
PAO

1
00:00:04,710 --> 00:00:03,189
hi welcome to the space station flight

2
00:00:06,470 --> 00:00:04,720
control room where we have melanie

3
00:00:08,549 --> 00:00:06,480
miller who is the robotics officer who's

4
00:00:10,950 --> 00:00:08,559
going to be overseeing the birthing of

5
00:00:13,910 --> 00:00:10,960
the cygnus cargo craft tomorrow thanks

6
00:00:15,110 --> 00:00:13,920
so much for joining us mellie melanie

7
00:00:17,349 --> 00:00:15,120
thank you

8
00:00:19,750 --> 00:00:17,359
well so i i guess the crew gets a lot of

9
00:00:21,269 --> 00:00:19,760
the glory with the uh the arrival of a

10
00:00:23,189 --> 00:00:21,279
cargo vehicle but y'all actually do a

11
00:00:24,550 --> 00:00:23,199
lot of the work here on the ground can

12
00:00:27,029 --> 00:00:24,560
you kind of go over the division of

13
00:00:30,230 --> 00:00:27,039

labor there and what your job is

14
00:00:31,429 --> 00:00:30,240
i'm a robotics officer so i sit here in

15
00:00:34,229 --> 00:00:31,439
picker one

16
00:00:36,229 --> 00:00:34,239
and i do the setup for the crew we do

17
00:00:37,670 --> 00:00:36,239
training for the crew before

18
00:00:38,950 --> 00:00:37,680
the operation

19
00:00:40,869 --> 00:00:38,960
and then

20
00:00:43,110 --> 00:00:40,879
after they have done the capture we go

21
00:00:45,590 --> 00:00:43,120
ahead and move cygnus

22
00:00:47,750 --> 00:00:45,600
into an install configuration and get it

23
00:00:49,510 --> 00:00:47,760
set up for the crew to do the bolting to

24
00:00:52,389 --> 00:00:49,520
bolt it to station

25
00:00:54,310 --> 00:00:52,399
okay so why why is it divided like that

26
00:00:56,470 --> 00:00:54,320
why not have the crew do all of it

27
00:00:59,189 --> 00:00:56,480
we try to do as much as we can from the

28
00:01:01,830 --> 00:00:59,199
ground so that the crew has time to do

29
00:01:05,109 --> 00:01:01,840
experiments and science

30
00:01:08,310 --> 00:01:05,119
we want to maximize that

31
00:01:10,550 --> 00:01:08,320
as much as we can so while we are doing

32
00:01:13,750 --> 00:01:10,560
the install tomorrow the crew is going

33
00:01:15,830 --> 00:01:13,760
to be doing some preparation on robonaut

34
00:01:18,310 --> 00:01:15,840
to give robonaut some legs and refurb

35
00:01:19,350 --> 00:01:18,320
robonaut that's exciting so good use of

36
00:01:20,390 --> 00:01:19,360
their time

37
00:01:21,590 --> 00:01:20,400
that's right

38
00:01:23,190 --> 00:01:21,600

well um

39
00:01:24,630 --> 00:01:23,200
they've been training on and off for

40
00:01:26,310 --> 00:01:24,640
this for days do you all do something

41
00:01:27,749 --> 00:01:26,320
similar here on the ground do you have

42
00:01:30,230 --> 00:01:27,759
training to do as well

43
00:01:32,149 --> 00:01:30,240
yes we do um actually

44
00:01:35,270 --> 00:01:32,159
there's a long process to get certified

45
00:01:37,749 --> 00:01:35,280
to be a robotics flight controller

46
00:01:39,429 --> 00:01:37,759
it takes you know about a year in to get

47
00:01:40,789 --> 00:01:39,439
certified to do the first position in

48
00:01:41,830 --> 00:01:40,799
our back room

49
00:01:43,510 --> 00:01:41,840
and

50
00:01:45,030 --> 00:01:43,520
it takes about three to five years

51
00:01:47,590 --> 00:01:45,040
before you get certified to do the front

52
00:01:49,910 --> 00:01:47,600
room position so there's a long training

53
00:01:52,230 --> 00:01:49,920
process and that's generic training

54
00:01:54,069 --> 00:01:52,240
and then we also have specific training

55
00:01:55,590 --> 00:01:54,079
where we do simulations with the rest of

56
00:01:56,950 --> 00:01:55,600
the team here

57
00:01:58,630 --> 00:01:56,960
and

58
00:02:00,469 --> 00:01:58,640
we fly through the procedures in our

59
00:02:02,149 --> 00:02:00,479
simulators as well to

60
00:02:05,030 --> 00:02:02,159
both to make sure the procedures are

61
00:02:06,709 --> 00:02:05,040
good and also to refresh our memory of

62
00:02:08,550 --> 00:02:06,719
exactly what all the maneuvers are going

63
00:02:11,110 --> 00:02:08,560

to look like and what cameras provide

64
00:02:13,270 --> 00:02:11,120
the best views of what we're doing

65
00:02:15,990 --> 00:02:13,280
so that's all part of prep how long have

66
00:02:19,510 --> 00:02:16,000
you been doing this job

67
00:02:21,430 --> 00:02:19,520
uh wow uh since 2001

68
00:02:23,510 --> 00:02:21,440
so 13 years

69
00:02:25,670 --> 00:02:23,520
probably done a few of these by now yes

70
00:02:27,589 --> 00:02:25,680
i have does it get routine at all or is

71
00:02:29,990 --> 00:02:27,599
it something new every time

72
00:02:31,670 --> 00:02:30,000
there is some routine to it but when i

73
00:02:34,229 --> 00:02:31,680
first started in robotics we were

74
00:02:36,390 --> 00:02:34,239
assembling space station so

75
00:02:38,390 --> 00:02:36,400
it has definitely evolved

76
00:02:39,910 --> 00:02:38,400
the tasks that we've been doing you know

77
00:02:42,550 --> 00:02:39,920
when we first started we were taking

78
00:02:44,790 --> 00:02:42,560
modules out of

79
00:02:46,949 --> 00:02:44,800
shuttle and installing them

80
00:02:48,470 --> 00:02:46,959
and now we are capturing visiting

81
00:02:50,550 --> 00:02:48,480
vehicles which we didn't do too many

82
00:02:52,470 --> 00:02:50,560
captures during shuttle time frame it

83
00:02:53,990 --> 00:02:52,480
docked on its own

84
00:02:55,430 --> 00:02:54,000
the other big change is we're doing a

85
00:02:58,390 --> 00:02:55,440
lot more maintenance

86
00:03:00,949 --> 00:02:58,400
with spdm robot that we have

87
00:03:02,470 --> 00:03:00,959
that's the dexter robotic manipulator i

88
00:03:04,949 --> 00:03:02,480

think on the we use on the end of the

89
00:03:07,430 --> 00:03:04,959
robot robotic arm normally right that's

90
00:03:09,589 --> 00:03:07,440
correct so um

91
00:03:11,430 --> 00:03:09,599
everything has evolved now that station

92
00:03:14,149 --> 00:03:11,440
is assembly complete into different

93
00:03:16,710 --> 00:03:14,159
operations and it is pretty different

94
00:03:18,710 --> 00:03:16,720
every week as far as what we're doing

95
00:03:21,350 --> 00:03:18,720
that week whether we're

96
00:03:23,030 --> 00:03:21,360
changing out a failed rpcm or we're

97
00:03:25,190 --> 00:03:23,040
capturing a visiting vehicle or

98
00:03:27,589 --> 00:03:25,200
unloading new payloads

99
00:03:28,710 --> 00:03:27,599
so it's always something different

100
00:03:30,229 --> 00:03:28,720
i guess you probably usually have

101
00:03:32,070 --> 00:03:30,239
something new to train for every week

102
00:03:33,430 --> 00:03:32,080
then is there much left to do for you

103
00:03:35,270 --> 00:03:33,440
now before the

104
00:03:37,830 --> 00:03:35,280
cygnus arrives

105
00:03:39,830 --> 00:03:37,840
i personally am about finished i have

106
00:03:42,309 --> 00:03:39,840
one task to do before i can leave today

107
00:03:44,949 --> 00:03:42,319
and then i come in at about 2 am

108
00:03:46,470 --> 00:03:44,959
to get ready for capture but there is a

109
00:03:48,949 --> 00:03:46,480
shift overnight

110
00:03:50,390 --> 00:03:48,959
um at the roboconsole and they have

111
00:03:52,470 --> 00:03:50,400
quite a bit of work to do we have a

112
00:03:55,990 --> 00:03:52,480
to-do list for them

113
00:03:57,509 --> 00:03:56,000

they are going to be surveying the port

114
00:04:00,390 --> 00:03:57,519
that we're going to stick cygnus to to

115
00:04:01,910 --> 00:04:00,400
make sure there's no debris there and

116
00:04:03,830 --> 00:04:01,920
there then they're going to maneuver the

117
00:04:07,190 --> 00:04:03,840
arm to a hover position

118
00:04:09,429 --> 00:04:07,200
that hover position is

119
00:04:11,750 --> 00:04:09,439
should be aligned to cygnus when it

120
00:04:13,429 --> 00:04:11,760
arrives we've pre-designed that so the

121
00:04:15,589 --> 00:04:13,439
crew should be able to just fly right in

122
00:04:18,229 --> 00:04:15,599
and capture i think we're seeing some uh

123
00:04:20,229 --> 00:04:18,239
animation of that now

124
00:04:21,509 --> 00:04:20,239
and they're the other thing that they're

125
00:04:23,670 --> 00:04:21,519
doing is they're setting everything up

126
00:04:25,189 --> 00:04:23,680
for the crew so that like i said we want

127
00:04:27,830 --> 00:04:25,199
the crew to have

128
00:04:29,909 --> 00:04:27,840
the most time to do science so we're

129
00:04:32,550 --> 00:04:29,919
going to go ahead and set up all the

130
00:04:34,950 --> 00:04:32,560
video for them the cameras and do all

131
00:04:37,670 --> 00:04:34,960
the prep to have the workstation set up

132
00:04:39,590 --> 00:04:37,680
so that all they have to do is come on

133
00:04:41,030 --> 00:04:39,600
and do a few steps to make sure they

134
00:04:43,110 --> 00:04:41,040
like what they see

135
00:04:45,350 --> 00:04:43,120
and then they can be ready for capture

136
00:04:46,870 --> 00:04:45,360
okay sounds like a lot goes into the

137
00:04:48,550 --> 00:04:46,880
actual capture

138
00:04:50,790 --> 00:04:48,560

can you tell me is it fun what does it

139
00:04:51,990 --> 00:04:50,800
feel like to to fly a robot in space

140
00:04:53,510 --> 00:04:52,000
basically

141
00:04:55,510 --> 00:04:53,520
when we're actually flying the robot

142
00:04:57,830 --> 00:04:55,520
we're pretty focused just like you would

143
00:04:59,110 --> 00:04:57,840
be if you were flying a plane or driving

144
00:05:00,469 --> 00:04:59,120
a car

145
00:05:02,230 --> 00:05:00,479
to make sure we're doing everything

146
00:05:03,830 --> 00:05:02,240
right and we're responding correctly to

147
00:05:04,710 --> 00:05:03,840
everything we're seeing

148
00:05:06,390 --> 00:05:04,720
so

149
00:05:08,070 --> 00:05:06,400
it can be kind of intense from that

150
00:05:10,310 --> 00:05:08,080
perspective

151
00:05:12,150 --> 00:05:10,320
it's more after you're done with uh

152
00:05:15,189 --> 00:05:12,160
accomplishing something that you can

153
00:05:17,029 --> 00:05:15,199
kind of celebrate and think wow i flew

154
00:05:18,469 --> 00:05:17,039
a robot in space

155
00:05:20,710 --> 00:05:18,479
and um

156
00:05:22,310 --> 00:05:20,720
accomplished that mission so very cool

157
00:05:24,710 --> 00:05:22,320
is there anything you can compare it to

158
00:05:26,790 --> 00:05:24,720
for the people here on the ground is it

159
00:05:28,550 --> 00:05:26,800
similar to a video game or is it

160
00:05:30,710 --> 00:05:28,560
something completely different

161
00:05:32,469 --> 00:05:30,720
it's a it's a little bit like a video

162
00:05:35,110 --> 00:05:32,479
game but i would describe it more like

163
00:05:35,990 --> 00:05:35,120

driving a car in close proximity to

164
00:05:37,749 --> 00:05:36,000
other

165
00:05:40,950 --> 00:05:37,759
things where you're using your mirrors

166
00:05:42,790 --> 00:05:40,960
in our case we only we have cameras so

167
00:05:44,469 --> 00:05:42,800
it would be like driving a car with a

168
00:05:45,350 --> 00:05:44,479
bunch of cameras and trying to figure

169
00:05:47,749 --> 00:05:45,360
out

170
00:05:49,510 --> 00:05:47,759
uh how to parallel park it or

171
00:05:51,510 --> 00:05:49,520
park it into a garage full of other

172
00:05:53,189 --> 00:05:51,520
items so that you don't hit anything so

173
00:05:55,189 --> 00:05:53,199
that's that's the most

174
00:05:57,430 --> 00:05:55,199
uh similar event on the ground i think

175
00:05:58,790 --> 00:05:57,440
fair enough um i guess it doesn't

176
00:06:00,950 --> 00:05:58,800
actually end at the birthing for you

177
00:06:03,350 --> 00:06:00,960
though you'll have steps um and work to

178
00:06:05,670 --> 00:06:03,360
do after that takes place as well right

179
00:06:08,309 --> 00:06:05,680
yes after we're done um

180
00:06:10,710 --> 00:06:08,319
installing

181
00:06:12,550 --> 00:06:10,720
cygnus will go ahead and we have a power

182
00:06:14,150 --> 00:06:12,560
down sequence we do to put the arm in a

183
00:06:15,749 --> 00:06:14,160
safe configuration

184
00:06:18,390 --> 00:06:15,759
make sure that

185
00:06:21,189 --> 00:06:18,400
it's safe from a thermal perspective

186
00:06:23,510 --> 00:06:21,199
and then we'll wait till the crew has

187
00:06:25,830 --> 00:06:23,520
got some jumpers connected to cygnus so

188
00:06:28,309 --> 00:06:25,840

we can power cygnus through station and

189
00:06:31,430 --> 00:06:28,319
then we'll turn off the power that the

190
00:06:33,590 --> 00:06:31,440
arm is providing to cygnus

191
00:06:35,029 --> 00:06:33,600
okay well good luck we uh we appreciate

192
00:06:37,189 --> 00:06:35,039
you coming telling us all about this and

193
00:06:39,830 --> 00:06:37,199
we'll definitely be watching tomorrow at

194
00:06:42,150 --> 00:06:39,840
the birthing and the capture as well so

195
00:06:44,790 --> 00:06:42,160
uh we'll hope that your that everything

196
00:06:46,230 --> 00:06:44,800
goes as planned we hope so too thanks

197
00:06:47,430 --> 00:06:46,240
again this was melanie miller the

198
00:06:49,270 --> 00:06:47,440
robotics officer is going to be