
VOICE OF
Bruce Manners
NASA COTS Project Executive

1
00:00:01,567 --> 00:00:03,769
>> The docking of Orbital
Science Corporation's Cygnus

2
00:00:03,769 --> 00:00:06,939
vehicle to the space station
has been delayed for a few days.

3
00:00:06,939 --> 00:00:08,507
Orbital and NASA
decided together

4
00:00:08,507 --> 00:00:11,277
to postpone the vehicle's
approach, rendezvous, grapple,

5
00:00:11,277 --> 00:00:14,213
and berthing until after the
upcoming Soyuz operations

6
00:00:14,213 --> 00:00:15,848
are complete.

7
00:00:15,848 --> 00:00:17,650
Cygnus launched on
its Antares rocket

8
00:00:17,650 --> 00:00:20,152
from the Mid-Atlantic
Regional Space Fort

9
00:00:20,152 --> 00:00:21,854
at NASA's Wallops
Flight Facility

10
00:00:21,854 --> 00:00:23,089
in Virginia on Wednesday.

11
00:00:23,089 --> 00:00:25,791

And it's bringing
to the station,

12
00:00:25,791 --> 00:00:30,296
on this demonstration
mission, 1300 pounds of cargo.

13
00:00:30,296 --> 00:00:31,997
It was originally
scheduled to dock on Sunday,

14
00:00:31,997 --> 00:00:34,733
but when the vehicle
established direct data contact

15
00:00:34,733 --> 00:00:37,770
with the space station, some
of the data received had values

16
00:00:37,770 --> 00:00:38,838
that were unexpected

17
00:00:38,838 --> 00:00:42,007
which caused Cygnus
to reject the data.

18
00:00:42,007 --> 00:00:44,643
We have here with us,
via phone, Bruce Manners

19
00:00:44,643 --> 00:00:48,481
with NASA's Commercial Orbital
Transportation Services Program,

20
00:00:48,481 --> 00:00:50,916
to give us an update on
Cygnus's docking plan.

21
00:00:50,916 --> 00:00:53,319
Bruce, thanks so

much for joining us.

22
00:00:53,319 --> 00:00:54,720
>> Well, thank you very much.

23
00:00:54,720 --> 00:00:58,124
I appreciate the opportunity to
come out and talk to you folks.

24
00:00:58,124 --> 00:00:59,992
If you'd like, I can certainly
go ahead and walk you through,

25
00:00:59,992 --> 00:01:02,962
real quick, the plans for the
next few days and what will,

26
00:01:02,962 --> 00:01:06,565
ultimately, result in the
Cygnus spacecraft berthing

27
00:01:06,565 --> 00:01:10,636
with the International
Space Station.

28
00:01:10,636 --> 00:01:12,671
>> That would be great, Bruce,
yeah, if you could walk us

29
00:01:12,671 --> 00:01:14,807
through what's going on,
that would be perfect.

30
00:01:14,807 --> 00:01:17,710
>> Sure. As you said, they did
have a little data discrepancy

31
00:01:17,710 --> 00:01:20,279
issue between Cygnus and the
International Space Station

32
00:01:20,279 --> 00:01:21,914
that was discovered late Sunday.

33
00:01:21,914 --> 00:01:26,252
In the last 24 hours, I've
watched, and participated with,

34
00:01:26,252 --> 00:01:28,954
the Orbital Science Team,
working through their re-plan

35
00:01:28,954 --> 00:01:32,691
and development of a software
patch to correct that problem.

36
00:01:32,691 --> 00:01:35,494
And, in the last 24 hours, I've
just seen some tremendous amount

37
00:01:35,494 --> 00:01:38,864
of work, both here and at the
mission control in Houston.

38
00:01:38,864 --> 00:01:43,235
As they-- the orbital folks put
together that software patch.

39
00:01:43,235 --> 00:01:45,004
It's a very small,
little, simple fix.

40
00:01:45,004 --> 00:01:50,676
They've tested that, validated
that, and in ground systems.

41
00:01:50,676 --> 00:01:53,546
And then really coordinated
immense amount of work,

42
00:01:53,546 --> 00:01:56,081
also coordinating that and
communicating those fixes.

43
00:01:56,081 --> 00:01:58,217
And validating that that's
the correct thing to do

44
00:01:58,217 --> 00:02:01,153
with the teams back
in Houston as well.

45
00:02:01,153 --> 00:02:02,888
So, that's been just a
tremendous team effort

46
00:02:02,888 --> 00:02:05,424
and they've done a fantastic
job getting that all ready.

47
00:02:05,424 --> 00:02:08,761
The thought right now is, as
they said, they waived off.

48
00:02:08,761 --> 00:02:10,229
We initially were
thinking we were going

49
00:02:10,229 --> 00:02:13,465
to be doing the berthing
attempts early tomorrow morning

50
00:02:13,465 --> 00:02:16,302
but, with the Soyuz coming
in, I think everyone felt

51
00:02:16,302 --> 00:02:19,805
that a little bit of time
and breather after the flurry

52
00:02:19,805 --> 00:02:21,874
of activity the last 24 hours
is the best thing to do.

53
00:02:21,874 --> 00:02:24,510
We can give the teams an
opportunity to get some rest.

54
00:02:24,510 --> 00:02:26,445
And, you know, this
is a new vehicle

55
00:02:26,445 --> 00:02:28,547
so a little additional
time flying in space

56
00:02:28,547 --> 00:02:31,283
and learning how it operates
and how we operate with it

57
00:02:31,283 --> 00:02:34,053
and how we communicate with
the space station program

58
00:02:34,053 --> 00:02:36,155
and everybody is
not a bad thing.

59
00:02:36,155 --> 00:02:39,992
So, the plan now is they're
looking at a first opportunity

60
00:02:39,992 --> 00:02:42,294
to come in with the
space station would be

61
00:02:42,294 --> 00:02:44,964
on Saturday, on the 28th.

62

00:02:44,964 --> 00:02:47,800
That's the first opportunity,
there's an awful lot of planning

63
00:02:47,800 --> 00:02:49,768
that has to take place
between now and then.

64
00:02:49,768 --> 00:02:51,637
So, they'll have
to work that out

65
00:02:51,637 --> 00:02:52,771
with the space station program.

66
00:02:52,771 --> 00:02:54,573
They have to finish up
with the Soyuz berth--

67
00:02:54,573 --> 00:02:57,776
or docking, you said,
on Wednesday.

68
00:02:57,776 --> 00:02:59,979
And then the flight control
teams will really work

69
00:02:59,979 --> 00:03:01,680
into the detailed
planning, the logistics

70
00:03:01,680 --> 00:03:03,282
of how that's all
going to come together

71
00:03:03,282 --> 00:03:04,850
for the Cygnus opportunity
which,

72
00:03:04,850 --> 00:03:06,752

as I said, be this weekend.

73
00:03:06,752 --> 00:03:08,153
The earliest opportunity

74
00:03:08,153 --> 00:03:11,190
that anybody can conceive right
now is Saturday so, hopefully,

75
00:03:11,190 --> 00:03:12,324
we can get it done Saturday.

76
00:03:12,324 --> 00:03:15,160
But if not, we do have
more time after that.

77
00:03:15,160 --> 00:03:16,795
>> So, the work that the
teams have been in here

78
00:03:16,795 --> 00:03:20,833
on the ground has gone well
and looks like they'll be ready

79
00:03:20,833 --> 00:03:23,235
for things earlier
than Saturday,

80
00:03:23,235 --> 00:03:25,471
but just because of
the Soyuz schedule

81
00:03:25,471 --> 00:03:27,873
and giving the crew some
downtime before they move

82
00:03:27,873 --> 00:03:30,576
from one activity to another?

83

00:03:30,576 --> 00:03:31,944
>> That's right.

84
00:03:31,944 --> 00:03:33,912
Yep. They want to make sure
the crew has had an opportunity

85
00:03:33,912 --> 00:03:35,014
to get some rest.

86
00:03:35,014 --> 00:03:36,081
And, also, the, you
know, the ground team

87
00:03:36,081 --> 00:03:37,216
on Rove have also
been working very hard

88
00:03:37,216 --> 00:03:40,853
so those folks also need
a little bit of rest.

89
00:03:40,853 --> 00:03:43,389
>> Can you tell us-- I guess
the Soyuz docking is a little

90
00:03:43,389 --> 00:03:46,558
different than the
Cygnus berthing,

91
00:03:46,558 --> 00:03:50,896
it's not the same approach
to the space station, right?

92
00:03:50,896 --> 00:03:53,699
>> No, they both are different--
entirely different systems.

93
00:03:53,699 --> 00:03:57,536
In fact, berthing to the

space station and a docking

94
00:03:57,536 --> 00:03:59,071
to the space station
are 2 fundamentally

95
00:03:59,071 --> 00:04:00,439
different approaches.

96
00:04:00,439 --> 00:04:03,242
If you think about it with a
berthing, what happens is the--

97
00:04:03,242 --> 00:04:05,811
with Cygnus, they will
come up, they'll fly close

98
00:04:05,811 --> 00:04:08,213
to the space station
and come to a point

99
00:04:08,213 --> 00:04:10,249
where they will just
go to, essentially,

100
00:04:10,249 --> 00:04:11,917
a hold in the stop point.

101
00:04:11,917 --> 00:04:17,823
And the crew, using the Canadian
robotic arm, will reach out

102
00:04:17,823 --> 00:04:21,393
and grab the-- and grapple
the Cygnus spacecraft

103
00:04:21,393 --> 00:04:25,130
and then bring it in to a
berthing with the space station.

104
00:04:25,130 --> 00:04:27,399
With the docking, it's
entirely different.

105
00:04:27,399 --> 00:04:29,401
The robotic arm is
not involved at all.

106
00:04:29,401 --> 00:04:32,771
And the spacecraft just
simply comes up and docks

107
00:04:32,771 --> 00:04:35,674
in with the space station on
its own, without any assist

108
00:04:35,674 --> 00:04:38,377
from the crew onboard
the space station.

109
00:04:38,377 --> 00:04:40,612
>> So, I would say-- I would
think that, particularly

110
00:04:40,612 --> 00:04:43,849
in berthing, takes a lot of
focus and energy from the crew

111
00:04:43,849 --> 00:04:46,852
and you want to be sure that
they've had plenty of sleep

112
00:04:46,852 --> 00:04:48,854
and time to get ready for that.

113
00:04:48,854 --> 00:04:50,222
>> Absolutely.

114
00:04:50,222 --> 00:04:51,557

And there's a lot of planning
that goes involved with that

115
00:04:51,557 --> 00:04:52,758
so that's all the work that has

116
00:04:52,758 --> 00:04:55,928
to happen once the crews
have arrived in the Soyuz,

117
00:04:55,928 --> 00:04:57,496
they will go through that.

118
00:04:57,496 --> 00:05:00,232
They'll get the crew onboard
some time to decompress

119
00:05:00,232 --> 00:05:03,869
and get some rest and be
ready to go on Saturday

120
00:05:03,869 --> 00:05:06,071
if that can be put together.

121
00:05:06,071 --> 00:05:08,006
And, if not, then, you
know, we have time.

122
00:05:08,006 --> 00:05:10,609
The Cygnus spacecraft
is in great shape.

123
00:05:10,609 --> 00:05:12,778
The systems are all
working phenomenally

124
00:05:12,778 --> 00:05:14,780
and we're very excited and happy

125

00:05:14,780 --> 00:05:16,248
with the help with
that spacecraft.

126
00:05:16,248 --> 00:05:18,250
And so, we can give
them some time.

127
00:05:18,250 --> 00:05:20,519
And we're all working
that plan together

128
00:05:20,519 --> 00:05:23,122
and that'll be what
happens the next few days.

129
00:05:23,122 --> 00:05:24,423
>> That sounds good.

130
00:05:24,423 --> 00:05:26,125
Maybe you could also talk
a little bit about the fact

131
00:05:26,125 --> 00:05:27,593
that this is a demonstration
mission.

132
00:05:27,593 --> 00:05:34,032
So, there's a little bit of
a learning curve, I guess,

133
00:05:34,032 --> 00:05:35,901
on getting it to
the space station.

134
00:05:35,901 --> 00:05:37,169
>> Absolutely.

135
00:05:37,169 --> 00:05:40,105
You know, the Cos program

is a demonstration program

136
00:05:40,105 --> 00:05:43,542
where the partners, first
SpaceX, now Orbital Sciences,

137
00:05:43,542 --> 00:05:46,345
are demonstrating their
cargo delivery capabilities

138
00:05:46,345 --> 00:05:49,047
which really is,
you know, that's--

139
00:05:49,047 --> 00:05:51,650
it's a lot like getting
your learner's permit

140
00:05:51,650 --> 00:05:54,987
and getting approved for
your driver's license.

141
00:05:54,987 --> 00:05:57,222
This is an opportunity for
them to fly the vehicle,

142
00:05:57,222 --> 00:05:59,324
have some small amounts
of cargo,

143
00:05:59,324 --> 00:06:00,626
but it's not essential cargo.

144
00:06:00,626 --> 00:06:03,328
And we can really all work
together in learning how

145
00:06:03,328 --> 00:06:05,130
to fly the spacecraft,
how to bring them in,

146
00:06:05,130 --> 00:06:07,633
how to integrate them with
the mission control centers,

147
00:06:07,633 --> 00:06:09,835
demonstrate that their
services are good

148
00:06:09,835 --> 00:06:11,637
and that they can
deliver the cargo.

149
00:06:11,637 --> 00:06:13,872
And then, ultimately,
under our CRS contract,

150
00:06:13,872 --> 00:06:17,009
they will be delivering cargo
just on a regular basis.

151
00:06:17,009 --> 00:06:20,279
A lot like the U.S.
Mail or FedEx.

152
00:06:20,279 --> 00:06:23,282
>> And I know NASA is
certainly never cavalier

153
00:06:23,282 --> 00:06:25,584
about any vehicle
approaching the space station,

154
00:06:25,584 --> 00:06:27,820
but there's probably even a
little bit of an extra layer

155
00:06:27,820 --> 00:06:30,756
of precaution for a
demonstration mission like this.

156
00:06:30,756 --> 00:06:31,857
Is that right?

157
00:06:31,857 --> 00:06:33,559
>> Yes, that's very true.

158
00:06:33,559 --> 00:06:37,930
We've had months and months
of meetings and discussions

159
00:06:37,930 --> 00:06:42,134
and designer views and reviews
with safety review panel.

160
00:06:42,134 --> 00:06:46,171
All to bring us, culminated
to where we are now.

161
00:06:46,171 --> 00:06:48,173
As they made that
software patch last night,

162
00:06:48,173 --> 00:06:50,576
we've had an awful lot of
discussions in working with,

163
00:06:50,576 --> 00:06:52,211
again, with the safety
community,

164
00:06:52,211 --> 00:06:54,980
the engineering community,
the operations community,

165
00:06:54,980 --> 00:06:57,516
and that's all the work that
happened over the last 24 hours

166

00:06:57,516 --> 00:07:00,986
to get the software patch
approved by all parties

167
00:07:00,986 --> 00:07:02,855
and we understand
exactly where we are.

168
00:07:02,855 --> 00:07:07,559
It's a complicated system,
both from a procedural

169
00:07:07,559 --> 00:07:08,994
and process perspective
and, also,

170
00:07:08,994 --> 00:07:10,295
just the systems themselves.

171
00:07:10,295 --> 00:07:11,597
The International Space Station

172
00:07:11,597 --> 00:07:15,667
and Cygnus spacecraft are
complex spacecraft that need

173
00:07:15,667 --> 00:07:17,102
to work and talk well together.

174
00:07:17,102 --> 00:07:19,104
And, right now, we think
we're in a good situation

175
00:07:19,104 --> 00:07:21,673
for berthing this weekend.

176
00:07:21,673 --> 00:07:22,808
>> That's great.

177

00:07:22,808 --> 00:07:24,776
Are there-- is there a
time limit on getting it

178
00:07:24,776 --> 00:07:27,846
to the space station or
a number of different--

179
00:07:27,846 --> 00:07:31,717
limit on the number of times
it can attempt a docking

180
00:07:31,717 --> 00:07:33,051
or a berthing?

181
00:07:33,051 --> 00:07:34,953
>> Ultimately, that's
limited by fuel.

182
00:07:34,953 --> 00:07:38,557
But the Cygnus spacecraft,
because it doesn't have

183
00:07:38,557 --> 00:07:41,426
as much cargo as we would
normally intend to fly

184
00:07:41,426 --> 00:07:43,862
on it, it is well fueled.

185
00:07:43,862 --> 00:07:46,765
We really-- the limits
are, there are limits.

186
00:07:46,765 --> 00:07:48,000
I don't know the
number off hand,

187
00:07:48,000 --> 00:07:50,936
but we are good for

several attempts.

188
00:07:50,936 --> 00:07:53,839
So, we think we're well
positioned right now

189
00:07:53,839 --> 00:07:54,973
to keep going.

190
00:07:54,973 --> 00:07:56,608
We can do this for pretty much--

191
00:07:56,608 --> 00:07:58,810
I don't want to say as
many times as we need to,

192
00:07:58,810 --> 00:08:01,580
but we have more attempts
now than we will have

193
00:08:01,580 --> 00:08:05,284
on a normal CRS mission when
you fully load it up with cargo.

194
00:08:05,284 --> 00:08:09,087
So, right now, we're fuel rich
and we think we are good to go.

195
00:08:09,087 --> 00:08:11,557
>> So, we have every reason to
expect that it will be getting

196
00:08:11,557 --> 00:08:13,125
to the space station soon?

197
00:08:13,125 --> 00:08:15,694
Just giving the crew
some time to get

198

00:08:15,694 --> 00:08:18,597
through with the Soyuz
activities before we try again.

199
00:08:18,597 --> 00:08:20,299
>> Absolutely.

200
00:08:20,299 --> 00:08:21,633
>> All right, thank
you so much, Bruce.

201
00:08:21,633 --> 00:08:23,702
We really appreciate you calling
in, this was very helpful.

202
00:08:23,702 --> 00:08:25,804
>> Yep, thank you very much.

203
00:08:25,804 --> 00:08:27,773
Appreciate your time
and go Cygnus.