

U.S. Spacewalk 84



1
00:00:01,935 --> 00:00:05,004
>> U.S. EVA-84 starts

2
00:00:05,004 --> 00:00:07,974
with EV-1, Koichi Wakata,

3
00:00:07,974 --> 00:00:09,109
with the red stripes

4
00:00:09,109 --> 00:00:10,143
on his suit

5
00:00:10,143 --> 00:00:13,046
coming out the hatch first.

6
00:00:13,046 --> 00:00:14,748
EV-2, Nicole Mann

7
00:00:14,748 --> 00:00:16,850
will be handing out a bag

8
00:00:16,850 --> 00:00:19,152
that has cables in it

9
00:00:19,152 --> 00:00:21,454
and a large bag that has

10
00:00:21,454 --> 00:00:25,692
the mod kit struts in it.

11
00:00:25,692 --> 00:00:27,927
Koichi will put the cable bag

12
00:00:27,927 --> 00:00:30,697
onto his body restraint tether

13
00:00:30,697 --> 00:00:32,098

and be prepared to hand

14

00:00:32,098 --> 00:00:34,534

the strut bag to Nicole

15

00:00:34,534 --> 00:00:37,370

as she comes out of the hatch.

16

00:00:37,370 --> 00:00:39,539

Once they're in position,

17

00:00:39,539 --> 00:00:40,573

Koichi will start

18

00:00:40,573 --> 00:00:41,908

his translation up

19

00:00:41,908 --> 00:00:43,877

the CETA spur to get to

20

00:00:43,877 --> 00:00:44,978

the front face of the

21

00:00:44,978 --> 00:00:46,446

International Space Station

22

00:00:46,446 --> 00:00:48,114

to start his translation

23

00:00:48,114 --> 00:00:51,518

out toward the starboard part.

24

00:00:51,518 --> 00:00:52,952

He'll stop and attach

25

00:00:52,952 --> 00:00:54,587

his safety tether

26

00:00:54,587 --> 00:00:56,156
and Nicole's safety tether

27

00:00:56,156 --> 00:00:57,690
as their anchor point

28

00:00:57,690 --> 00:00:59,893
and then continue on

29

00:00:59,893 --> 00:01:02,495
out the starboard truss.

30

00:01:02,495 --> 00:01:05,565
Along the way, Koichi will stop

31

00:01:05,565 --> 00:01:09,836
and drop off his cable bag.

32

00:01:09,836 --> 00:01:11,838
Once that's in position,

33

00:01:11,838 --> 00:01:12,705
he'll continue

34

00:01:12,705 --> 00:01:14,641
translating starboard.

35

00:01:20,447 --> 00:01:22,482
As he moves along the truss,

36

00:01:22,482 --> 00:01:24,117
he'll stop and he'll put down

37

00:01:24,117 --> 00:01:25,318
what we call a green hook,

38

00:01:25,318 --> 00:01:26,519

which allows him to go

39

00:01:26,519 --> 00:01:29,589

the rest of the way.

40

00:01:29,589 --> 00:01:30,557

Nicole will close

41

00:01:30,557 --> 00:01:31,825

the thermal cover.

42

00:01:31,825 --> 00:01:34,727

She'll have the MMOD strut bag

43

00:01:34,727 --> 00:01:36,296

on her body restraint tether

44

00:01:36,296 --> 00:01:37,697

and follow the same path

45

00:01:37,697 --> 00:01:39,332

that Koichi did.

46

00:01:45,171 --> 00:01:46,272

Nicole Mann will follow

47

00:01:46,272 --> 00:01:48,107

Koichi's translation path

48

00:01:48,107 --> 00:01:50,076

as she gets to the Solar Ray

49

00:01:50,076 --> 00:01:51,911

Alpha Rotary Joint

50

00:01:51,911 --> 00:01:54,481

and gets to the 1A worksite.

51
00:01:54,481 --> 00:01:56,649
She'll stow the strut bag

52
00:01:56,649 --> 00:01:59,519
and restrain it in position.

53
00:01:59,519 --> 00:02:00,920
Once that's done,

54
00:02:00,920 --> 00:02:02,689
she'll make her way back

55
00:02:02,689 --> 00:02:04,324
to the crew and equipment

56
00:02:04,324 --> 00:02:06,392
translation aid attached to

57
00:02:06,392 --> 00:02:09,128
the mobile transporter

58
00:02:09,128 --> 00:02:11,598
and retrieve the articulating

59
00:02:11,598 --> 00:02:13,600
portable foot restraint

60
00:02:13,600 --> 00:02:17,804
with an extender.

61
00:02:17,804 --> 00:02:19,038
Once she has that to her

62
00:02:19,038 --> 00:02:20,540
body restraint tether,

63
00:02:20,540 --> 00:02:22,575

she'll make her way outboard

64

00:02:22,575 --> 00:02:24,077

towards the starboard end

65

00:02:24,077 --> 00:02:25,845

and her worksite at the

66

00:02:25,845 --> 00:02:30,416

1 Alpha Beta Gimbal Assembly.

67

00:02:30,416 --> 00:02:31,184

She'll install this

68

00:02:31,184 --> 00:02:32,252

foot restraint

69

00:02:32,252 --> 00:02:33,753

and position it for the work

70

00:02:33,753 --> 00:02:38,024

she's going to do shortly.

71

00:02:38,024 --> 00:02:40,226

Nicole will collect

72

00:02:40,226 --> 00:02:41,394

part of what we refer to

73

00:02:41,394 --> 00:02:43,396

as the upper triangle

74

00:02:43,396 --> 00:02:46,132

which is sections of truss

75

00:02:46,132 --> 00:02:47,333

that are part

76

00:02:47,333 --> 00:02:51,704
of the mod kit assembly.

77

00:02:51,704 --> 00:02:53,039
This will become

78

00:02:53,039 --> 00:02:54,073
the beginning--

79

00:02:54,073 --> 00:02:57,911
backbone of the entire mod kit.

80

00:02:57,911 --> 00:02:59,412
The struts are put into position

81

00:02:59,412 --> 00:03:02,615
and bolted together.

82

00:03:02,615 --> 00:03:04,551
While Nicole is working on that,

83

00:03:04,551 --> 00:03:07,854
Koichi heads out to the 1B

84

00:03:07,854 --> 00:03:09,656
Beta Gimbal Assembly

85

00:03:09,656 --> 00:03:12,492
and tightens two collar bolts

86

00:03:12,492 --> 00:03:13,826
on the right-hand side

87

00:03:13,826 --> 00:03:15,428
and left-hand side

88

00:03:15,428 --> 00:03:19,032

of the 1 Bravo mod kit.

89

00:03:19,032 --> 00:03:20,166

Koichi will translate

90

00:03:20,166 --> 00:03:23,369

back inboard and join Nicole

91

00:03:23,369 --> 00:03:26,573

at the 1A worksite.

92

00:03:26,573 --> 00:03:29,142

Nicole will translate over

93

00:03:29,142 --> 00:03:29,976

to the articulating

94

00:03:29,976 --> 00:03:31,578

portable foot restraint

95

00:03:31,578 --> 00:03:33,746

and ingress.

96

00:03:33,746 --> 00:03:35,315

Koichi positions

97

00:03:35,315 --> 00:03:36,816

the upper triangle

98

00:03:36,816 --> 00:03:41,754

and hands that up to Nicole.

99

00:03:41,754 --> 00:03:43,423

Nicole takes the upper triangle

100

00:03:43,423 --> 00:03:44,557

and drives four bolts

101
00:03:44,557 --> 00:03:45,825
to attach it

102
00:03:45,825 --> 00:03:49,062
to the Beta Gimbal Assembly.

103
00:03:49,062 --> 00:03:53,366
Koichi hands up the lower strut

104
00:03:53,366 --> 00:03:55,201
and the mid strut,

105
00:03:55,201 --> 00:03:56,269
and then translates

106
00:03:56,269 --> 00:03:57,203
to get into position

107
00:03:57,203 --> 00:03:58,838
to install them.

108
00:03:58,838 --> 00:04:04,510
[music]

109
00:04:04,510 --> 00:04:06,245
Both crew members work together

110
00:04:06,245 --> 00:04:07,647
to drive the bolts

111
00:04:07,647 --> 00:04:09,716
on the right lower strut

112
00:04:09,716 --> 00:04:11,451
and secure it in place.

113
00:04:13,286 --> 00:04:19,726

[music]

114

00:04:19,726 --> 00:04:20,860

Once the lower strut's

115

00:04:20,860 --> 00:04:24,697

installed, Koichi repositions

116

00:04:24,697 --> 00:04:26,332

to install the mid strut.

117

00:04:28,935 --> 00:04:29,869

Again, the two crew members

118

00:04:29,869 --> 00:04:31,004

work together

119

00:04:31,004 --> 00:04:32,405

to get the right mid strut

120

00:04:32,405 --> 00:04:33,573

in place

121

00:04:33,573 --> 00:04:34,774

and drive the bolts

122

00:04:34,774 --> 00:04:36,409

which hold it.

123

00:04:42,015 --> 00:04:43,116

Once the right struts

124

00:04:43,116 --> 00:04:44,817

are in place, Koichi goes back

125

00:04:44,817 --> 00:04:46,019

to the strut bag

126
00:04:46,019 --> 00:04:49,555
and hands up the mid strut

127
00:04:49,555 --> 00:04:52,091
and the lower strut

128
00:04:52,091 --> 00:04:53,359
to Nicole.

129
00:04:55,695 --> 00:05:03,236
[music]

130
00:05:03,236 --> 00:05:04,203
Nicole ingresses

131
00:05:04,203 --> 00:05:06,039
the foot restraint.

132
00:05:09,876 --> 00:05:10,743
And the two crew members

133
00:05:10,743 --> 00:05:12,278
work together to install

134
00:05:12,278 --> 00:05:13,913
the left-hand lower strut.

135
00:05:20,420 --> 00:05:22,555
Once that's in place,

136
00:05:22,555 --> 00:05:24,791
they work together yet again

137
00:05:24,791 --> 00:05:26,959
to install the mid strut.

138
00:05:32,331 --> 00:05:33,299

Once all the struts

139

00:05:33,299 --> 00:05:35,201
have been put in place,

140

00:05:35,201 --> 00:05:36,069
they drive the final

141

00:05:36,069 --> 00:05:37,637
collar bolts, which rigidize

142

00:05:37,637 --> 00:05:40,106
the whole system, in place.

143

00:05:42,575 --> 00:05:44,343
They put the multi-layer

144

00:05:44,343 --> 00:05:45,812
insulation back in place

145

00:05:45,812 --> 00:05:46,746
to cover up all of

146

00:05:46,746 --> 00:05:50,516
the metal components.

147

00:05:52,151 --> 00:05:59,092
[music]

148

00:05:59,092 --> 00:06:00,426
Koichi translates over

149

00:06:00,426 --> 00:06:05,031
to the right-hand mid strut

150

00:06:05,031 --> 00:06:06,399
and does the same collar bolts

151
00:06:06,399 --> 00:06:08,101
on that side.

152
00:06:12,271 --> 00:06:13,072
Once the collar bolts

153
00:06:13,072 --> 00:06:15,641
have been driven in place,

154
00:06:15,641 --> 00:06:17,009
Nicole can egress

155
00:06:17,009 --> 00:06:18,377
the foot restraint

156
00:06:18,377 --> 00:06:20,379
and start routing

157
00:06:20,379 --> 00:06:22,014
the iROSA cables.

158
00:06:28,621 --> 00:06:30,590
These cables will be installed

159
00:06:30,590 --> 00:06:33,292
once the iROSA flies up

160
00:06:33,292 --> 00:06:35,294
the summer of 2023.

161
00:06:38,331 --> 00:06:40,399
Koichi then routes the cables

162
00:06:40,399 --> 00:06:42,902
on the right-hand side,

163
00:06:42,902 --> 00:06:43,803

and that completes

164

00:06:43,803 --> 00:06:44,837

the installation

165

00:06:44,837 --> 00:06:48,274

of the mod kit.

166

00:06:48,274 --> 00:06:49,275

Crew will then

167

00:06:49,275 --> 00:06:51,811

translate back

168

00:06:51,811 --> 00:06:53,479

and stow the articulating

169

00:06:53,479 --> 00:06:55,448

portable foot restraint...

170

00:06:57,083 --> 00:07:02,455

[music]

171

00:07:02,455 --> 00:07:04,257

...and return the strut bag

172

00:07:04,257 --> 00:07:05,792

to the airlock.

173

00:07:05,792 --> 00:07:06,893

In the meantime,

174

00:07:06,893 --> 00:07:09,228

Nicole picks up a cable,

175

00:07:09,228 --> 00:07:12,532

which is part of the DC to DC

176
00:07:12,532 --> 00:07:15,334
converter unit jumper.

177
00:07:15,334 --> 00:07:16,569
She'll install a cable

178
00:07:16,569 --> 00:07:18,271
at two different locations

179
00:07:18,271 --> 00:07:21,407
on the strut

180
00:07:21,407 --> 00:07:22,875
and then make her way back

181
00:07:22,875 --> 00:07:24,644
to the airlock.

182
00:07:26,312 --> 00:07:31,717
[music]

183
00:07:31,717 --> 00:07:32,852
Both crew members

184
00:07:32,852 --> 00:07:34,987
will meet back at the airlock...

185
00:07:38,658 --> 00:07:42,028
...open up the thermal cover.

186
00:07:42,028 --> 00:07:43,362
They'll stow the bags

187
00:07:43,362 --> 00:07:44,130
that they've taken out

188
00:07:44,130 --> 00:07:46,799

with them into the airlock.

189

00:07:50,736 --> 00:07:55,041

Nicole will lead back inside,

190

00:07:55,041 --> 00:07:58,044

and Koichi will follow.

191

00:07:58,044 --> 00:08:00,379

They'll close the thermal cover,