



1
00:02:32,309 --> 00:02:28,070
atlantis houston to our favorite crew

2
00:02:35,509 --> 00:02:33,990
and my favorite crew says good morning

3
00:02:37,430 --> 00:02:35,519
back thanks a lot for the wake up and

4
00:02:55,030 --> 00:02:37,440
thanks for allison for the song and the

5
00:02:58,390 --> 00:02:56,949
brent we're uh

6
00:03:02,710 --> 00:02:58,400
looking at both you there on the flight

7
00:04:32,550 --> 00:03:03,830
okay if it's okay we'll bring them on

8
00:04:35,670 --> 00:04:33,749
i mean if you want we can power them

9
00:04:36,790 --> 00:04:35,680
down and then uh death cream and power

10
00:04:40,310 --> 00:04:36,800
back up but if we're not going to take

11
00:04:45,670 --> 00:04:43,189
it doesn't seem necessary

12
00:04:46,950 --> 00:04:45,680
but we copy we're looking to see

13
00:04:49,230 --> 00:04:46,960

that the gps

14

00:05:07,029 --> 00:04:49,240

information overload the disk is has

15

00:05:10,790 --> 00:05:09,350

okay we copy we're just puzzling over

16

00:05:12,310 --> 00:05:10,800

your call and

17

00:05:14,390 --> 00:05:12,320

wanted to make sure that we're

18

00:05:16,390 --> 00:05:14,400

configured properly for the gps in this

19

00:05:19,749 --> 00:05:16,400

troubleshoot procedure that's timeline a

20

00:05:21,189 --> 00:05:19,759

little before 2300.

21

00:05:32,390 --> 00:05:21,199

yeah i'll bring

22

00:05:34,870 --> 00:05:33,990

i guess

23

00:05:37,110 --> 00:05:34,880

hello

24

00:05:40,310 --> 00:05:37,120

terry chris how are you all doing over

25

00:05:41,909 --> 00:05:40,320

in the chamber this is john blaha

26
00:05:43,749 --> 00:05:41,919
we have you loud and clear john thanks

27
00:05:45,670 --> 00:05:43,759
for the call we also can see you on the

28
00:05:48,390 --> 00:05:45,680
monitor in front of us

29
00:05:50,150 --> 00:05:48,400
you asked me what did i think about the

30
00:05:52,390 --> 00:05:50,160
how did that go with the bps and the

31
00:05:56,070 --> 00:05:52,400
cartilage is that correct

32
00:06:00,870 --> 00:05:58,310
okay uh well first of all i'll tell you

33
00:06:03,029 --> 00:06:00,880
what uh i think that experiment in a

34
00:06:05,430 --> 00:06:03,039
broad context

35
00:06:06,710 --> 00:06:05,440
really shows the value of long duration

36
00:06:08,950 --> 00:06:06,720
space flight

37
00:06:10,469 --> 00:06:08,960
uh well let me explain

38
00:06:12,629 --> 00:06:10,479

the people on the ground had done a

39

00:06:15,430 --> 00:06:12,639

fantastic job designing it and

40

00:06:18,070 --> 00:06:15,440

everything and uh had we tested it on

41

00:06:19,510 --> 00:06:18,080

the shuttle uh we would have flown a two

42

00:06:22,469 --> 00:06:19,520

or three week flight and we would have

43

00:06:23,430 --> 00:06:22,479

landed and thought everything was just

44

00:06:25,749 --> 00:06:23,440

great

45

00:06:27,749 --> 00:06:25,759

as it turns out about four weeks into

46

00:06:30,390 --> 00:06:27,759

the flight

47

00:06:32,950 --> 00:06:30,400

the air that had been

48

00:06:33,909 --> 00:06:32,960

processing when we mixed media in the

49

00:06:36,150 --> 00:06:33,919

bag

50

00:06:37,990 --> 00:06:36,160

there was no air and there's special

51
00:06:40,309 --> 00:06:38,000
water that i had brought up and when i

52
00:06:42,390 --> 00:06:40,319
mixed that water with the media just

53
00:06:43,670 --> 00:06:42,400
like and then i noticed all fluids do it

54
00:06:45,830 --> 00:06:43,680
in space

55
00:06:46,790 --> 00:06:45,840
it just seems to create bubbles

56
00:06:49,430 --> 00:06:46,800
and

57
00:06:51,510 --> 00:06:49,440
over a period of uh

58
00:06:53,510 --> 00:06:51,520
four weeks it took that long for the

59
00:06:55,909 --> 00:06:53,520
bubble to propagate through the whole

60
00:06:57,670 --> 00:06:55,919
system and finally get into the vessel

61
00:07:00,230 --> 00:06:57,680
and when i saw the bubbles first in the

62
00:07:02,469 --> 00:07:00,240
vessel i was really alarmed and of

63
00:07:03,990 --> 00:07:02,479

course everybody on the ground was

64

00:07:05,589 --> 00:07:04,000

but then the people on the ground as

65

00:07:07,510 --> 00:07:05,599

usual came up with all sorts of

66

00:07:09,510 --> 00:07:07,520

procedures

67

00:07:11,749 --> 00:07:09,520

and then we opened up the box and tried

68

00:07:13,589 --> 00:07:11,759

to evaluate the system and

69

00:07:17,830 --> 00:07:13,599

the bottom line is

70

00:07:19,430 --> 00:07:17,840

we ended up having to manually feed the

71

00:07:22,309 --> 00:07:19,440

flash media

72

00:07:25,110 --> 00:07:22,319

and then we'd make our samples at the

73

00:07:28,390 --> 00:07:25,120

end of a period right before we i mixed

74

00:07:33,430 --> 00:07:30,790

so we could tell the health of the media

75

00:07:35,589 --> 00:07:33,440

so uh no that was a very

76

00:07:37,990 --> 00:07:35,599

good experiment as it turns out i think

77

00:07:39,510 --> 00:07:38,000

it was very successful and the cartilage

78

00:07:41,589 --> 00:07:39,520

continued to grow and you know as

79

00:07:43,510 --> 00:07:41,599

cartilage from a cow's knee

80

00:07:46,150 --> 00:07:43,520

and uh but we just had to get the human

81

00:07:48,070 --> 00:07:46,160

being involved so that experiment as it

82

00:07:50,150 --> 00:07:48,080

turns out i know it wasn't intended it

83

00:07:53,589 --> 00:07:50,160

showed the value of long-duration space

84

00:07:55,950 --> 00:07:53,599

flight as well as human involvement

85

00:07:58,790 --> 00:07:55,960

okay john this is fred smith again uh

86

00:08:00,950 --> 00:07:58,800

congratulations congratulations to you

87

00:08:04,629 --> 00:08:00,960

my question is dealing more with on the

88

00:08:07,430 --> 00:08:04,639

psychological aspects of long duration

89

00:08:09,830 --> 00:08:07,440

we're also doing some evaluation

90

00:08:12,150 --> 00:08:09,840

psychological evaluations for our

91

00:08:14,390 --> 00:08:12,160

tests here i was wondering were there

92

00:08:15,430 --> 00:08:14,400

any some things that you found helpful

93

00:08:17,670 --> 00:08:15,440

in uh

94

00:08:20,309 --> 00:08:17,680

making your stay more enjoyable for your

95

00:08:22,710 --> 00:08:20,319

for the duration of your mission

96

00:08:25,270 --> 00:08:22,720

on mirror

97

00:08:27,589 --> 00:08:25,280

yes i understand you know you're talking

98

00:08:30,550 --> 00:08:27,599

about something now that i think is uh

99

00:08:33,190 --> 00:08:30,560

crucial uh to a uh

100

00:08:35,110 --> 00:08:33,200

long duration flight be it a flight on a

101
00:08:38,149 --> 00:08:35,120
space station with an international crew

102
00:08:39,110 --> 00:08:38,159
and i stress that international crew or

103
00:08:42,709 --> 00:08:39,120
a

104
00:08:45,110 --> 00:08:42,719
crew

105
00:08:47,430 --> 00:08:45,120
when you put people together who are

106
00:08:50,630 --> 00:08:47,440
from different cultures

107
00:08:53,990 --> 00:08:50,640
cultures and who have different

108
00:08:57,269 --> 00:08:54,000
language as their primary language

109
00:08:59,829 --> 00:08:57,279
you even add to the psychological

110
00:09:01,750 --> 00:08:59,839
problem for example the four of you

111
00:09:03,910 --> 00:09:01,760
will or will not experience there in

112
00:09:04,790 --> 00:09:03,920
your laboratory on the ground and in

113
00:09:07,110 --> 00:09:04,800

fact

114

00:09:09,670 --> 00:09:07,120

i think you could think of next time you

115

00:09:11,910 --> 00:09:09,680

do something like this try and put

116

00:09:13,030 --> 00:09:11,920

some people from different nationalities

117

00:09:14,230 --> 00:09:13,040

together

118

00:09:16,550 --> 00:09:14,240

and

119

00:09:18,710 --> 00:09:16,560

who maybe don't speak the common

120

00:09:20,949 --> 00:09:18,720

language real well

121

00:09:23,269 --> 00:09:20,959

because that introduces i think another

122

00:09:25,590 --> 00:09:23,279

element of psychological

123

00:09:27,430 --> 00:09:25,600

pressure and stress

124

00:09:29,910 --> 00:09:27,440

and in my case

125

00:09:31,190 --> 00:09:29,920

i had trained with two russian cosmonaut

126
00:09:33,350 --> 00:09:31,200
crews

127
00:09:35,910 --> 00:09:33,360
in star city for a year and a half and

128
00:09:37,350 --> 00:09:35,920
then unfortunately a week before their

129
00:09:39,670 --> 00:09:37,360
launch

130
00:09:41,590 --> 00:09:39,680
one of the people had a heart problem

131
00:09:44,230 --> 00:09:41,600
unfortunately it's not bad and he's

132
00:09:46,470 --> 00:09:44,240
happy now but uh so they had to change

133
00:09:49,350 --> 00:09:46,480
the crew so i flew with a completely

134
00:09:50,389 --> 00:09:49,360
different two russians than i had even

135
00:09:53,590 --> 00:09:50,399
trained with

136
00:09:56,470 --> 00:09:53,600
which even added more to i think uh some

137
00:09:58,150 --> 00:09:56,480
stress in the first month of the fight

138
00:10:00,389 --> 00:09:58,160

so but you're on to something that's

139

00:10:02,470 --> 00:10:00,399

very very important uh

140

00:10:04,070 --> 00:10:02,480

uh but i think there are many parameters

141

00:10:05,750 --> 00:10:04,080

and we really need to think about it in

142

00:10:07,350 --> 00:10:05,760

the future with our international space

143

00:10:10,310 --> 00:10:07,360

station for example we have two

144

00:10:12,630 --> 00:10:10,320

americans two russians

145

00:10:15,829 --> 00:10:12,640

a european and a uh

146

00:10:16,550 --> 00:10:15,839

a person from say japan uh the people

147

00:10:17,269 --> 00:10:16,560

who

148

00:10:19,350 --> 00:10:17,279

are

149

00:10:21,750 --> 00:10:19,360

alone by themselves and don't have a

150

00:10:23,350 --> 00:10:21,760

friend from their own culture i think

151

00:10:24,790 --> 00:10:23,360

are going to even have a little more

152

00:10:26,710 --> 00:10:24,800

special kind of problem that we need to

153

00:10:29,269 --> 00:10:26,720

pay attention to

154

00:10:31,269 --> 00:10:29,279

yes i was wondering if you had any uh

155

00:10:32,389 --> 00:10:31,279

experiences or interactions with with

156

00:10:34,230 --> 00:10:32,399

the mere

157

00:10:38,550 --> 00:10:34,240

uh life support systems

158

00:10:41,590 --> 00:10:39,829

absolutely

159

00:10:45,030 --> 00:10:41,600

you know you're right on it those life

160

00:10:47,110 --> 00:10:45,040

support systems are very important and

161

00:10:49,190 --> 00:10:47,120

what i i would say a couple of things on

162

00:10:51,910 --> 00:10:49,200

that that i noticed working with my two

163

00:10:53,110 --> 00:10:51,920

russian colleagues valerie and sasha

164

00:10:54,710 --> 00:10:53,120

first of all

165

00:10:57,269 --> 00:10:54,720

uh the crew

166

00:11:00,150 --> 00:10:57,279

probably needs to know those systems at

167

00:11:02,870 --> 00:11:00,160

a deeper level than i remember i knew

168

00:11:05,030 --> 00:11:02,880

the ecosystems here on the shuttle

169

00:11:06,949 --> 00:11:05,040

uh when you're able to clean a vehicle

170

00:11:08,870 --> 00:11:06,959

up on the ground as we do and then go

171

00:11:10,630 --> 00:11:08,880

into orbit and stay for two weeks and

172

00:11:13,030 --> 00:11:10,640

come home and clean it up again that's

173

00:11:14,710 --> 00:11:13,040

one kind of level of knowledge

174

00:11:17,590 --> 00:11:14,720

if you're going to go up there

175

00:11:19,670 --> 00:11:17,600

on our new space station

176

00:11:22,949 --> 00:11:19,680

you need to go to a deeper level of

177

00:11:25,030 --> 00:11:22,959

knowledge and we need to make sure we

178

00:11:28,470 --> 00:11:25,040

have a couple of people trained on that

179

00:11:30,470 --> 00:11:28,480

new international space station uh into

180

00:11:32,949 --> 00:11:30,480

that deeper level of knowledge because

181

00:11:35,590 --> 00:11:32,959

when something goes wrong maybe the

182

00:11:37,030 --> 00:11:35,600

spare part isn't there but if you have

183

00:11:38,150 --> 00:11:37,040

people who are trying to go into the

184

00:11:39,030 --> 00:11:38,160

boxes

185

00:11:41,350 --> 00:11:39,040

and

186

00:11:42,949 --> 00:11:41,360

take a small component out that's broken

187

00:11:45,750 --> 00:11:42,959

and actually fix it

188

00:11:47,269 --> 00:11:45,760

and then put it back in the box

189

00:11:49,110 --> 00:11:47,279

that's the type of training we're going

190

00:11:50,790 --> 00:11:49,120

to have to do and i saw a lot of that

191

00:11:53,670 --> 00:11:50,800

during my flight

192

00:11:53,680 --> 00:11:59,350

kitchen lettuce for transfer

193

00:11:59,360 --> 00:12:05,590

go ahead john

194

00:12:10,790 --> 00:12:08,710

baha brought with him some mcids

195

00:12:13,910 --> 00:12:10,800

that needed to be refrigerated

196

00:12:16,230 --> 00:12:13,920

and we put them in ptcu one

197

00:12:18,550 --> 00:12:16,240

which is a five degree c

198

00:12:20,310 --> 00:12:18,560

container uh they're not supposed to be

199

00:12:21,910 --> 00:12:20,320

frozen so we didn't put them in leslie

200

00:12:23,750 --> 00:12:21,920

we just want to make sure that you and

201
00:12:29,750 --> 00:12:23,760
the biorack folks know that that's where

202
00:12:29,760 --> 00:12:34,069
we see them and concur thanks

203
00:12:34,079 --> 00:12:40,949
thanks

204
00:12:45,190 --> 00:12:43,190
houston for cmrs we have a question do

205
00:12:46,790 --> 00:12:45,200
you want all of our little data runs

206
00:12:48,629 --> 00:12:46,800
here with only one

207
00:12:58,310 --> 00:12:48,639
cno or are we allowed to use two people

208
00:12:58,320 --> 00:13:02,550
marcia we'd like to use two if possible

209
00:13:09,030 --> 00:13:04,629
okay

210
00:13:10,629 --> 00:13:09,040
course a record time of 55 seconds of

211
00:13:31,670 --> 00:13:10,639
getting john restrained and now we'll do

212
00:13:35,269 --> 00:13:34,389
space have atlantis fo12 step 12 is

213
00:14:20,389 --> 00:13:35,279

complete

214

00:14:25,670 --> 00:14:23,030

lannis houston very impressive we're one