



1
00:00:05,269 --> 00:00:03,990
we start out our eva at the quest

2
00:00:07,749 --> 00:00:05,279
airlock

3
00:00:10,070 --> 00:00:07,759
jeff will be eb1 he'll be coming out

4
00:00:13,350 --> 00:00:10,080
wearing the red stripes

5
00:00:15,509 --> 00:00:13,360
and kate will hand out an oru bag to him

6
00:00:17,349 --> 00:00:15,519
that contains all the ida tools she'll

7
00:00:19,910 --> 00:00:17,359
egress and then they'll begin their

8
00:00:22,550 --> 00:00:19,920
translation forward out to the very

9
00:00:24,790 --> 00:00:22,560
forward end of the space station to do

10
00:00:26,790 --> 00:00:24,800
their work jeff will translate around

11
00:00:29,269 --> 00:00:26,800
the starboard side of the external

12
00:00:31,029 --> 00:00:29,279
stowage platform number two

13
00:00:33,590 --> 00:00:31,039

he'll wait there just a moment while

14

00:00:36,150 --> 00:00:33,600

kate finishes her initial translation

15

00:00:38,790 --> 00:00:36,160

adaptation and then translates over the

16

00:00:40,389 --> 00:00:38,800

top of the stowage platform out to pick

17

00:00:42,830 --> 00:00:40,399

up her foot restraint which is on the

18

00:00:45,670 --> 00:00:42,840

very forward edge of the

19

00:00:48,709 --> 00:00:45,680

esp2 once she's got that jeff will

20

00:00:51,830 --> 00:00:48,719

translate forward on the lab and that up

21

00:00:54,389 --> 00:00:51,840

over the top of the node 2 and finally

22

00:00:55,750 --> 00:00:54,399

on to the pma2 that's at the very

23

00:00:58,709 --> 00:00:55,760

forward end

24

00:01:01,750 --> 00:00:58,719

of the space station he'll position the

25

00:01:04,950 --> 00:01:01,760

oru bag on a couple of handrails that

26
00:01:06,469 --> 00:01:04,960
are right on the zenith side of the pma

27
00:01:08,710 --> 00:01:06,479
and then open the bag so that they've

28
00:01:10,950 --> 00:01:08,720
got access to their tools and the

29
00:01:12,789 --> 00:01:10,960
equipment

30
00:01:14,630 --> 00:01:12,799
in the meantime kate begins her

31
00:01:16,550 --> 00:01:14,640
translation she's going to translate up

32
00:01:19,350 --> 00:01:16,560
over the top of the lab

33
00:01:22,870 --> 00:01:19,360
and then forward onto the node 2

34
00:01:25,109 --> 00:01:22,880
and finally forward onto the pma2

35
00:01:26,469 --> 00:01:25,119
where she translates down toward the

36
00:01:29,109 --> 00:01:26,479
nader side

37
00:01:32,149 --> 00:01:29,119
and locates the socket where her foot

38
00:01:33,990 --> 00:01:32,159

restraint will go or work site interface

39

00:01:35,990 --> 00:01:34,000

once she has her foot restraint set up

40

00:01:37,109 --> 00:01:36,000

there she'll be able to access the

41

00:01:39,350 --> 00:01:37,119

cables

42

00:01:41,990 --> 00:01:39,360

that were pre-positioned by butch

43

00:01:43,990 --> 00:01:42,000

wilmore on a prior eva they're tied off

44

00:01:45,429 --> 00:01:44,000

to a in a bundle to a couple of

45

00:01:48,389 --> 00:01:45,439

handrails

46

00:01:50,630 --> 00:01:48,399

that are located on the pma

47

00:01:52,789 --> 00:01:50,640

while she's getting set up jeff will

48

00:01:55,350 --> 00:01:52,799

also get his foot restraint and get it

49

00:01:57,990 --> 00:01:55,360

set up it's currently located on the top

50

00:02:00,630 --> 00:01:58,000

of the columbus module he'll retrieve it

51
00:02:05,429 --> 00:02:00,640
from there and then move it down to his

52
00:02:09,190 --> 00:02:05,439
worksite interface on the pma which is

53
00:02:12,070 --> 00:02:09,200
more zenith and a little bit toward port

54
00:02:15,190 --> 00:02:12,080
from there each of them have access to

55
00:02:16,470 --> 00:02:15,200
be able to uh reach their cables

56
00:02:19,110 --> 00:02:16,480
jeff's cables have also been

57
00:02:21,350 --> 00:02:19,120
pre-positioned on a prior eva uh terry

58
00:02:23,190 --> 00:02:21,360
bertz left two bundles of cables there

59
00:02:24,869 --> 00:02:23,200
for him to access

60
00:02:26,710 --> 00:02:24,879
once they get into their foot restraints

61
00:02:28,470 --> 00:02:26,720
they can attach their adjustable

62
00:02:31,589 --> 00:02:28,480
equipment tethers

63
00:02:34,150 --> 00:02:31,599

loosely to the ida

64

00:02:35,830 --> 00:02:34,160

kate has one adjustable tether and in

65

00:02:38,070 --> 00:02:35,840

order to be able to reach between the

66

00:02:39,830 --> 00:02:38,080

handrail and the ida 2

67

00:02:41,589 --> 00:02:39,840

jeff actually has two

68

00:02:43,030 --> 00:02:41,599

tethers in series

69

00:02:45,110 --> 00:02:43,040

when they're in position they'll give

70

00:02:48,790 --> 00:02:45,120

the go to the robotics operator on the

71

00:02:50,390 --> 00:02:48,800

ground to release the ida 2 and back the

72

00:02:52,790 --> 00:02:50,400

dexter arm away

73

00:02:54,550 --> 00:02:52,800

at this point the crew has

74

00:02:56,869 --> 00:02:54,560

complete control of the ida they'll

75

00:02:59,830 --> 00:02:56,879

cinch the tethers down into place and

76

00:03:00,869 --> 00:02:59,840

then they'll begin mating the cables

77

00:03:03,430 --> 00:03:00,879

this is

78

00:03:05,350 --> 00:03:03,440

kate's cable configuration on the nader

79

00:03:07,990 --> 00:03:05,360

side here we see her at the neutral

80

00:03:09,350 --> 00:03:08,000

buoyancy laboratory practicing those

81

00:03:11,509 --> 00:03:09,360

cable mates

82

00:03:13,910 --> 00:03:11,519

and while she's mating her cables on the

83

00:03:16,790 --> 00:03:13,920

nader side jeff is mating his on the

84

00:03:19,030 --> 00:03:16,800

zenith side he has three cables to

85

00:03:20,309 --> 00:03:19,040

initially mate these cables are

86

00:03:23,589 --> 00:03:20,319

providing

87

00:03:26,470 --> 00:03:23,599

heater power to the docking adapter as

88

00:03:28,149 --> 00:03:26,480

well as the hook drive power and the

89

00:03:30,949 --> 00:03:28,159

sensor power

90

00:03:34,149 --> 00:03:30,959

these switches will be commanded by the

91

00:03:36,789 --> 00:03:34,159

internal crew member iv crew member talk

92

00:03:40,390 --> 00:03:36,799

will work at the ida control panel which

93

00:03:43,190 --> 00:03:40,400

is in the node 2 pressurized volume

94

00:03:45,190 --> 00:03:43,200

as he operates the switches it commands

95

00:03:48,229 --> 00:03:45,200

the hooks that are on the docking

96

00:03:50,710 --> 00:03:48,239

adapter to extend out rotate around and

97

00:03:53,030 --> 00:03:50,720

engage the passive hooks that are on the

98

00:03:54,949 --> 00:03:53,040

pressurized mated adapter

99

00:03:56,710 --> 00:03:54,959

there's two sets of hooks and while they

100

00:03:58,710 --> 00:03:56,720

drive the first set of hooks the crew

101
00:04:00,470 --> 00:03:58,720
needs to remain still but during the

102
00:04:03,110 --> 00:04:00,480
second drive it's stable enough that

103
00:04:05,589 --> 00:04:03,120
they can begin work uh installing a

104
00:04:08,710 --> 00:04:05,599
cover on the hemi reflector that's on

105
00:04:10,470 --> 00:04:08,720
the nadir part of the pma2

106
00:04:13,270 --> 00:04:10,480
then they're into their final cable

107
00:04:15,990 --> 00:04:13,280
mates these spinal cable configurations

108
00:04:19,110 --> 00:04:16,000
remove the power from the hooks that

109
00:04:22,550 --> 00:04:19,120
we're driving to engage the pma and

110
00:04:24,310 --> 00:04:22,560
provide visiting vehicle hook power

111
00:04:26,629 --> 00:04:24,320
here you see jeff working in the neutral

112
00:04:29,189 --> 00:04:26,639
buoyancy laboratory he's removing a

113
00:04:31,909 --> 00:04:29,199

couple of jumpers that are required to

114

00:04:34,150 --> 00:04:31,919

do his final cable mating once the

115

00:04:35,749 --> 00:04:34,160

cables are mated they have some

116

00:04:37,670 --> 00:04:35,759

outfitting to do

117

00:04:40,390 --> 00:04:37,680

first they'll be covering up the h

118

00:04:43,830 --> 00:04:40,400

fixture that the dexter robot arm was

119

00:04:46,629 --> 00:04:43,840

holding on to then there is a another

120

00:04:49,749 --> 00:04:46,639

hemi reflector that is on the

121

00:04:51,749 --> 00:04:49,759

pma they'll install a cover over the top

122

00:04:55,189 --> 00:04:51,759

of it and then move the tether that was

123

00:04:57,909 --> 00:04:55,199

holding that cover in place up to

124

00:05:00,870 --> 00:04:57,919

tether to the large protective cover

125

00:05:02,550 --> 00:05:00,880

that's covering the ida ii that was in

126
00:05:03,590 --> 00:05:02,560

place for launch

127
00:05:06,310 --> 00:05:03,600

in

128
00:05:08,150 --> 00:05:06,320

the spacex dragon there are several

129
00:05:11,189 --> 00:05:08,160

straps that they need to work together

130
00:05:12,870 --> 00:05:11,199

to remove it's very similar to the pma

131
00:05:15,430 --> 00:05:12,880

covers that we've been installing and

132
00:05:17,830 --> 00:05:15,440

removing in the past here you see kate

133
00:05:20,070 --> 00:05:17,840

working in the nbl to remove

134
00:05:21,110 --> 00:05:20,080

the straps from the handrails holding it

135
00:05:23,189 --> 00:05:21,120

in place

136
00:05:26,950 --> 00:05:23,199

the two of them need to work together to

137
00:05:29,430 --> 00:05:26,960

stuff that cover into the oru bag

138
00:05:33,350 --> 00:05:29,440

at that point they can install the two

139

00:05:35,110 --> 00:05:33,360

hemi reflectors onto the docking adapter

140

00:05:37,830 --> 00:05:35,120

and then the final thing that they need

141

00:05:40,950 --> 00:05:37,840

to do is made up the visiting vehicle

142

00:05:42,870 --> 00:05:40,960

power it's one final cable configuration

143

00:05:43,830 --> 00:05:42,880

that needs to be made

144

00:05:46,230 --> 00:05:43,840

jeff

145

00:05:48,629 --> 00:05:46,240

will complete that mating and at this

146

00:05:52,150 --> 00:05:48,639

point that docking adapter is ready to

147

00:05:53,990 --> 00:05:52,160

receive our new crew vehicles

148

00:05:55,990 --> 00:05:54,000

the crew can pack up and clean up this

149

00:05:59,430 --> 00:05:56,000

work site kate will pick up her foot

150

00:06:00,870 --> 00:05:59,440

restraint and return it to the esp2 from

151
00:06:04,230 --> 00:06:00,880
once it came

152
00:06:06,790 --> 00:06:04,240
jeff has to pack up the oru bag and also

153
00:06:09,110 --> 00:06:06,800
return his foot restraint

154
00:06:11,350 --> 00:06:09,120
his foot restraint goes back

155
00:06:13,749 --> 00:06:11,360
from where it's located where he's been

156
00:06:16,710 --> 00:06:13,759
using it on the pma he'll take it back

157
00:06:19,510 --> 00:06:16,720
up to the top of the columbus module

158
00:06:22,070 --> 00:06:19,520
it'll be staged there in place for the

159
00:06:25,430 --> 00:06:22,080
ida 3 installation that will be

160
00:06:27,350 --> 00:06:25,440
happening in late 2017.

161
00:06:30,390 --> 00:06:27,360
they return the oru bag back to the

162
00:06:33,270 --> 00:06:30,400
airlock and then go out kate will go out

163
00:06:36,950 --> 00:06:33,280

to the lab nader to a bag that's already

164

00:06:38,870 --> 00:06:36,960

there and route the cable for ida 3 we

165

00:06:40,870 --> 00:06:38,880

call it the white green cable because we

166

00:06:42,950 --> 00:06:40,880

put some tape marks on it in white and

167

00:06:45,590 --> 00:06:42,960

green to indicate which one it is she

168

00:06:47,749 --> 00:06:45,600

routes it forward to the node 2 where

169

00:06:49,350 --> 00:06:47,759

it's in position for the ida 3

170

00:06:51,749 --> 00:06:49,360

installation

171

00:06:55,990 --> 00:06:51,759

jeff has some work to do back

172

00:06:58,870 --> 00:06:56,000

in the area where the z1 the node 1 the

173

00:07:00,629 --> 00:06:58,880

node 3 and the lab all come together we

174

00:07:01,990 --> 00:07:00,639

refer to this area as the rats nest

175

00:07:03,270 --> 00:07:02,000

because of all of the cables and

176
00:07:06,629 --> 00:07:03,280
electrical

177
00:07:09,110 --> 00:07:06,639
route through that area

178
00:07:12,950 --> 00:07:09,120
he'll pick up the cable bundle that was

179
00:07:14,870 --> 00:07:12,960
left in position at the end of eva 35

180
00:07:17,749 --> 00:07:14,880
you'll make a couple of connections down

181
00:07:19,029 --> 00:07:17,759
on the node 2 and then route that cable

182
00:07:20,950 --> 00:07:19,039
across

183
00:07:23,670 --> 00:07:20,960
the z1 tray

184
00:07:25,589 --> 00:07:23,680
over to the starboard side of that tray

185
00:07:27,749 --> 00:07:25,599
and then leave it in position there

186
00:07:30,469 --> 00:07:27,759
where it will be ready for its final

187
00:07:33,350 --> 00:07:30,479
routing on a future eva the last

188
00:07:36,309 --> 00:07:33,360

scheduled task for this spacewalk will

189

00:07:38,070 --> 00:07:36,319

be to remove a couple of caps from some

190

00:07:39,909 --> 00:07:38,080

connectors that are located just

191

00:07:41,830 --> 00:07:39,919

underneath the z1

192

00:07:43,430 --> 00:07:41,840

on the outside of the

193

00:07:45,029 --> 00:07:43,440

node one

194

00:07:47,270 --> 00:07:45,039

at that point the crew will return to

195

00:07:49,510 --> 00:07:47,280

the airlock and ingress

196

00:07:51,110 --> 00:07:49,520

if we've been particularly

197

00:07:53,350 --> 00:07:51,120

lucky and efficient throughout the day

198

00:07:54,790 --> 00:07:53,360

and the hardware cooperates rather than

199

00:07:57,350 --> 00:07:54,800

ingressing the airlock we've got a

200

00:07:59,990 --> 00:07:57,360

couple of get ahead tasks that we can do

201
00:08:02,629 --> 00:08:00,000
one of them is to configure the port

202
00:08:04,950 --> 00:08:02,639
cedar cart we'll tie down the brake

203
00:08:07,670 --> 00:08:04,960
handles to keep them out of the way for

204
00:08:09,749 --> 00:08:07,680
long-term operations on station and then

205
00:08:12,710 --> 00:08:09,759
we also want to get some photos of the

206
00:08:14,469 --> 00:08:12,720
alpha magnetic spectrometer from the

207
00:08:16,790 --> 00:08:14,479
windows and from all the cameras on

208
00:08:19,430 --> 00:08:16,800
space station we cannot see the outboard

209
00:08:21,909 --> 00:08:19,440
side of the ams we'd like to get some

210
00:08:22,950 --> 00:08:21,919
photos of that area see how it's doing

211
00:08:24,710 --> 00:08:22,960
so

212
00:08:25,990 --> 00:08:24,720
they can get those photos from the top

213
00:08:27,909 --> 00:08:26,000

of the