



1
00:00:05,269 --> 00:00:03,429
hi welcome to inside the international

2
00:00:06,869 --> 00:00:05,279
space station flight control room today

3
00:00:08,470 --> 00:00:06,879
i have a special guest with us we've

4
00:00:10,790 --> 00:00:08,480
been watching just now some live

5
00:00:12,470 --> 00:00:10,800
downlink of steve swanson aboard the

6
00:00:13,830 --> 00:00:12,480
space station who is actually preparing

7
00:00:14,950 --> 00:00:13,840
one of the spacesuits that he will be

8
00:00:17,510 --> 00:00:14,960
working

9
00:00:19,510 --> 00:00:17,520
wearing during a contingency spacewalk

10
00:00:22,550 --> 00:00:19,520
that is now scheduled to take place on

11
00:00:25,029 --> 00:00:22,560
april 23rd that is provided the spacex

12
00:00:28,630 --> 00:00:25,039
dragon is launched on april 18th this

13
00:00:30,870 --> 00:00:28,640

friday um so today right now i have nasa

14

00:00:33,270 --> 00:00:30,880

astronaut chris cassidy chris is a

15

00:00:35,670 --> 00:00:33,280

two-time flyer he flew aboard this space

16

00:00:37,830 --> 00:00:35,680

shuttle on sts-127

17

00:00:39,670 --> 00:00:37,840

and then also did a long duration uh

18

00:00:42,229 --> 00:00:39,680

tour aboard the space station this time

19

00:00:43,670 --> 00:00:42,239

last year on uh expedition 35 yeah a

20

00:00:45,590 --> 00:00:43,680

year ago i was up there it's hard to

21

00:00:47,910 --> 00:00:45,600

believe and he actually did three

22

00:00:48,869 --> 00:00:47,920

spacewalks and he's actually working to

23

00:00:50,229 --> 00:00:48,879

help

24

00:00:53,270 --> 00:00:50,239

come up with the procedures for this

25

00:00:55,670 --> 00:00:53,280

spacewalk that um will be to prepare um

26
00:00:58,069 --> 00:00:55,680
to repair the uh what we've been calling

27
00:01:00,310 --> 00:00:58,079
the mdm it's the multiplexer d

28
00:01:02,310 --> 00:01:00,320
multiplexer that is outside the space

29
00:01:04,229 --> 00:01:02,320
station so first of all um

30
00:01:06,390 --> 00:01:04,239
explain real briefly

31
00:01:07,990 --> 00:01:06,400
what is the mdm what is that exactly

32
00:01:09,429 --> 00:01:08,000
it's basically a computer and there are

33
00:01:11,670 --> 00:01:09,439
several different kinds there's some

34
00:01:13,830 --> 00:01:11,680
higher level ones control mdms we call

35
00:01:17,270 --> 00:01:13,840
them tier one and then the tier two

36
00:01:18,870 --> 00:01:17,280
mdm's these of which the external mdm is

37
00:01:20,469 --> 00:01:18,880
one of those

38
00:01:21,910 --> 00:01:20,479

many of them or most of them are inside

39

00:01:23,590 --> 00:01:21,920

this one happens to be outside and it

40

00:01:25,590 --> 00:01:23,600

controls the

41

00:01:27,270 --> 00:01:25,600

some structural and mechanical things

42

00:01:28,710 --> 00:01:27,280

but what we're carrying what we care

43

00:01:31,109 --> 00:01:28,720

about this week

44

00:01:33,910 --> 00:01:31,119

relative to the spacex are the the target

45

00:01:36,469 --> 00:01:33,920

angles and the solar array rotary angles

46

00:01:37,749 --> 00:01:36,479

and if if the second mdm were to fail we

47

00:01:38,870 --> 00:01:37,759

wouldn't have the ability to control

48

00:01:40,870 --> 00:01:38,880

those so that's why it's such an

49

00:01:43,749 --> 00:01:40,880

important piece to the whole equation

50

00:01:45,670 --> 00:01:43,759

okay well thank you for that um

51
00:01:47,910 --> 00:01:45,680
real quick also well

52
00:01:49,670 --> 00:01:47,920
just describe what

53
00:01:52,710 --> 00:01:49,680
that type what the task is going to be

54
00:01:54,230 --> 00:01:52,720
at hand that swanson and mrakio have at

55
00:01:55,830 --> 00:01:54,240
going out and replacing it they're

56
00:01:57,190 --> 00:01:55,840
actually taking one that is on board

57
00:01:58,469 --> 00:01:57,200
right now they have a replacement i

58
00:01:59,670 --> 00:01:58,479
think you have that

59
00:02:01,990 --> 00:01:59,680
we happen to have one right here as a

60
00:02:03,350 --> 00:02:02,000
matter of fact so there the spare is

61
00:02:06,310 --> 00:02:03,360
inside just like you mentioned it's

62
00:02:07,749 --> 00:02:06,320
inside with them it's older though and

63
00:02:09,270 --> 00:02:07,759

so they need to do some work on the

64

00:02:11,029 --> 00:02:09,280

inside to update it and make sure that

65

00:02:12,470 --> 00:02:11,039

it's got the right software and the

66

00:02:15,670 --> 00:02:12,480

ground teams are doing all that

67

00:02:17,030 --> 00:02:15,680

procedure right now once they do that

68

00:02:17,910 --> 00:02:17,040

and they're ready to go outside next

69

00:02:20,470 --> 00:02:17,920

week

70

00:02:21,990 --> 00:02:20,480

this is what the box looks like and

71

00:02:23,670 --> 00:02:22,000

basically there's computer cards just

72

00:02:25,910 --> 00:02:23,680

like in your home computer at home

73

00:02:29,510 --> 00:02:25,920

inside this big metal box what those

74

00:02:31,430 --> 00:02:29,520

guys will do is uh there's three bolts

75

00:02:33,430 --> 00:02:31,440

the center one is we call the jacking

76

00:02:35,910 --> 00:02:33,440

bolt because it actually drives the box

77

00:02:38,710 --> 00:02:35,920

in and out okay and then these two

78

00:02:41,030 --> 00:02:38,720

outside both just kind of make it secure

79

00:02:41,750 --> 00:02:41,040

there's no uh connection this this is

80

00:02:43,110 --> 00:02:41,760

not

81

00:02:44,790 --> 00:02:43,120

this connection here won't be on the

82

00:02:46,309 --> 00:02:44,800

real box all of the electrical

83

00:02:47,589 --> 00:02:46,319

connections happen on the back side of

84

00:02:49,270 --> 00:02:47,599

the box we call them

85

00:02:52,309 --> 00:02:49,280

blind mate connectors because once the

86

00:02:54,229 --> 00:02:52,319

box slides in as you screw it in all the

87

00:02:55,430 --> 00:02:54,239

connectors are made in the back okay so

88

00:02:57,030 --> 00:02:55,440

all they really have to do is these

89

00:02:58,869 --> 00:02:57,040

three bolts it's pretty pretty

90

00:03:01,430 --> 00:02:58,879

straightforward in terms of

91

00:03:03,509 --> 00:03:01,440

eva jobs you know

92

00:03:05,030 --> 00:03:03,519

we anticipated to go quickly but as with

93

00:03:07,110 --> 00:03:05,040

anything in space operations

94

00:03:08,710 --> 00:03:07,120

particularly evas you never know what's

95

00:03:10,390 --> 00:03:08,720

going to be thrown at you right and you

96

00:03:13,509 --> 00:03:10,400

would know that yeah more than anyone

97

00:03:16,229 --> 00:03:13,519

here right um so also just

98

00:03:18,390 --> 00:03:16,239

briefly just describe for me what um

99

00:03:19,670 --> 00:03:18,400

what's your involvement in

100

00:03:21,830 --> 00:03:19,680

coming up with the you know the

101
00:03:23,589 --> 00:03:21,840
procedure for their spacewalk it's

102
00:03:25,430 --> 00:03:23,599
actually been kind of fun for me uh just

103
00:03:27,509 --> 00:03:25,440
like you said last year i was up in

104
00:03:29,030 --> 00:03:27,519
space and doing my things and plans and

105
00:03:31,110 --> 00:03:29,040
procedures would would arrive

106
00:03:32,949 --> 00:03:31,120
electronically and we'd read them and

107
00:03:35,430 --> 00:03:32,959
and and be ready to go

108
00:03:37,030 --> 00:03:35,440
now being part of the peop the team of

109
00:03:38,470 --> 00:03:37,040
folks that are putting all those plans

110
00:03:41,110 --> 00:03:38,480
and procedures together it's kind of

111
00:03:43,830 --> 00:03:41,120
kind of neat and there's a a large kind

112
00:03:45,670 --> 00:03:43,840
of army of folks here in uh right here

113
00:03:47,270 --> 00:03:45,680

in this building building 30

114

00:03:48,710 --> 00:03:47,280

putting all that together i'm

115

00:03:50,390 --> 00:03:48,720

representing the crew office and the

116

00:03:51,990 --> 00:03:50,400

spacewalk more specifically the

117

00:03:55,270 --> 00:03:52,000

spacewalk

118

00:03:57,190 --> 00:03:55,280

branch uh as we kind of figure out all

119

00:03:59,990 --> 00:03:57,200

the nuances of what is needed to go

120

00:04:02,390 --> 00:04:00,000

outside right and i understand even um

121

00:04:04,550 --> 00:04:02,400

in in just coming up with how you would

122

00:04:06,710 --> 00:04:04,560

go about and do that do the the space

123

00:04:08,710 --> 00:04:06,720

walk you actually do perform it um under

124

00:04:11,429 --> 00:04:08,720

the water at the mbl in fact you have a

125

00:04:13,750 --> 00:04:11,439

run scheduled for friday on friday so

126

00:04:15,750 --> 00:04:13,760

we'll uh we'll be doing the same the

127

00:04:17,909 --> 00:04:15,760

same job and and uh going through some

128

00:04:19,590 --> 00:04:17,919

of the contingencies the what-ifs and we

129

00:04:22,069 --> 00:04:19,600

call it the crib sheet you know which is

130

00:04:23,510 --> 00:04:22,079

basically the answer to any uh and all

131

00:04:24,870 --> 00:04:23,520

problems that we can think of and of

132

00:04:26,310 --> 00:04:24,880

course we can't possibly think of

133

00:04:28,469 --> 00:04:26,320

everything but

134

00:04:30,870 --> 00:04:28,479

as much as best we can we have all those

135

00:04:33,030 --> 00:04:30,880

answers in our hip pockets so as they

136

00:04:35,110 --> 00:04:33,040

get thrown at us on the game day

137

00:04:37,749 --> 00:04:35,120

we can uh give the crew a quick answer

138

00:04:39,749 --> 00:04:37,759

yeah very good okay and so from a crew

139

00:04:42,150 --> 00:04:39,759

member's point of view

140

00:04:44,870 --> 00:04:42,160

explain to me what that's like to get

141

00:04:46,629 --> 00:04:44,880

that okay you got to get out and do a

142

00:04:48,230 --> 00:04:46,639

contingency spacewalk because that's

143

00:04:50,230 --> 00:04:48,240

obviously an interruption in what your

144

00:04:54,710 --> 00:04:50,240

normal timeline right well to be quite

145

00:04:57,110 --> 00:04:54,720

honest it's exciting uh it's a spacewalk

146

00:04:59,189 --> 00:04:57,120

is a highlight of of most crew members

147

00:05:01,430 --> 00:04:59,199

if they get the chance to get a chance

148

00:05:02,230 --> 00:05:01,440

to do them and uh

149

00:05:03,909 --> 00:05:02,240

and

150

00:05:05,590 --> 00:05:03,919

i was lucky enough to have that happen

151
00:05:08,550 --> 00:05:05,600
to me so uh

152
00:05:10,390 --> 00:05:08,560
i remember very specifically uh we had a

153
00:05:11,670 --> 00:05:10,400
leaky ammonia system that that's there

154
00:05:14,070 --> 00:05:11,680
was a pump that we had to change out

155
00:05:18,150 --> 00:05:14,080
back back uh i guess about this time

156
00:05:22,550 --> 00:05:19,990
with the first one with tom mark tom

157
00:05:24,310 --> 00:05:22,560
marshburn that's when when he and i woke

158
00:05:26,550 --> 00:05:24,320
up one morning and we're told to do a

159
00:05:29,189 --> 00:05:26,560
spacewalk the next day a little bit the

160
00:05:30,950 --> 00:05:29,199
same situation now and there's it's an

161
00:05:32,790 --> 00:05:30,960
exciting feeling there's so much you

162
00:05:33,670 --> 00:05:32,800
have to do and you ha you're very much

163
00:05:35,830 --> 00:05:33,680

all right

164

00:05:37,430 --> 00:05:35,840

you put you have a few minutes of just

165

00:05:39,510 --> 00:05:37,440

your own personal emotions then you get

166

00:05:41,110 --> 00:05:39,520

onto business with all of the work that

167

00:05:42,950 --> 00:05:41,120

has to happen to make it make it so

168

00:05:44,950 --> 00:05:42,960

basically making the spacesuits right

169

00:05:46,390 --> 00:05:44,960

and making the equipment uh

170

00:05:47,909 --> 00:05:46,400

ready to go these guys i mean they've

171

00:05:50,390 --> 00:05:47,919

been working right now and they have the

172

00:05:52,150 --> 00:05:50,400

added task of dealing with uh some of

173

00:05:53,029 --> 00:05:52,160

the suit issues that have been the

174

00:05:54,710 --> 00:05:53,039

problem

175

00:05:56,390 --> 00:05:54,720

for us for the last i guess what nine

176

00:05:58,070 --> 00:05:56,400

months or so since last summer when luke

177

00:06:00,230 --> 00:05:58,080

and i had the water problem or luca luke

178

00:06:01,830 --> 00:06:00,240

had the water problem in his suit sure

179

00:06:03,909 --> 00:06:01,840

so and what are they doing about that

180

00:06:07,350 --> 00:06:03,919

now yeah they're uh

181

00:06:09,110 --> 00:06:07,360

there are three good spacesuits up there

182

00:06:11,510 --> 00:06:09,120

turns out the one that luca was wearing

183

00:06:13,830 --> 00:06:11,520

3011

184

00:06:15,749 --> 00:06:13,840

is the best suit that we have

185

00:06:17,830 --> 00:06:15,759

of those three prior to because it

186

00:06:19,590 --> 00:06:17,840

already had had we call it the fan pump

187

00:06:21,430 --> 00:06:19,600

separator was changed out and all that

188

00:06:23,590 --> 00:06:21,440

work was completed it had some flushing

189

00:06:24,629 --> 00:06:23,600

of the water done so we knew that was

190

00:06:27,350 --> 00:06:24,639

one again

191

00:06:28,469 --> 00:06:27,360

going to be one of the two used the

192

00:06:31,350 --> 00:06:28,479

other two

193

00:06:34,870 --> 00:06:31,360

were sort of both

194

00:06:37,590 --> 00:06:34,880

equally suspect if you will and uh just

195

00:06:38,870 --> 00:06:37,600

recently in the last few days based on

196

00:06:40,230 --> 00:06:38,880

all a lot of meetings and trying to

197

00:06:41,510 --> 00:06:40,240

figure out what's the right answer which

198

00:06:43,029 --> 00:06:41,520

is the right suit

199

00:06:45,830 --> 00:06:43,039

and we've changed out the fan pump

200

00:06:47,430 --> 00:06:45,840

separator in 3005

201
00:06:48,550 --> 00:06:47,440
and those are the two suits that will be

202
00:06:50,390 --> 00:06:48,560
used

203
00:06:52,629 --> 00:06:50,400
uh outside it's so it's a lot of work

204
00:06:54,230 --> 00:06:52,639
you diving into the bowels of that

205
00:06:56,469 --> 00:06:54,240
backpack of the suit and changing out

206
00:06:58,950 --> 00:06:56,479
pieces and parts that suit technicians

207
00:07:01,430 --> 00:06:58,960
do in a lab here in houston with white

208
00:07:04,070 --> 00:07:01,440
outfits and all kinds of special tools

209
00:07:05,670 --> 00:07:04,080
not necessarily made to be done

210
00:07:07,270 --> 00:07:05,680
on board the space station sure yeah

211
00:07:08,790 --> 00:07:07,280
we've been watching a lot of that take

212
00:07:10,309 --> 00:07:08,800
place in fact they're still working on

213
00:07:12,070 --> 00:07:10,319

that today

214

00:07:13,589 --> 00:07:12,080

again thank you so much for coming out

215

00:07:15,189 --> 00:07:13,599

and talking with us

216

00:07:16,790 --> 00:07:15,199

today i think that's about all the time

217

00:07:18,629 --> 00:07:16,800

we have now but we really do appreciate

218

00:07:20,390 --> 00:07:18,639

you coming out and good luck on your run