has

397

00:19:07,960 --> 00:19:04,970

Russian computers as well as American

398

00:19:10,780 --> 00:19:07,970

computers to help us control anything we

399

00:19:12,640 --> 00:19:10,790

need to on the space station it's a

400

00:19:14,590 --> 00:19:12,650

couple of our crewmates back there Oh

401
00:19:18,280 --> 00:19:14,600
live Oleg Novitsky on the right and

402
00:19:20,830 --> 00:19:18,290
nearing launching Co on the left

403
00:19:23,080 --> 00:19:20,840
there's also second bathroom here which

404
00:19:25,360 --> 00:19:23,090
is really cool because six of us going

405
00:19:26,620 --> 00:19:25,370
to one bathroom is really tough and so

406
00:19:28,060 --> 00:19:26,630
there's one bathroom here in one

407
00:19:30,340 --> 00:19:28,070
bathroom on the other side where I

408
00:19:33,640 --> 00:19:30,350
showed you and you can probably see on

409
00:19:36,980 --> 00:19:33,650
the wall behind a leg and earring some

410
00:19:40,220 --> 00:19:36,990
of the heroes of the space program

411
00:19:43,399 --> 00:19:40,230
Korolev Sergei Korolev who was a chief

412
00:19:45,200 --> 00:19:43,409
designer of putting men into space and

413
00:19:48,710 --> 00:19:45,210

of course on the right hand side Yuri

414

00:19:54,820 --> 00:19:48,720

Gagarin the first man

415

00:19:59,019 --> 00:19:57,130

I'm gonna stop here just for a quick

416

00:20:01,419 --> 00:19:59,029

second you can see on the Russian

417

00:20:06,610 --> 00:20:01,429

spacecraft there's also other modules

418

00:20:12,090 --> 00:20:06,620

that stick out down and above right here

419

00:20:15,820 --> 00:20:12,100

is let's see them trying to be oriented

420

00:20:18,039 --> 00:20:15,830

that's a place where we do spacewalks

421

00:20:20,019 --> 00:20:18,049

trim for the Russians the Russian side

422

00:20:22,269 --> 00:20:20,029

there's Russian spacesuits in here and

423

00:20:24,460 --> 00:20:22,279

also a visiting vehicle which brought

424

00:20:27,190 --> 00:20:24,470

fruits and vegetables and becomes a

425

00:20:29,649 --> 00:20:27,200

trash container when we undock upon this

426
00:20:31,539 --> 00:20:29,659
side is also a future place where

427
00:20:34,690 --> 00:20:31,549
they're going to do spacewalks from and

428
00:20:39,940 --> 00:20:34,700
connected to it is Kevin's a legs and

429
00:20:45,640 --> 00:20:39,950
you're Ginny's Soyuz spacecraft

430
00:20:49,240 --> 00:20:45,650
and now we'll still see ours Venezia at

431
00:21:09,530 --> 00:20:57,990
[Music]

432
00:21:09,540 --> 00:21:28,749
coming down

433
00:21:28,759 --> 00:21:36,430
it's a little tricky getting in here

434
00:21:41,050 --> 00:21:38,470
this is the docking probe right here

435
00:21:43,120 --> 00:21:41,060
this big thing this helps us connect to

436
00:21:46,920 --> 00:21:43,130
the spacecraft this probe actually

437
00:21:49,410 --> 00:21:46,930
sticks into this cone

438
00:21:52,380 --> 00:21:49,420

and that's how the spacecraft this our

439

00:21:55,520 --> 00:21:52,390

Soyuz becomes connected to the ISS

440

00:21:59,610 --> 00:21:55,530

initially that is then replaced by

441

00:22:01,470 --> 00:21:59,620

clamps which are around here that will

442

00:22:03,200 --> 00:22:01,480

allow the two spacecraft to be stuck

443

00:22:19,580 --> 00:22:03,210

together and then you can remove the

444

00:22:24,169 --> 00:22:21,649

all right so here we are business or use

445

00:22:26,029 --> 00:22:24,179

this is what we call the Beto the living

446

00:22:28,970 --> 00:22:26,039

compartment with the boy up second

447

00:22:30,980 --> 00:22:28,980

Russian it also has a little bathroom

448

00:22:33,019 --> 00:22:30,990

it's not as good as the other bathrooms

449

00:22:34,909 --> 00:22:33,029

so we try not to use it too much

450

00:22:37,249 --> 00:22:34,919

it has drinking water in it if we need

451
00:22:40,129 --> 00:22:37,259
something to drink and then of course

452
00:22:44,659 --> 00:22:40,139
it's filled up with a lot of cargo for

453
00:22:47,330 --> 00:22:44,669
us for us bringing up and also bringing

454
00:22:50,409 --> 00:22:47,340
back down it has a second purpose when

455
00:22:53,299 --> 00:22:50,419
it comes back to earth it serves as a

456
00:22:56,029 --> 00:22:53,309
garbage container during the descent

457
00:22:57,950 --> 00:22:56,039
will will get rid of this area right

458
00:22:59,389 --> 00:22:57,960
here and everything that's in it will

459
00:23:00,919 --> 00:22:59,399
just burn up as it's coming into the

460
00:23:03,799 --> 00:23:00,929
atmosphere so that way we can get rid of

461
00:23:05,659 --> 00:23:03,809
a little bit of trash but the main area

462
00:23:07,970 --> 00:23:05,669
where we were on launch and where we're

463
00:23:09,470 --> 00:23:07,980

going to be on descent is down here

464

00:23:11,419 --> 00:23:09,480

because we're not part of the trash so

465

00:23:15,970 --> 00:23:11,429

we're in a safe place so we're in the

466

00:23:15,980 --> 00:23:34,260

it's a little small but you can get in

467

00:23:39,060 --> 00:23:36,710

not sure how well you could see in here

468

00:23:41,310 --> 00:23:39,070

hold on for a second I'm going to turn

469

00:23:44,790 --> 00:23:41,320

it up this way just so you could see the

470

00:23:47,130 --> 00:23:44,800

hatch and you can see Kevin it's a

471

00:23:48,780 --> 00:23:47,140

little bit small though we'll come in

472

00:23:51,750 --> 00:23:48,790

and show you around just starting to get

473

00:23:55,320 --> 00:23:51,760

ready we're preparing a couple days ago

474

00:23:57,660 --> 00:23:55,330

for a ride home it's a little bit

475

00:24:00,360 --> 00:23:57,670

squishy but everybody asks how do you

476

00:24:02,640 --> 00:24:00,370

sit in the Soyuz and you sort of sit in

477

00:24:04,410 --> 00:24:02,650

your seat like this seat is molded

478

00:24:06,360 --> 00:24:04,420

through your body and so you can just

479

00:24:10,020 --> 00:24:06,370

sort of squish in here and be pretty

480

00:24:12,419 --> 00:24:10,030

relaxed everybody has a handmade seat

481

00:24:14,760 --> 00:24:12,429

for them and then of course there's a

482

00:24:17,910 --> 00:24:14,770

control panel and that's where we do

483

00:24:19,650 --> 00:24:17,920

most of our actions and work right here

484

00:24:22,500 --> 00:24:19,660

there's hand controllers which you can

485

00:24:24,090 --> 00:24:22,510

fly the vehicle with and there's a stick

486

00:24:26,610 --> 00:24:24,100

right here primarily used for

487

00:24:29,190 --> 00:24:26,620

communications when we're trying to talk

488

00:24:31,410 --> 00:24:29,200

to the ground so three of us fit in here

489

00:24:33,690 --> 00:24:31,420

like I said it's a little squishy but

490

00:24:36,000 --> 00:24:33,700

somehow it seems like we all managed to

491

00:24:37,890 --> 00:24:36,010

get in here and and fit pretty well and

492

00:24:39,450 --> 00:24:37,900

it's a pretty safe ride home

493

00:24:42,030 --> 00:24:39,460

you're probably wondering what's all

494

00:24:43,980 --> 00:24:42,040

this junk behind us well it's all of our

495

00:24:46,020 --> 00:24:43,990

parachute first of all and then it's all

496

00:24:48,690 --> 00:24:46,030

of our survival gear just in case we end

497

00:24:50,910 --> 00:24:48,700

up landing in some strange place on the

498

00:24:52,799 --> 00:24:50,920

planet and nobody's there to rescue us

499

00:24:56,100 --> 00:24:52,809

right away we have all sorts of survival

500

00:24:57,030 --> 00:24:56,110

gear with us keeping us safe in here so

501

00:24:58,310 --> 00:24:57,040

they've pretty much thought of

502

00:25:00,530 --> 00:24:58,320

everything