
ПИРС

1
00:00:01,406 --> 00:00:03,986
>> Welcome back to
Mission Control Houston.

2
00:00:04,266 --> 00:00:06,436
We've been talking a lot this
week about the preparations

3
00:00:06,436 --> 00:00:09,046
that have been going on for
the upcoming space walk,

4
00:00:09,046 --> 00:00:11,556
which is pretty much
now upon us on Monday

5
00:00:11,556 --> 00:00:14,836
at 9:40 a.m. Central
Time, Yuri Malenchenko

6
00:00:14,836 --> 00:00:17,296
and Gennady Padalka
are going to be going

7
00:00:17,296 --> 00:00:20,236
out for the Russian EVA 31,

8
00:00:20,236 --> 00:00:22,566
and here to tell us a
little bit more about that,

9
00:00:22,566 --> 00:00:25,126
we have with us Art
Thomason, he's an EVA --

10
00:00:25,126 --> 00:00:28,156
or a space walk officer and
he's going to go over some

11

00:00:28,156 --> 00:00:29,376
of the tasks for that.

12
00:00:29,376 --> 00:00:29,736
>> Good morning.

13
00:00:30,126 --> 00:00:33,386
Yeah, in Russian EVA 31, there's
going to be three primary tasks.

14
00:00:33,516 --> 00:00:37,846
The first of those tasks is
going to be to relocate a Strela

15
00:00:38,446 --> 00:00:42,676
from the DC1 or the docking
department 1 over to FGB.

16
00:00:42,726 --> 00:00:45,776
The reason they're doing this
is DC1 is eventually going

17
00:00:45,776 --> 00:00:47,486
to be replaced by a new module

18
00:00:47,486 --> 00:00:49,736
so they're getting this
Strela off of there.

19
00:00:50,256 --> 00:00:53,356
So they'll get that
moved over to the FGB.

20
00:00:53,356 --> 00:00:56,266
From there, they'll,
they'll head

21
00:00:56,266 --> 00:00:57,596
out to do a satellite deploy

22
00:00:57,886 --> 00:01:00,386
and so that's actually
a 20 pound steel ball

23
00:01:00,386 --> 00:01:02,056
that they're going to
deploy from station or,

24
00:01:02,056 --> 00:01:03,166
or jettison, if you will.

25
00:01:03,556 --> 00:01:07,366
And from that, they'll, they'll
use that to verify map models

26
00:01:07,646 --> 00:01:09,916
at how things de-orbit
back into earth.

27
00:01:10,426 --> 00:01:12,136
From there, their final
task is they're going

28
00:01:12,136 --> 00:01:15,336
to be installing some,
some protective shields

29
00:01:15,336 --> 00:01:16,446
on the outside of station.

30
00:01:16,786 --> 00:01:18,526
And so we have a video here
that shows a little bit

31
00:01:18,526 --> 00:01:19,846
about what they're going
to be doing on the EVA.

32
00:01:19,846 --> 00:01:24,966

You can see they'll come out of
their airlock and then get right

33
00:01:24,966 --> 00:01:26,126
to work on the Strela.

34
00:01:26,126 --> 00:01:27,776
Now this is actually the
Strela that they're going

35
00:01:27,776 --> 00:01:29,596
to be moving during the EVA.

36
00:01:30,236 --> 00:01:37,796
They'll extend EV 2 out to
Strela 1 and then retract it.

37
00:01:38,346 --> 00:01:41,166
>> And the Strelas
are basically booms,

38
00:01:41,166 --> 00:01:43,636
kind of like a robotic
arm but not as, not as...

39
00:01:43,796 --> 00:01:46,196
>> Similar to our robotic
arms, however, these,

40
00:01:46,356 --> 00:01:48,806
these are actually man
powered, so there's a, you know,

41
00:01:48,806 --> 00:01:51,216
they crank with their
hands to extend it and,

42
00:01:51,216 --> 00:01:54,436
and move it so less
overhead in operating it.

43
00:01:54,436 --> 00:01:56,206
>> And they're just
moving that out of the way

44
00:01:56,206 --> 00:01:58,106
so that they can
eventually get --

45
00:01:58,326 --> 00:02:00,806
take Pirs off the
station and replace it.

46
00:02:01,086 --> 00:02:01,736
>> That's correct.

47
00:02:02,166 --> 00:02:04,106
So that's what you're
seeing here in this video.

48
00:02:04,106 --> 00:02:07,366
So they -- obviously they
have two Strelas here

49
00:02:07,926 --> 00:02:11,766
so they're extending one of
the Strelas to capture the one

50
00:02:11,766 --> 00:02:12,646
that they're going
to be removing

51
00:02:12,646 --> 00:02:16,696
so it shows it here
capturing that one.

52
00:02:16,696 --> 00:02:18,036
And then you'll see
in just a moment,

53
00:02:18,366 --> 00:02:21,376
they'll actually move
it over back to the FGB.

54
00:02:21,816 --> 00:02:23,946
So here you see EV 2
coming down, they're going

55
00:02:23,946 --> 00:02:27,356
to be working together to
capture the Strela to be moved.

56
00:02:28,066 --> 00:02:29,936
Once it's secure, then they'll,

57
00:02:30,166 --> 00:02:31,756
they'll move it back
over to the FGB.

58
00:02:32,386 --> 00:02:34,356
>> And since we've done
this once before, is it --

59
00:02:34,416 --> 00:02:36,626
you think it will go pretty
straightforward and...

60
00:02:36,626 --> 00:02:38,386
>> I think it will be
pretty straightforward.

61
00:02:38,386 --> 00:02:40,496
Both of these [inaudible]
have a lot of EVA experience

62
00:02:40,496 --> 00:02:42,336
so I don't expect it to
be a problem for them.

63

00:02:42,836 --> 00:02:46,086
>> Okay. And then,
I guess, you know,

64
00:02:46,086 --> 00:02:48,256
whenever they have anything
to deploy, that's always,

65
00:02:48,376 --> 00:02:49,716
that always seems
interesting to me.

66
00:02:49,716 --> 00:02:52,136
>> It is. Yeah, and
especially in this case,

67
00:02:52,416 --> 00:02:54,146
it's pretty neat
because, you know,

68
00:02:54,146 --> 00:02:55,906
I think people are
always interested in,

69
00:02:55,906 --> 00:02:59,696
in how things de-orbit, you
know, there's, you know,

70
00:02:59,696 --> 00:03:01,506
small amounts of air,
things like that,

71
00:03:01,506 --> 00:03:03,146
that are going to slow it down.

72
00:03:03,146 --> 00:03:04,996
So when you have a, a
steel ball like this,

73
00:03:04,996 --> 00:03:06,496

it doesn't really
matter their orientation.

74
00:03:06,496 --> 00:03:10,016
A lot of the things that we've,
that we've jettisoned before,

75
00:03:10,016 --> 00:03:12,586
things like MLI, which is,
you know, a thermal blanket,

76
00:03:13,186 --> 00:03:14,776
which those things it
really makes a difference

77
00:03:14,776 --> 00:03:16,166
on how it's oriented in space.

78
00:03:16,166 --> 00:03:18,856
So this -- the orientation
doesn't matter as much.

79
00:03:19,266 --> 00:03:20,686
>> Just like pitching
a baseball, or...

80
00:03:21,036 --> 00:03:22,796
>> Similar to that,
they actually have a,

81
00:03:22,946 --> 00:03:25,296
a contraption that's
going to release is

82
00:03:25,326 --> 00:03:27,296
so that it's more a
controlled release.

83
00:03:27,416 --> 00:03:31,066
>> Okay. And it's, it's

to let the [inaudible]

84
00:03:31,066 --> 00:03:33,456
on the ground [inaudible]
this tracking, is that...

85
00:03:33,456 --> 00:03:33,806
>> That's right.

86
00:03:33,806 --> 00:03:36,426
So they'll track it and
it, it's going to be used

87
00:03:36,426 --> 00:03:39,446
to verify models and just better
understand how things de-orbit.

88
00:03:39,776 --> 00:03:40,096
>> Okay.

89
00:03:40,706 --> 00:03:44,096
>> So here you can see they're
still at work on stowing

90
00:03:44,096 --> 00:03:46,096
that Strela or relocating it.

91
00:03:46,176 --> 00:03:49,456
Once they get it back into
place on FGB, they, they stow it

92
00:03:49,456 --> 00:03:51,296
so that it's out of the way.

93
00:03:52,606 --> 00:03:54,516
[inaudible] they translate
back down the Strela

94
00:03:54,586 --> 00:03:57,156

so you can see there's a
telescoping piece of equipment

95
00:03:57,496 --> 00:03:59,426
that they can extend
and retract by hand.

96
00:03:59,966 --> 00:04:05,446
So here you see Gennady
riding back on, on the tip.

97
00:04:05,596 --> 00:04:08,656
They'll put this one
back in place, Strela 1.

98
00:04:09,446 --> 00:04:11,386
And they'll secure
that back to structure.

99
00:04:11,826 --> 00:04:14,296
Now here's -- you'll see
this object flashing here

100
00:04:14,296 --> 00:04:17,596
as an external experiment,
they're going to close that up,

101
00:04:17,596 --> 00:04:20,146
it's about the size of
a laptop, if you will.

102
00:04:20,846 --> 00:04:23,366
So they'll, they'll close that
up and bring it back inside

103
00:04:23,366 --> 00:04:25,006
as technically a
get-ahead so they'll,

104
00:04:25,006 --> 00:04:26,026

they'll get it closed here

105
00:04:26,026 --> 00:04:28,276
and then I guess we'll see
how time's going on the EVA

106
00:04:28,276 --> 00:04:30,246
and potentially bring it
in, since it's right there,

107
00:04:30,826 --> 00:04:33,296
you know, it's a, a get-ahead
of opportunity, if you will.

108
00:04:33,616 --> 00:04:35,996
>> Sure. And the space
walk's scheduled to last

109
00:04:36,286 --> 00:04:37,346
about six and a half hours?

110
00:04:37,436 --> 00:04:38,016
>> That's correct.

111
00:04:38,296 --> 00:04:39,516
And here's the satellite
[inaudible].

112
00:04:39,516 --> 00:04:40,106
>> That's correct.

113
00:04:40,106 --> 00:04:43,766
Yeah, you see the spherical
satellite, as I mentioned,

114
00:04:43,766 --> 00:04:45,346
it was a, a 20 pound ball.

115
00:04:45,346 --> 00:04:47,896

So it's a, you know,
pretty, pretty heavy thing

116
00:04:48,056 --> 00:04:49,596
when you have gravity.

117
00:04:49,646 --> 00:04:52,556
It's 21 inches in diameter.

118
00:04:52,556 --> 00:04:54,206
>> It looks a little
like a bowling ball.

119
00:04:54,506 --> 00:04:57,436
>> Yeah. And so, like
some of the things

120
00:04:57,436 --> 00:04:59,746
that I mentioned earlier,
thermoblankets that we've let go

121
00:04:59,746 --> 00:05:01,896
of before, then they don't
have much mass so they slow

122
00:05:01,896 --> 00:05:05,116
down quicker, this is a heavier
object so I think they're able

123
00:05:05,116 --> 00:05:06,736
to characterize, you know,

124
00:05:06,846 --> 00:05:08,846
how it de-orbits a little
bit better using something

125
00:05:08,846 --> 00:05:09,356
like this.

126

00:05:09,356 --> 00:05:09,516
>> Okay.

127
00:05:09,636 --> 00:05:12,336
>> And I think the
metallic portion of it, too,

128
00:05:12,336 --> 00:05:13,406
makes it easier to track.

129
00:05:13,626 --> 00:05:15,666
>> Sure. That makes sense.

130
00:05:16,596 --> 00:05:19,986
>> So we saw the, we saw
that satellite get deployed

131
00:05:19,986 --> 00:05:24,246
and then here is some video on
their final task, this is going

132
00:05:24,246 --> 00:05:27,196
to be installing a few
protective shields.

133
00:05:27,656 --> 00:05:31,346
These shields protect from
micro meteorite debris

134
00:05:31,496 --> 00:05:32,656
on the outside of station.

135
00:05:33,196 --> 00:05:36,316
So they're, they're going
to be installing these

136
00:05:37,056 --> 00:05:38,286
on the service module.

137

00:05:38,936 --> 00:05:41,786
You can see those being
put into place right here.

138
00:05:42,346 --> 00:05:45,736
>> And I know we kind
of replace things

139
00:05:45,736 --> 00:05:47,546
like that fairly often, right?

140
00:05:47,546 --> 00:05:50,246
Is it just to make sure that the
station has the best protection

141
00:05:50,246 --> 00:05:50,816
possible or...

142
00:05:50,816 --> 00:05:51,496
>> That's correct.

143
00:05:53,866 --> 00:05:51,586
>> Yeah.

144
00:05:53,866 --> 00:05:56,026
of the other experiments
called bio risk

145
00:05:56,026 --> 00:05:58,416
that they're potentially
bringing inside.

146
00:05:58,416 --> 00:06:02,176
Now this is a get-ahead
task so this experiment,

147
00:06:02,276 --> 00:06:05,686
they get to bring it inside
and find out, you know,

148
00:06:05,686 --> 00:06:08,166
scientific data that they
collected during the course

149
00:06:08,166 --> 00:06:08,826
of the experiment.

150
00:06:09,116 --> 00:06:12,106
The final get-ahead here is
to put struts on the ladder

151
00:06:12,106 --> 00:06:13,846
on the outside of
docking compartment 1,

152
00:06:13,846 --> 00:06:14,796
just to stiffen that up.

153
00:06:15,206 --> 00:06:17,346
Eventually when docking
compartment 1 is replaced,

154
00:06:17,346 --> 00:06:20,736
they'll then install --
they'll move that ladder over.

155
00:06:21,136 --> 00:06:23,086
>> And that's a ladder
that's used by space walkers

156
00:06:23,246 --> 00:06:24,206
when they're out doing
these sorts of tasks.

157
00:06:24,206 --> 00:06:24,656
>> That's correct.

158
00:06:24,806 --> 00:06:26,206
Yeah, so right when they

come out of the airlock,

159
00:06:26,206 --> 00:06:27,356
they climb out on that ladder.

160
00:06:27,796 --> 00:06:28,856
>> Okay. All right.

161
00:06:28,856 --> 00:06:31,406
Well, so, you know, this
being a Russian space walk,

162
00:06:31,406 --> 00:06:33,876
how much does the U.S.
flight control team here

163
00:06:33,876 --> 00:06:35,176
in Houston get involved?

164
00:06:35,656 --> 00:06:37,846
>> For this one, we're
definitely not involved

165
00:06:37,846 --> 00:06:40,276
in the same level we
are for U.S. space walk.

166
00:06:40,276 --> 00:06:42,736
A U.S. space walk, we do
the training on the ground,

167
00:06:42,736 --> 00:06:45,306
we write the procedures
and then when the crew is,

168
00:06:45,376 --> 00:06:47,576
is performing the task, we're
walking them through step

169

00:06:47,576 --> 00:06:50,436
by step and helping them with
any problems that they run into.

170
00:06:50,866 --> 00:06:53,576
For the Russian EVA,
they are borrowing a few

171
00:06:53,576 --> 00:06:54,646
of our U.S. tools.

172
00:06:54,696 --> 00:06:56,686
One of those is the
wireless video system

173
00:06:56,946 --> 00:06:58,926
so it's basically a video
camera that's mounted

174
00:06:58,926 --> 00:06:59,746
to the cruise helmet.

175
00:07:00,506 --> 00:07:02,736
So for that, now you'll get
to see the point of view

176
00:07:02,736 --> 00:07:04,586
of the crew member
and watch them work,

177
00:07:04,586 --> 00:07:05,466
see what they're seeing.

178
00:07:05,946 --> 00:07:06,966
So they're borrowing that tool,

179
00:07:06,966 --> 00:07:09,206
they're also borrowing a
few tethers that we have.

180
00:07:09,356 --> 00:07:09,556
>> Okay.

181
00:07:09,776 --> 00:07:12,046
>> So we're involved with
getting those over to them,

182
00:07:12,126 --> 00:07:14,776
making sure they're
configured correctly for them.

183
00:07:15,556 --> 00:07:19,806
We're also following along for
the space walk, so, you know,

184
00:07:19,806 --> 00:07:22,496
we, we definitely don't have
control of what's going on

185
00:07:22,496 --> 00:07:25,946
but we're watching and for
our, for our U.S. systems,

186
00:07:25,946 --> 00:07:27,306
as well as things that are going

187
00:07:27,306 --> 00:07:29,626
to affect the wireless
video system, we make sure

188
00:07:29,626 --> 00:07:31,426
that all the proper
inhibits are in place,

189
00:07:31,426 --> 00:07:33,306
things are powered down,
things that may interfere

190
00:07:33,306 --> 00:07:34,836

with the wireless video system.

191
00:07:35,556 --> 00:07:37,706
So -- and we are involved
but in a much smaller scale.

192
00:07:37,846 --> 00:07:40,206
>> Well, I know NASA TV
viewers are always glad to know

193
00:07:40,206 --> 00:07:41,646
that there's going to
helmet camera views.

194
00:07:41,996 --> 00:07:42,276
>> Yes.

195
00:07:43,196 --> 00:07:45,446
>> Okay. Well and I know they've
spending pretty much all week

196
00:07:45,446 --> 00:07:48,066
getting ready for it and we're
even getting ready already

197
00:07:48,066 --> 00:07:50,166
for the U.S. space walk
that's coming up at the end

198
00:07:50,166 --> 00:07:52,386
of the month, I think
today though they were,

199
00:07:52,386 --> 00:07:54,496
they were trying on
their Orlons, making --

200
00:07:54,736 --> 00:07:56,216
just doing some final
checks and,

201
00:07:56,216 --> 00:07:57,896
and making sure they were
fitting right and everything?

202
00:07:58,006 --> 00:07:58,806
>> Yeah, that's correct.

203
00:07:58,996 --> 00:08:00,536
It's kind of a dress
rehearsal, if you will,

204
00:08:00,536 --> 00:08:02,986
making sure that the
suit fits correctly.

205
00:08:03,166 --> 00:08:05,486
They can make last minute
adjustments so they don't have

206
00:08:05,486 --> 00:08:07,716
to take the time to do that
on the day of the space walk.

207
00:08:07,716 --> 00:08:10,656
They get to translate around a
little bit inside their airlock

208
00:08:10,656 --> 00:08:13,476
to make sure that they're
comfortable in the suit,

209
00:08:13,476 --> 00:08:15,316
get a little bit of
practice before the real day.

210
00:08:15,596 --> 00:08:18,586
>> Okay. So I think everything's
gone smoothly so far

211
00:08:18,586 --> 00:08:21,456
in all the preparations there,
so we should ready to go

212
00:08:21,456 --> 00:08:23,776
on Monday, 9:40 a.m.
Central Time?

213
00:08:23,846 --> 00:08:24,496
>> That's correct.

214
00:08:24,746 --> 00:08:25,146
>> All right.

215
00:08:25,146 --> 00:08:26,926
Well, thank you so much for
coming and talking with us

216
00:08:26,926 --> 00:08:28,576
about it and we'll be
watching on Monday.