



1
00:02:06,560 --> 00:02:20,630
ready to go again

2
00:02:26,550 --> 00:02:23,190
and atlantis they tab for biorack we

3
00:02:31,190 --> 00:02:26,560
have a good view of space hab

4
00:02:31,200 --> 00:02:35,589
okay

5
00:02:41,910 --> 00:02:40,390
for fo 14 step 12 that actually needs to

6
00:02:45,350 --> 00:02:41,920
be started

7
00:02:46,309 --> 00:02:45,360
about 10 minutes before the timer goes

8
00:02:49,589 --> 00:02:46,319
off

9
00:02:50,710 --> 00:02:49,599
so that you are at the appropriate sub

10
00:03:04,309 --> 00:02:50,720
step

11
00:03:08,149 --> 00:03:06,710
this started about 10 minutes before the

12
00:03:14,790 --> 00:03:08,159
timer goes off

13
00:03:14,800 --> 00:03:55,110

and we copy

14

00:03:59,350 --> 00:03:56,630

just want to give you a little tour of

15

00:04:01,429 --> 00:03:59,360

mir i'm jerry lenninger of course and

16

00:04:03,830 --> 00:04:01,439

i'm in the base block where you see most

17

00:04:05,509 --> 00:04:03,840

of the pictures that come out of mirror

18

00:04:09,190 --> 00:04:05,519

it's the table where we all gather to

19

00:04:10,949 --> 00:04:09,200

eat uh when the time is available

20

00:04:13,270 --> 00:04:10,959

got quite a bit of gear we have a little

21

00:04:15,110 --> 00:04:13,280

sleep cabin over this way

22

00:04:16,949 --> 00:04:15,120

and charlie's gonna have a hard time

23

00:04:19,110 --> 00:04:16,959

flying with all the cords so but he's

24

00:04:20,550 --> 00:04:19,120

gonna do the best job he can given the

25

00:04:22,310 --> 00:04:20,560

circumstance

26
00:04:23,990 --> 00:04:22,320
but inside the sleep cabin there's also

27
00:04:27,510 --> 00:04:24,000
a little window that you can look out

28
00:04:29,110 --> 00:04:27,520
with good earth observation

29
00:04:30,870 --> 00:04:29,120
bag sitting right here

30
00:04:32,390 --> 00:04:30,880
this happens to be the commander sleep

31
00:04:33,909 --> 00:04:32,400
station

32
00:04:36,710 --> 00:04:33,919
and he's got a little mirror he's got

33
00:04:37,909 --> 00:04:36,720
some personal pictures uh

34
00:04:40,310 --> 00:04:37,919
pens

35
00:04:42,390 --> 00:04:40,320
patches

36
00:04:44,950 --> 00:04:42,400
mirror 23 patch for example

37
00:04:47,430 --> 00:04:44,960
decorating his walls got a cd player

38
00:04:49,510 --> 00:04:47,440

little uh tape players to relax and take

39

00:04:53,270 --> 00:04:49,520

life easy so this is where the commander

40

00:04:57,189 --> 00:04:54,790

what else we have interesting this is

41

00:04:59,350 --> 00:04:57,199

actually a little tool area where you

42

00:05:01,909 --> 00:04:59,360

can pull the table down and do some

43

00:05:04,950 --> 00:05:01,919

pretty heavy pounding it's a good solid

44

00:05:07,029 --> 00:05:04,960

steel surface and comes in very handy

45

00:05:08,950 --> 00:05:07,039

when you're doing repair work so that

46

00:05:11,749 --> 00:05:08,960

one of the air generating systems is

47

00:05:14,310 --> 00:05:11,759

here and also the co2

48

00:05:16,790 --> 00:05:14,320

cleaning system is here along with a

49

00:05:19,029 --> 00:05:16,800

with a block threading premises which

50

00:05:21,590 --> 00:05:19,039

takes out contaminants in the air and

51
00:05:23,430 --> 00:05:21,600
all those run in this module and this is

52
00:05:26,230 --> 00:05:23,440
also a module where we're having some

53
00:05:28,310 --> 00:05:26,240
cooling leak problems and we did some uh

54
00:05:30,230 --> 00:05:28,320
repairs where we cut two

55
00:05:31,270 --> 00:05:30,240
and basically blocked them off with some

56
00:05:32,629 --> 00:05:31,280
plugs

57
00:05:34,790 --> 00:05:32,639
and it's as you can see it's very

58
00:05:36,550 --> 00:05:34,800
difficult to work uh the area has to get

59
00:05:38,870 --> 00:05:36,560
cleared we had it totally cleared for

60
00:05:40,790 --> 00:05:38,880
about four weeks

61
00:05:42,790 --> 00:05:40,800
looking for the leaks and it's very very

62
00:05:44,390 --> 00:05:42,800
difficult to work back here we're able

63
00:05:46,629 --> 00:05:44,400

to find one leak but we still have some

64

00:05:49,189 --> 00:05:46,639

problems so uh mike's gonna have his

65

00:05:51,189 --> 00:05:49,199

hands full uh working back here

66

00:05:52,790 --> 00:05:51,199

finding the leak is one thing and then

67

00:05:55,350 --> 00:05:52,800

getting access to the leak is a

68

00:05:57,670 --> 00:05:55,360

different uh ball game

69

00:05:59,430 --> 00:05:57,680

and we'll back back out by the way the

70

00:06:01,430 --> 00:05:59,440

fire i guess is kind of interesting

71

00:06:04,790 --> 00:06:01,440

people have heard about the fire the

72

00:06:08,150 --> 00:06:04,800

player was basically in this region here

73

00:06:09,749 --> 00:06:08,160

with the flame shooting across this way

74

00:06:11,749 --> 00:06:09,759

and therefore as you can see where the

75

00:06:13,670 --> 00:06:11,759

camera is is basically where i was at

76

00:06:16,390 --> 00:06:13,680

and we had one other body in front of me

77

00:06:18,830 --> 00:06:16,400

i was passing the fire extinguisher

78

00:06:20,710 --> 00:06:18,840

but we can only get one person in

79

00:06:24,070 --> 00:06:20,720

here to fight the fire because of the

80

00:06:26,150 --> 00:06:24,080

flame location and uh at that time the

81

00:06:28,469 --> 00:06:26,160

other soyuz was on the other side where

82

00:06:30,469 --> 00:06:28,479

progress is now docked so as you can see

83

00:06:33,189 --> 00:06:30,479

it would have been very difficult to get

84

00:06:35,270 --> 00:06:33,199

through the flame itself to get to the

85

00:06:36,629 --> 00:06:35,280

one of the rescue vehicles

86

00:06:37,990 --> 00:06:36,639

and it was very difficult to fight the

87

00:06:41,590 --> 00:06:38,000

player because you could only get one

88

00:06:44,150 --> 00:06:41,600

body close enough to the player itself

89

00:06:46,230 --> 00:06:44,160

visibility in here was basically

90

00:06:47,749 --> 00:06:46,240

no visibility and where charlie is with

91

00:06:49,670 --> 00:06:47,759

the camera right now

92

00:06:51,270 --> 00:06:49,680

it was you could

93

00:06:53,990 --> 00:06:51,280

sort of see your fingers if you looked

94

00:06:55,510 --> 00:06:54,000

hard so it was very very dense smoke and

95

00:07:00,150 --> 00:06:55,520

uh

96

00:07:02,390 --> 00:07:00,160

don't want to repeat of course but

97

00:07:04,309 --> 00:07:02,400

player in space is a different sort of

98

00:07:07,430 --> 00:07:04,319

entity than player down on the earth is

99

00:07:10,309 --> 00:07:07,440

what i learned through that experience

100

00:07:12,390 --> 00:07:10,319

what you're hearing right now is the

101
00:07:14,150 --> 00:07:12,400
system right over here which is a co2

102
00:07:16,309 --> 00:07:14,160
cleaning system

103
00:07:18,150 --> 00:07:16,319
and a ventilator right next to it the

104
00:07:20,070 --> 00:07:18,160
ventilator is aimed at it because one of

105
00:07:22,230 --> 00:07:20,080
the repairs that we did

106
00:07:24,629 --> 00:07:22,240
was to a fan the cooling release of

107
00:07:26,950 --> 00:07:24,639
course cools the air uh coming through

108
00:07:29,909 --> 00:07:26,960
the uh

109
00:07:32,230 --> 00:07:29,919
a series of tubes basically and a fan

110
00:07:34,950 --> 00:07:32,240
blows through those two and the cool air

111
00:07:37,350 --> 00:07:34,960
helps cool this system

112
00:07:38,790 --> 00:07:37,360
commander's post right here which is of

113
00:07:45,909 --> 00:07:38,800

course interesting and commander

114

00:07:50,309 --> 00:07:47,749

and facility says hello to everybody

115

00:07:52,629 --> 00:07:50,319

doing a little work at the command post

116

00:07:54,950 --> 00:07:52,639

he's got his uh scope down here a couple

117

00:07:56,869 --> 00:07:54,960

crt tubes and there's a lot of different

118

00:07:59,670 --> 00:07:56,879

commands in this area

119

00:08:00,710 --> 00:07:59,680

and over here is actually your uh signal

120

00:08:02,150 --> 00:08:00,720

of that

121

00:08:03,830 --> 00:08:02,160

bolt or your

122

00:08:06,390 --> 00:08:03,840

panel that gives you all your caution

123

00:08:08,230 --> 00:08:06,400

and warning alarms

124

00:08:10,390 --> 00:08:08,240

fire extinguishers are here and they're

125

00:08:13,189 --> 00:08:10,400

located there at every module

126

00:08:15,430 --> 00:08:13,199

vital piece of gear and the things that

127

00:08:16,790 --> 00:08:15,440

i think pretty much uh saved our lives

128

00:08:19,270 --> 00:08:16,800

are these uh

129

00:08:20,710 --> 00:08:19,280

oxygen breathing devices and uh during

130

00:08:22,629 --> 00:08:20,720

the fire of course that had to go on

131

00:08:25,110 --> 00:08:22,639

quickly so they're located in nice

132

00:08:26,790 --> 00:08:25,120

location and we've been resupplied

133

00:08:28,869 --> 00:08:26,800

and everything's in place on the last

134

00:08:30,390 --> 00:08:28,879

progress

135

00:08:33,750 --> 00:08:30,400

this is my little corner at the moment

136

00:08:35,029 --> 00:08:33,760

for uh the greenhouse experiment

137

00:08:36,310 --> 00:08:35,039

um

138

00:08:37,509 --> 00:08:36,320

greenhouse we'll show you in a minute

139

00:08:39,110 --> 00:08:37,519

it's in another module called the

140

00:08:40,630 --> 00:08:39,120

crystal module

141

00:08:42,149 --> 00:08:40,640

but uh

142

00:08:44,790 --> 00:08:42,159

when we grow these uh basically going to

143

00:08:46,389 --> 00:08:44,800

try and grow plants over a period of uh

144

00:08:48,389 --> 00:08:46,399

a month cycle

145

00:08:50,550 --> 00:08:48,399

from one seed planting

146

00:08:52,230 --> 00:08:50,560

uh through a pollination through a

147

00:08:54,389 --> 00:08:52,240

flowering

148

00:08:56,389 --> 00:08:54,399

and then through a harvest of the seeds

149

00:08:58,710 --> 00:08:56,399

and then a replanting of the seeds i

150

00:09:00,949 --> 00:08:58,720

hope to uh do this with sasha zootkin

151

00:09:03,190 --> 00:09:00,959

the bought engineer on this flight

152

00:09:06,070 --> 00:09:03,200

and do this over a period of um

153

00:09:08,630 --> 00:09:06,080

about 90 days three cycles

154

00:09:11,030 --> 00:09:08,640

this is a glove box that came from ames

155

00:09:13,910 --> 00:09:11,040

and we'll use this glove box to uh do

156

00:09:15,350 --> 00:09:13,920

all the very fiddly tricky operations

157

00:09:16,550 --> 00:09:15,360

with the seeds and the fixations with

158

00:09:19,829 --> 00:09:16,560

chemicals

159

00:09:21,430 --> 00:09:19,839

it's a major part of my experiment

160

00:09:22,949 --> 00:09:21,440

so down the outside of the station it's

161

00:09:27,750 --> 00:09:22,959

a sprawling station when you're doing an

162

00:09:30,310 --> 00:09:27,760

eva it's uh not like being inside the

163

00:09:32,710 --> 00:09:30,320

concave surface of the payload bay and

164

00:09:34,389 --> 00:09:32,720

instead it's convex the whole way you

165

00:09:36,070 --> 00:09:34,399

feel like you're falling

166

00:09:38,389 --> 00:09:36,080

the entire time it feels like the space

167

00:09:40,389 --> 00:09:38,399

station itself is falling

168

00:09:42,230 --> 00:09:40,399

to the point of free-falling parachuting

169

00:09:43,750 --> 00:09:42,240

it gives you that sensation pretty much

170

00:09:45,670 --> 00:09:43,760

the whole time

171

00:09:47,030 --> 00:09:45,680

throughout and when it gets dark you

172

00:09:49,430 --> 00:09:47,040

definitely don't want to be moving on

173

00:09:51,590 --> 00:09:49,440

the surface when it gets dark

174

00:09:53,750 --> 00:09:51,600

that instant you are basically blind

175

00:09:55,430 --> 00:09:53,760

until your eyes adjust maybe three or

176

00:09:57,670 --> 00:09:55,440

four minutes later then you start seeing

177

00:10:00,150 --> 00:09:57,680

some of the form of the space station

178

00:10:02,070 --> 00:10:00,160

but when i say it gets dark it gets dark

179

00:10:05,190 --> 00:10:02,080

to the point where i've never seen dark

180

00:10:06,470 --> 00:10:05,200

as dark as the instant uh the sun sets

181

00:10:08,870 --> 00:10:06,480

and you're out there on the outside of

182

00:10:10,389 --> 00:10:08,880

the space station falling even in the

183

00:10:12,230 --> 00:10:10,399

dark it feels like you're falling for

184

00:10:15,110 --> 00:10:12,240

some reason

185

00:10:17,670 --> 00:10:15,120

on the surface of the uh space station

186

00:10:20,470 --> 00:10:17,680

uh it is also very crowded with

187

00:10:22,630 --> 00:10:20,480

experiments with solar sensors

188

00:10:26,230 --> 00:10:22,640

and of course with the uh big solar

189

00:10:28,310 --> 00:10:26,240

arrays and at many times i was

190

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

fairly trapped and could not go one way

191

00:10:31,590 --> 00:10:30,079

or another the handrail in front of me

192

00:10:32,870 --> 00:10:31,600

had an experiment attached that was

193

00:10:35,110 --> 00:10:32,880

maybe a

194

00:10:36,949 --> 00:10:35,120

meter or two across and so there were no

195

00:10:39,110 --> 00:10:36,959

options to go anywhere

196

00:10:41,509 --> 00:10:39,120

so on the surface getting from point a

197

00:10:43,110 --> 00:10:41,519

to point b was not a straight line by

198

00:10:44,389 --> 00:10:43,120

any means there was a lot of dead ends

199

00:10:46,150 --> 00:10:44,399

along the way

200

00:10:48,069 --> 00:10:46,160

and at one point actually to find our

201

00:10:50,790 --> 00:10:48,079

way back to the uh

202

00:10:53,750 --> 00:10:50,800

to the hatch to come back in uh silly

203

00:10:55,910 --> 00:10:53,760

and i both pushed off as far as we could

204

00:10:57,829 --> 00:10:55,920

uh to try to get a broader perspective

205

00:10:59,430 --> 00:10:57,839

because you have just like i feel right

206

00:11:01,590 --> 00:10:59,440

now you have things all around you you

207

00:11:03,910 --> 00:11:01,600

can't see the big view you're kind of

208

00:11:05,590 --> 00:11:03,920

the trees and you can't see the forest

209

00:11:06,710 --> 00:11:05,600

and this is the soyuz rescue vehicle

210

00:11:09,110 --> 00:11:06,720

right now

211

00:11:10,630 --> 00:11:09,120

and the hatch is right here so it's a

212

00:11:12,310 --> 00:11:10,640

tight squeeze i'll just demonstrate

213

00:11:14,870 --> 00:11:12,320

getting in but it's

214

00:11:17,509 --> 00:11:14,880

it's not a easy way to get in this

215

00:11:20,069 --> 00:11:17,519

little vehicle and right now i am in the

216

00:11:22,630 --> 00:11:20,079

uh the round ball that you normally see

217

00:11:23,430 --> 00:11:22,640

the living section

218

00:11:25,910 --> 00:11:23,440

okay

219

00:11:27,670 --> 00:11:25,920

this table very nice soft velcro and i

220

00:11:30,230 --> 00:11:27,680

found this the most effective place to

221

00:11:31,269 --> 00:11:30,240

do work if i had surface sampling or air

222

00:11:33,750 --> 00:11:31,279

sampling

223

00:11:35,829 --> 00:11:33,760

i'd organize my work right here put

224

00:11:37,910 --> 00:11:35,839

everything in nice order and then fly to

225

00:11:38,710 --> 00:11:37,920

the place where i had to do the sampling

226

00:11:39,470 --> 00:11:38,720

good

227

00:11:43,430 --> 00:11:39,480

and

228

00:11:44,790 --> 00:11:43,440

show you here is part of the t horse uh

229

00:11:46,069 --> 00:11:44,800

freezer unit which we pulled out

230

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

yesterday

231

00:11:49,350 --> 00:11:47,519

builds up isil around it and if you can

232

00:11:50,949 --> 00:11:49,360

look down here on the floor

233

00:11:53,190 --> 00:11:50,959

this thing is just

234

00:11:54,310 --> 00:11:53,200

soaking with water and i've been using

235

00:11:56,150 --> 00:11:54,320

um

236

00:11:57,670 --> 00:11:56,160

jerry's old exercise equipment and

237

00:11:59,030 --> 00:11:57,680

underwear

238

00:11:59,829 --> 00:11:59,040

which i expect he's going to throw away

239

00:12:01,750 --> 00:11:59,839

at least

240

00:12:03,910 --> 00:12:01,760

i hope he does

241

00:12:05,190 --> 00:12:03,920

i've been using it to uh wipe up all the

242

00:12:07,990 --> 00:12:05,200

water on this

243

00:12:09,990 --> 00:12:08,000

on this freezer unit

244

00:12:12,310 --> 00:12:10,000

water everywhere a is a problem and it

245

00:12:14,150 --> 00:12:12,320

does collect in the strangest places

246

00:12:16,230 --> 00:12:14,160

generally over here um jerry and i have

247

00:12:18,470 --> 00:12:16,240

been kind of joey's been using this area

248

00:12:20,150 --> 00:12:18,480

as a as a wash area while uh we've been

249

00:12:21,430 --> 00:12:20,160

doing our handover

250

00:12:23,030 --> 00:12:21,440

um

251
00:12:24,870 --> 00:12:23,040
and he's probably gonna clean out this

252
00:12:25,590 --> 00:12:24,880
side i just been living on this side of

253
00:12:27,670 --> 00:12:25,600
it

254
00:12:30,069 --> 00:12:27,680
as a general principle i think the goal

255
00:12:31,990 --> 00:12:30,079
is to reduce how much water we use and

256
00:12:33,990 --> 00:12:32,000
how much wet tiles we leave around

257
00:12:36,069 --> 00:12:34,000
because of the water problem condensing

258
00:12:38,790 --> 00:12:36,079
on pipes everywhere so i'm going to try

259
00:12:40,870 --> 00:12:38,800
and minimize all of the wet towels

260
00:12:42,629 --> 00:12:40,880
as you all know john and shannon worked

261
00:12:44,710 --> 00:12:42,639
quite a lot with the greenhouse

262
00:12:46,550 --> 00:12:44,720
it's called svetin russian and i'm going

263
00:12:48,629 --> 00:12:46,560

to be working with this uh on this with

264

00:12:50,550 --> 00:12:48,639

um session lazukin as i say we're doing

265

00:12:52,710 --> 00:12:50,560

a seed to seed experiment which has

266

00:12:55,110 --> 00:12:52,720

never been done before in space taking

267

00:12:57,430 --> 00:12:55,120

um basically rape seeds is related to

268

00:12:59,829 --> 00:12:57,440

broccoli and growing down over a cycle

269

00:13:01,350 --> 00:12:59,839

of 30 to 40 days three times we hope

270

00:13:03,110 --> 00:13:01,360

during my mission

271

00:13:04,230 --> 00:13:03,120

and this is where shannon and john did

272

00:13:05,910 --> 00:13:04,240

their harvesting right now you can just

273

00:13:07,910 --> 00:13:05,920

see loose pieces floating around i have

274

00:13:10,230 --> 00:13:07,920

a mass of bags that i'm going to be uh

275

00:13:12,069 --> 00:13:10,240

unpacking and organizing to set this up

276

00:13:14,230 --> 00:13:12,079

again with a new gas exchanger and new

277

00:13:16,710 --> 00:13:14,240

uh root modules that fit in the lower

278

00:13:19,190 --> 00:13:16,720

part of this um orange rare as they call

279

00:13:21,829 --> 00:13:19,200

it or greenhouse

280

00:13:23,670 --> 00:13:21,839

mike i've come

281

00:13:25,430 --> 00:13:23,680

on an ideal of the tight

282

00:13:27,910 --> 00:13:25,440

spaces that we work in so when mike's

283

00:13:29,750 --> 00:13:27,920

doing this experiment uh with sasha

284

00:13:31,829 --> 00:13:29,760

they're going to be stacked up like this

285

00:13:34,710 --> 00:13:31,839

a lot of times and

286

00:13:36,389 --> 00:13:34,720

a lot of old gear and that's why uh we

287

00:13:38,069 --> 00:13:36,399

really appreciate all the efforts of the

288

00:13:40,629 --> 00:13:38,079

people on the ground to get gear out of

289

00:13:41,990 --> 00:13:40,639

here and i uh for example the edls on

290

00:13:44,069 --> 00:13:42,000

the late call this morning it was a

291

00:13:46,310 --> 00:13:44,079

great call we got another locker open so

292

00:13:48,069 --> 00:13:46,320

uh great work and we all appreciate it

293

00:13:49,829 --> 00:13:48,079

we're about out of time i just want to

294

00:13:51,829 --> 00:13:49,839

thank you all for your attention and i

295

00:13:54,949 --> 00:13:51,839

hope you've got a feel for the space

296

00:13:57,430 --> 00:13:54,959

station uh as we flew you through it

297

00:13:59,269 --> 00:13:57,440

uh it's a pretty pleasant place to live

298

00:14:02,310 --> 00:13:59,279

when you can get a space to look like

299

00:14:07,110 --> 00:14:05,110

well uh rob i just like to say that uh

300

00:14:09,189 --> 00:14:07,120

this is a great day for us it's a little

301
00:14:10,790 --> 00:14:09,199
bit sad of course because uh thrilling

302
00:14:11,829 --> 00:14:10,800
flight is coming to an end and we're

303
00:14:13,509 --> 00:14:11,839
gonna have to

304
00:14:14,389 --> 00:14:13,519
separate the vehicles here tomorrow

305
00:14:16,629 --> 00:14:14,399
morning

306
00:14:17,350 --> 00:14:16,639
and that'll be a bittersweet memory for

307
00:14:19,189 --> 00:14:17,360
us

308
00:14:21,509 --> 00:14:19,199
we've had a great time getting mike

309
00:14:23,269 --> 00:14:21,519
ready to take over the place uh

310
00:14:25,350 --> 00:14:23,279
and fill the big shoes that jerry's left

311
00:14:28,150 --> 00:14:25,360
behind here with a lot of progress being

312
00:14:30,389 --> 00:14:28,160
made on board we've had a great uh

313
00:14:32,870 --> 00:14:30,399

progress towards making things uh work

314

00:14:34,550 --> 00:14:32,880

better for our joint science program and

315

00:14:35,350 --> 00:14:34,560

uh we're happy that we were able to pull

316

00:14:37,189 --> 00:14:35,360

it off

317

00:14:39,350 --> 00:14:37,199

this is marcia dunham the associated

318

00:14:41,350 --> 00:14:39,360

press again for dr lenninger i'm

319

00:14:43,269 --> 00:14:41,360

wondering do you plan to try to walk off

320

00:14:45,350 --> 00:14:43,279

the shuttle upon landing or would you

321

00:14:47,350 --> 00:14:45,360

just prefer to be carried off as your

322

00:14:49,189 --> 00:14:47,360

predecessor was and do you think the

323

00:14:50,710 --> 00:14:49,199

curtailment of exercise about a month

324

00:14:54,629 --> 00:14:50,720

ago is going to affect your

325

00:14:58,150 --> 00:14:56,310

marcia i've been working very hard since

326

00:14:59,750 --> 00:14:58,160

that time and we've had we've solved

327

00:15:02,150 --> 00:14:59,760

that problem with the co2 and so i've

328

00:15:05,030 --> 00:15:02,160

been able to exercise very

329

00:15:06,710 --> 00:15:05,040

uh strongly every day i've got carlos

330

00:15:08,949 --> 00:15:06,720

over here who's a marine and i'm going

331

00:15:10,710 --> 00:15:08,959

to have him yell in my ear to get up and

332

00:15:13,269 --> 00:15:10,720

walk so i plan on walking off the

333

00:15:15,509 --> 00:15:13,279

orbiter

334

00:15:17,829 --> 00:15:15,519

this is irene brown with upi also for dr

335

00:15:19,509 --> 00:15:17,839

lenninger um knowing what you know about

336

00:15:21,189 --> 00:15:19,519

life on mir would you repeat the

337

00:15:22,870 --> 00:15:21,199

experience and is there anything that

338

00:15:26,949 --> 00:15:22,880

you would bring with you

339

00:15:29,030 --> 00:15:26,959

if you were going up for a second time

340

00:15:31,110 --> 00:15:29,040

it's been a fantastic experience we've

341

00:15:33,910 --> 00:15:31,120

met all of our goals accomplished all

342

00:15:36,629 --> 00:15:33,920

the tasks it's been a tough time

343

00:15:39,670 --> 00:15:36,639

and when you get through something like

344

00:15:41,670 --> 00:15:39,680

that a major adventure major exploration

345

00:15:43,910 --> 00:15:41,680

we still have a critical phase to go to

346

00:15:45,670 --> 00:15:43,920

the re-entry of course but when i get

347

00:15:47,430 --> 00:15:45,680

back on earth

348

00:15:49,430 --> 00:15:47,440

any adventure like that when you come

349

00:15:52,629 --> 00:15:49,440

close to pushing the envelope and

350

00:15:55,990 --> 00:15:52,639

survive it's a great adventure and in

351
00:15:57,189 --> 00:15:56,000
retrospect i have no regrets whatsoever

352
00:15:59,030 --> 00:15:57,199
something i would have brought is just

353
00:16:00,710 --> 00:15:59,040
more plain old photographs from my

354
00:16:02,710 --> 00:16:00,720
family

355
00:16:03,990 --> 00:16:02,720
and when progress resupply vehicles came

356
00:16:07,430 --> 00:16:04,000
up that was the

357
00:16:09,670 --> 00:16:07,440
best gift i had is pictures of my son

358
00:16:11,430 --> 00:16:09,680
this is james mates from itn of london

359
00:16:13,350 --> 00:16:11,440
michael foale what do you think of the

360
00:16:15,030 --> 00:16:13,360
physical condition of mir now that

361
00:16:16,550 --> 00:16:15,040
you've seen it and do you have any

362
00:16:21,189 --> 00:16:16,560
worries about spending the next four

363
00:16:24,470 --> 00:16:22,870

the first question is basically uh the

364

00:16:27,189 --> 00:16:24,480

condition of mirrors

365

00:16:29,509 --> 00:16:27,199

is one of uh varied uh newness or

366

00:16:30,790 --> 00:16:29,519

oldness depending on where you are

367

00:16:33,030 --> 00:16:30,800

the place where we are right now the

368

00:16:35,189 --> 00:16:33,040

base block was launched uh 10 13 years

369

00:16:37,509 --> 00:16:35,199

ago and um there are newer elements that

370

00:16:38,629 --> 00:16:37,519

were launched only a year ago

371

00:16:40,389 --> 00:16:38,639

so

372

00:16:41,910 --> 00:16:40,399

as you go around the space station you

373

00:16:44,069 --> 00:16:41,920

find some things that are really quite

374

00:16:46,150 --> 00:16:44,079

quite old uh they've had to be replaced

375

00:16:47,829 --> 00:16:46,160

one or two three four times

376

00:16:51,030 --> 00:16:47,839

and then there are places where it looks

377

00:16:54,470 --> 00:16:51,040

brand spanking new um as for my worries

378

00:16:56,470 --> 00:16:54,480

i don't really have many um

379

00:16:58,389 --> 00:16:56,480

right now the uh the thing which we have

380

00:17:00,310 --> 00:16:58,399

to concentrate on is how the uh the

381

00:17:02,150 --> 00:17:00,320

systems of the mirror will

382

00:17:04,069 --> 00:17:02,160

work and i'm gonna be helping sasha here

383

00:17:05,829 --> 00:17:04,079

on my right and the cv commander on the

384

00:17:07,270 --> 00:17:05,839

left over there

385

00:17:08,710 --> 00:17:07,280

basically with some of the repairs and

386

00:17:09,669 --> 00:17:08,720

some of the basic operations of this

387

00:17:11,350 --> 00:17:09,679

station

388

00:17:12,630 --> 00:17:11,360

but as long as we can keep working hard

389

00:17:14,710 --> 00:17:12,640

with the ground and

390

00:17:16,949 --> 00:17:14,720

we keep the supplies coming we can keep

391

00:17:19,189 --> 00:17:16,959

maintaining these things

392

00:17:21,669 --> 00:17:19,199

could you outline the possible problems

393

00:17:23,350 --> 00:17:21,679

that you think might arise and the steps

394

00:17:24,470 --> 00:17:23,360

that you have taken in advance or how

395

00:17:29,990 --> 00:17:24,480

you will cope with them when they do

396

00:17:33,430 --> 00:17:31,510

i think probably the biggest problem

397

00:17:34,230 --> 00:17:33,440

that's being worked continuously now by

398

00:17:36,710 --> 00:17:34,240

um

399

00:17:38,950 --> 00:17:36,720

by the by us from the uh the soup the uh

400

00:17:40,310 --> 00:17:38,960

control center in moscow is that of a

401
00:17:42,070 --> 00:17:40,320
cooling system

402
00:17:44,470 --> 00:17:42,080
um there's a number of different uh

403
00:17:46,630 --> 00:17:44,480
cooling loops that carry uh cooling

404
00:17:48,710 --> 00:17:46,640
refrigeration fluid around the station

405
00:17:50,950 --> 00:17:48,720
and some of those have leaks and there's

406
00:17:53,190 --> 00:17:50,960
one uh outstanding remaining leak just

407
00:17:55,270 --> 00:17:53,200
behind us actually behind the flag here

408
00:17:58,070 --> 00:17:55,280
in a compartment called front

409
00:18:00,230 --> 00:17:58,080
and uh sasha and vasude especially will

410
00:18:01,909 --> 00:18:00,240
be working on the pipes there to try and

411
00:18:04,630 --> 00:18:01,919
isolate that leak

412
00:18:05,350 --> 00:18:04,640
however the systems that depend on that

413
00:18:07,029 --> 00:18:05,360

that

414

00:18:08,630 --> 00:18:07,039

cooling system particularly the system

415

00:18:11,350 --> 00:18:08,640

that scrubs the carbon dioxide from the

416

00:18:13,270 --> 00:18:11,360

air now have other means of um getting

417

00:18:15,430 --> 00:18:13,280

rid of their heat i mean in particular

418

00:18:17,669 --> 00:18:15,440

using directed airflow

419

00:18:19,909 --> 00:18:17,679

so there are always workarounds being

420

00:18:22,549 --> 00:18:19,919

found and i have some faith in the

421

00:18:24,070 --> 00:18:22,559

ingenuity of both us here on the station

422

00:18:26,549 --> 00:18:24,080

and the people on the ground to keep

423

00:18:29,590 --> 00:18:26,559

these things going

424

00:18:32,549 --> 00:18:29,600

did you discover unsafe dangerous parts

425

00:18:34,470 --> 00:18:32,559

or systems of the mere space station and

426

00:18:40,549 --> 00:18:34,480

for how many years do you think the

427

00:18:43,909 --> 00:18:42,310

i think that's the hardest part or the

428

00:18:46,470 --> 00:18:43,919

most difficult part of all this it's

429

00:18:48,310 --> 00:18:46,480

very hard to predict uh the future of

430

00:18:50,070 --> 00:18:48,320

mechanical systems

431

00:18:51,990 --> 00:18:50,080

the main thing to do is maintain them to

432

00:18:54,870 --> 00:18:52,000

the best of your ability replace parts

433

00:18:58,390 --> 00:18:56,390

and we did the best we could over the

434

00:19:00,710 --> 00:18:58,400

last four and a half months to get the

435

00:19:03,029 --> 00:19:00,720

station back into good shape um i

436

00:19:04,549 --> 00:19:03,039

anticipate that we will have problems in

437

00:19:06,310 --> 00:19:04,559

the future and then michael b challenge

438

00:19:07,830 --> 00:19:06,320

and the my crewmates will be challenged

439

00:19:09,669 --> 00:19:07,840

in the future uh

440

00:19:11,350 --> 00:19:09,679

as far as how long it can last depends

441

00:19:13,990 --> 00:19:11,360

on how much you're willing to keep

442

00:19:15,750 --> 00:19:14,000

repairing and how often you get the

443

00:19:17,430 --> 00:19:15,760

right parts up here

444

00:19:19,830 --> 00:19:17,440

and also building in maybe a little

445

00:19:22,230 --> 00:19:19,840

redundancy to some of the systems if one

446

00:19:24,630 --> 00:19:22,240

system fails you back it up with other

447

00:19:29,029 --> 00:19:24,640

systems and other means to provide what

448

00:19:33,350 --> 00:19:30,710

we'd just like to say to the control

449

00:19:35,110 --> 00:19:33,360

center and to all the folks in phase one

450

00:19:37,669 --> 00:19:35,120

all around the johnson space center at

451
00:19:40,789 --> 00:19:37,679
kennedy space center and all of nasa our

452
00:19:43,110 --> 00:19:40,799
colleagues in russia uh european space

453
00:19:44,870 --> 00:19:43,120
agency and

454
00:19:46,630 --> 00:19:44,880
the soup in moscow everyone that has

455
00:19:48,150 --> 00:19:46,640
participated in this a giant team has

456
00:19:49,750 --> 00:19:48,160
put together a very very successful

457
00:19:52,070 --> 00:19:49,760
mission it was a privilege for us to be

458
00:19:54,230 --> 00:19:52,080
out executing it for you as you planned

459
00:19:58,230 --> 00:19:54,240
it you did superbly and we're really

460
00:20:01,510 --> 00:20:00,150
hi charlie this is phil and it's uh

461
00:20:03,909 --> 00:20:01,520
really great to look up at the screen

462
00:20:05,590 --> 00:20:03,919
here and see all you guys together uh

463
00:20:06,870 --> 00:20:05,600

you know it takes a lot of months to put

464

00:20:09,590 --> 00:20:06,880

one of these together and get a lot of

465

00:20:11,430 --> 00:20:09,600

folks here glad to see the final result

466

00:20:12,630 --> 00:20:11,440

and uh this picture on the screen right

467

00:20:14,230 --> 00:20:12,640

here is really heartwarming for

468

00:20:15,510 --> 00:20:14,240

everybody you guys have done a fantastic

469

00:20:17,750 --> 00:20:15,520

job up there

470

00:20:19,190 --> 00:20:17,760

silly and sasha who've become our

471

00:20:20,710 --> 00:20:19,200

wonderful friends they've let us share

472

00:20:22,070 --> 00:20:20,720

their wonderful home and we thank them

473

00:20:23,750 --> 00:20:22,080

very much for that

474

00:20:26,470 --> 00:20:23,760

and with that in mind we'd like to leave

475

00:20:29,350 --> 00:20:26,480

them a small gift from us

476

00:20:32,630 --> 00:20:29,360

it's a t-shirt

477

00:20:35,909 --> 00:20:34,470

with our name of our shuttle and our

478

00:20:41,350 --> 00:20:35,919

crew patch

479

00:20:45,029 --> 00:20:43,270

thank you very much and also one for

480

00:20:49,510 --> 00:20:45,039

sasha

481

00:20:51,669 --> 00:20:49,520

a momento you can remember our flight

482

00:20:53,110 --> 00:20:51,679

and also from phase one the phase one

483

00:20:56,710 --> 00:20:53,120

folks would like to leave their thanks

484

00:20:58,390 --> 00:20:56,720

also with the crew of near

485

00:21:01,350 --> 00:20:58,400

with the phase one sure representing our

486

00:21:03,110 --> 00:21:01,360

program which has been so

487

00:21:05,669 --> 00:21:03,120

just successful he's ready to close the

488

00:21:08,070 --> 00:21:05,679

hatch and uh we wished him well had a

489

00:21:09,270 --> 00:21:08,080

great flight and uh just kind of sorry

490

00:21:11,830 --> 00:21:09,280

to see them

491

00:21:28,630 --> 00:21:11,840

close the hatch on ourselves here but uh