



1
00:00:00,766 --> 00:00:09,575
[Music]

2
00:00:14,046 --> 00:00:17,049
>> Good day, and welcome
to Mission Control Houston.

3
00:00:17,049 --> 00:00:20,853
Today is Thursday,
September 5, 2013,

4
00:00:20,853 --> 00:00:23,255
and this is "Space
Station Live."

5
00:00:23,255 --> 00:00:25,357
Here in the Mission Control
Center, the team is watching

6
00:00:25,357 --> 00:00:28,360
over the activities of
the Expedition 36 crew

7
00:00:28,360 --> 00:00:30,529
about the International
Space Station.

8
00:00:30,529 --> 00:00:33,799
Commander Pavel Vinogradov,
of course, continuing to work

9
00:00:33,799 --> 00:00:37,369
with NASA astronauts Chris
Cassidy and Karen Nyberg,

10
00:00:37,369 --> 00:00:39,538
his Russian colleagues,
Fyodor Yurchikhin

11

00:00:39,538 --> 00:00:43,876
and Aleksandr Misurkin, and
European Space Agency astronaut,

12

00:00:43,876 --> 00:00:46,912
Luca Parmitano to
conduct important research

13

00:00:46,912 --> 00:00:49,281
and maintain the
International Space Station.

14

00:00:49,281 --> 00:00:51,417
We're starting our day today
just a little bit late due

15

00:00:51,417 --> 00:00:53,986
to that interview
by Chris Cassidy,

16

00:00:53,986 --> 00:00:55,855
and we'll have an
opportunity later in the day

17

00:00:55,855 --> 00:00:57,723
to replay that for you.

18

00:00:57,723 --> 00:01:00,759
Today's activities are
focused on more work

19

00:01:00,759 --> 00:01:02,628
with the SPHERES experiment.

20

00:01:02,628 --> 00:01:06,765
SPHERES stands for Synchronized
Position Hold Engage Reorient

21

00:01:06,765 --> 00:01:08,634
Experimental Satellites.

22

00:01:08,634 --> 00:01:09,969

And the idea is to look

23

00:01:09,969 --> 00:01:14,106

at how small satellites can
orient one another relative

24

00:01:14,106 --> 00:01:15,808

to themselves in micro gravity.

25

00:01:15,808 --> 00:01:17,910

It's a very interesting
experience --

26

00:01:17,910 --> 00:01:22,414

experiment that actually had the
genesis in the training droids

27

00:01:22,414 --> 00:01:23,883

that were that were used
in the "Star Wars" --

28

00:01:23,883 --> 00:01:27,153

original "Star Wars" movie, and
that was developed by the folks

29

00:01:27,153 --> 00:01:28,487

at the Massachusetts Institute

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00:01:28,487 --> 00:01:30,756

of Technology, into
this experiment.

31

00:01:30,756 --> 00:01:33,759

Today's work is adding on
some additional complexity

32

00:01:33,759 --> 00:01:37,463

to the SPHERES experiment
with a smartphone helping

33

00:01:37,463 --> 00:01:41,000

to do the controlling and
operations of the SPHERES.

34

00:01:41,000 --> 00:01:44,670

There are a lot of potential
applications for this set

35

00:01:44,670 --> 00:01:49,141

of small satellites, both inside
and outside the Space Station,

36

00:01:49,141 --> 00:01:52,278

one of which might be to use
it as a personal assistant

37

00:01:52,278 --> 00:01:54,713

that could theoretically
follow a crew member

38

00:01:54,713 --> 00:01:59,952

around within the Space Station
and be able to allow them

39

00:01:59,952 --> 00:02:02,454

to access data and
information about the activates

40

00:02:02,454 --> 00:02:07,793

that they need to perform
or about communications,

41

00:02:07,793 --> 00:02:09,929

activities, any kind of work

42

00:02:09,929 --> 00:02:12,097

that the crew might

be doing at that time.

43

00:02:12,097 --> 00:02:14,466

They might have a little
personal assistant that could be

44

00:02:14,466 --> 00:02:17,937

on the spot to help them out
or provide some camera work

45

00:02:17,937 --> 00:02:19,238

over the shoulder, whatever.

46

00:02:19,238 --> 00:02:21,440

And we're testing whether
smartphones could used

47

00:02:21,440 --> 00:02:24,009

to do some of that activity.

48

00:02:26,645 --> 00:02:29,648

In addition, there is some
maintenance work, plumbing,

49

00:02:29,648 --> 00:02:32,518

if you will, for Chris
Cassidy on the schedule today.

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00:02:32,518 --> 00:02:37,156

He's scheduled to be beginning
soon to replace an air valve

51

00:02:37,156 --> 00:02:39,625

in the carbon dioxide
removal system

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00:02:39,625 --> 00:02:41,694

in the Tranquility module.

53

00:02:41,694 --> 00:02:45,331

That system -- that valve has been sticking for a while,

54

00:02:45,331 --> 00:02:49,401

and Mission Control has been able to work around the issue

55

00:02:49,401 --> 00:02:50,769

in terms of getting rid

56

00:02:50,769 --> 00:02:53,505

of the excess carbon dioxide inside the station atmosphere,

57

00:02:53,505 --> 00:02:56,141

but it is time now to replace that valve and see

58

00:02:56,141 --> 00:02:58,410

if we can't get the device

59

00:02:58,410 --> 00:03:00,980

to operate a little bit more smoothly without a lot

60

00:03:00,980 --> 00:03:02,414

of additional management.

61

00:03:02,414 --> 00:03:05,584

There are a couple of different carbon dioxide removal systems

62

00:03:05,584 --> 00:03:06,785

on the Space Station.

63

00:03:06,785 --> 00:03:09,488

One is on the US side; one is on the Russian side.

64

00:03:09,488 --> 00:03:12,958

They use similar but
differently designed equipment

65

00:03:12,958 --> 00:03:18,998

that provides what we call
dissimilar redundancy so that

66

00:03:18,998 --> 00:03:23,269

if one system fails
for a specific reason,

67

00:03:23,269 --> 00:03:25,971

you don't necessarily
have all of the systems

68

00:03:25,971 --> 00:03:29,675

that support carbon
dioxide removal failing

69

00:03:29,675 --> 00:03:31,010

at the same time.

70

00:03:31,010 --> 00:03:32,411

So that will be worked.

71

00:03:32,411 --> 00:03:35,648

Of course, the carbon dioxide
removal system, as you breath,

72

00:03:35,648 --> 00:03:41,153

you inhale oxygen and nitrogen
and you exhale carbon dioxide.

73

00:03:41,153 --> 00:03:45,090

This gets rid of the excess
carbon dioxide, and is also tied

74

00:03:45,090 --> 00:03:47,893

in to some systems, the sub body
A [phonetic], that are trying

75

00:03:47,893 --> 00:03:51,964

to seek a little bit more water
recycling out of the atmosphere

76

00:03:51,964 --> 00:03:54,300

on the Space Station as well.

77

00:03:54,300 --> 00:03:58,871

The Japanese HTV-4 cargo
ship, which departed

78

00:03:58,871 --> 00:04:02,308

from the International Space
Station 11:20 AM Central time

79

00:04:02,308 --> 00:04:04,677

yesterday, continues
to phase away

80

00:04:04,677 --> 00:04:07,313

from the Space Station
following yesterday's unbirthing

81

00:04:07,313 --> 00:04:08,247

and release.

82

00:04:08,247 --> 00:04:10,182

It is scheduled to
fire its engines

83

00:04:10,182 --> 00:04:11,984

to begin a destructive deorbit

84

00:04:11,984 --> 00:04:15,454

at 1:36 AM Central
time Saturday.

85

00:04:15,454 --> 00:04:18,324

NASA and the Japan
Aerospace Exploration Agency,

86

00:04:18,324 --> 00:04:22,461

which provided the cargo vehicle
for the Space Station program,

87

00:04:22,461 --> 00:04:24,997

are working together to gather
extensive data and imagery

88

00:04:24,997 --> 00:04:28,867

of the reentry, including some
gathered by the crew and some

89

00:04:28,867 --> 00:04:31,870

by the iServe science camera,
which usually is applied

90

00:04:31,870 --> 00:04:34,840

to photographing natural
disasters on Earth,

91

00:04:34,840 --> 00:04:37,543

but we will be attempting
to see if we can use

92

00:04:37,543 --> 00:04:42,548

that to provide some new data
collection on exactly how items

93

00:04:42,548 --> 00:04:46,485

that are commanded to
re-enter the Earth do so.

94

00:04:46,485 --> 00:04:48,487

Pavel Vinogradov, Chris Cassidy,

95

00:04:48,487 --> 00:04:52,458
and Aleksandr Misurkin are
also continuing to load items

96
00:04:52,458 --> 00:04:54,593
and get ready for
their departure

97
00:04:54,593 --> 00:04:58,030
in the tma-08m Soyuz spacecraft.

98
00:04:58,030 --> 00:05:00,299
They are supposed to undock
and land on the Steppe

99
00:05:00,299 --> 00:05:02,801
of Kazakhstan next Tuesday.

100
00:05:04,703 --> 00:05:07,673
As we watch the coverage,

101
00:05:07,673 --> 00:05:09,775
we're going to be having
hatch closure coverage

102
00:05:09,775 --> 00:05:13,345
at 3:00 PM Central time,
undocking coverage beginning

103
00:05:13,345 --> 00:05:16,849
at 6:15 PM Central time,
landing coverage beginning

104
00:05:16,849 --> 00:05:20,119
at 8:45 PM Central time,
and we expect landing

105
00:05:20,119 --> 00:05:24,656
at 9:59 PM Central time.

106

00:05:24,656 --> 00:05:26,892

After they have departed the
Space Station, that leaves room

107

00:05:26,892 --> 00:05:29,361

for the next crewmembers to
come up to the Space Station.

108

00:05:29,361 --> 00:05:33,031

Expedition 37 and 38 prime
crewmembers Mike Hopkins,

109

00:05:33,031 --> 00:05:36,535

Oleg Kotov, and Sergey
Ryazanskiy are conducting their

110

00:05:36,535 --> 00:05:39,605

final round of Soyuz vehicle
qualification exams today

111

00:05:39,605 --> 00:05:41,573

at the Gagarin Cosmonaut
Training Center

112

00:05:41,573 --> 00:05:43,609

in Star City, Russia.

113

00:05:47,079 --> 00:05:51,650

A few photos of the trio
as they get ready to depart

114

00:05:51,650 --> 00:05:56,221

for the final preparations
for launch, meeting executives

115

00:05:56,221 --> 00:06:00,392

from the Russian Federal Space
Agency, getting ready to depart,

116

00:06:00,392 --> 00:06:07,065

signing final qualification
documents.

117

00:06:10,602 --> 00:06:14,573

Again, Hopkins, Kotov, and
Ryazanskiy are scheduled

118

00:06:14,573 --> 00:06:18,010

to launch to the International
Space Station on September 25,

119

00:06:18,010 --> 00:06:19,978

and they're making
final preparations

120

00:06:19,978 --> 00:06:22,714

at the training center
in Star City now.