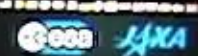




Mission Control Center



10:00:00
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1

00:00:02,030 --> 00:00:06,950

Good day and welcome to Mission Control Houston where a team of flight controllers is watching

2

00:00:06,950 --> 00:00:12,360

over the activities of the Expedition 29 crew aboard the International Space Station.

3

00:00:12,360 --> 00:00:17,190

Commander Mike Fossum and Flight Engineer Satoshi Furukawa of Japan and Sergei Volkov

4

00:00:17,190 --> 00:00:20,450

of Russia are continuing their activities of the day which focus

5

00:00:20,450 --> 00:00:24,080

on research aboard the International Space Station.

6

00:00:24,080 --> 00:00:28,440

Today's team here at mission control is being led by Flight Director Derek Hassmann

7

00:00:28,440 --> 00:00:32,260

with Ricky Arnold, the astronaut in charge of communicating by voice

8

00:00:32,260 --> 00:00:34,260

with the crew on board the space station.

9

00:00:34,260 --> 00:00:41,570

In addition to what working with various pieces of experiment work today,

10

00:00:41,570 --> 00:00:49,520

the crew is also working on some general house cleaning activities,

11

00:00:49,520 --> 00:00:55,940

gathering trash to be stowed into the 42
progress vehicle that's going to be undocking

12

00:00:55,940 --> 00:01:03,090

from the International Space Station coming
up later in October and in anticipation

13

00:01:03,090 --> 00:01:09,830

of the arrival of the next progress spacecraft
that is scheduled launch on the 30th of October.

14

00:01:09,830 --> 00:01:18,130

That undocking of Progress 42 is
scheduled for Saturday, October the 29th

15

00:01:18,130 --> 00:01:21,360

and will clear the Pirs docking
compartment of the arrival

16

00:01:21,360 --> 00:01:24,510

of the next Progress resupply vehicle.

17

00:01:24,510 --> 00:01:30,150

In addition today, the crew worked with mission
control to do some preparations for a bit

18

00:01:30,150 --> 00:01:36,070

of a combination reboost and
debris avoidance maneuver.

19

00:01:36,070 --> 00:01:42,520

There's a small about four inch or ten
centimeter piece of Russian rocket body

20

00:01:42,520 --> 00:01:46,390

that was launched in 1991 that
is coming a little bit too close

21

00:01:46,390 --> 00:01:48,860

to the International Space Station for comfort.

22

00:01:48,860 --> 00:01:53,680

There was a reboost activity planned for next week to prepare

23

00:01:53,680 --> 00:01:56,850

for the arrival of the Progress 45 spacecraft.

24

00:01:56,850 --> 00:02:02,000

Another such maneuver is planned for the 19th or 20th of October.

25

00:02:02,000 --> 00:02:08,100

But because of the proximity of the debris and the upcoming reboost maneuver the team here

26

00:02:08,100 --> 00:02:14,110

in mission control Houston coordinated with the team in the Moscow control center to conduct

27

00:02:14,110 --> 00:02:19,000

that reboost maneuver a little early to take care of two birds with one stone,

28

00:02:19,000 --> 00:02:23,580

reboosting the space station partially to get ready for that upcoming progress arrival

29

00:02:23,580 --> 00:02:28,240

and also getting it out of the way of this piece of debris that's being tracked.

30

00:02:28,240 --> 00:02:34,060

The Zvezda service module engines will be fired for about two minutes and 49 seconds today

31

00:02:34,060 --> 00:02:43,230

at 11:45 CT, and that'll a reboost the space station by 4.7 kilometers or about 2.9 miles,

32

00:02:43,230 --> 00:02:47,330

putting it to an increased
altitude and getting ready

33

00:02:47,330 --> 00:02:51,800

for that upcoming arrival of
the Progress 45 spacecraft.

34

00:02:51,800 --> 00:02:55,800

Again this is a part of a small piece of an
old Russian rocket body that was launched

35

00:02:55,800 --> 00:03:02,960

in December of 1991 and the team here on the
ground in Houston and in Moscow worked together

36

00:03:02,960 --> 00:03:06,630

to come together with this plan as the
tracking is showing that it might come

37

00:03:06,630 --> 00:03:11,390

within a close proximity of the space station.

38

00:03:11,390 --> 00:03:14,280

As mentioned, they'll research
this and of course some

39

00:03:14,280 --> 00:03:19,520

of the preparations the crew is making
on that are to close the shutters

40

00:03:19,520 --> 00:03:23,570

on the exterior windows for
the space station and the folks

41

00:03:23,570 --> 00:03:26,330

in mission control are feathering
the solar arrays to make sure they're

42

00:03:26,330 --> 00:03:31,920

in the proper position for the firing
of the Zvezda service module thrusters.

43

00:03:31,920 --> 00:03:34,190

Among the different research
facilities being worked

44

00:03:34,190 --> 00:03:42,130

on today were the Combustion Integrated
Rack and the Fluids Integrated Rack

45

00:03:42,130 --> 00:03:46,830

and the Commercial Bioprocessing System.

46

00:03:46,830 --> 00:03:52,650

Those various experiments continuing the
almost 40 hours a week of research is going

47

00:03:52,650 --> 00:03:59,120

on every week aboard the International Space
Station as the assembly sequence is completed

48

00:03:59,120 --> 00:04:04,210

and the full utilization of
the space station is underway.

49

00:04:04,210 --> 00:04:08,870

We do have a video clip of that Mike Fossum
sent down early this morning of his work

50

00:04:08,870 --> 00:04:13,050

with the Fluids Integrated Rack which looks
at the how fluids behave in micro-gravity.

51

00:04:13,050 --> 00:04:15,560

We will take a quick look at that clip now.

52

00:04:15,560 --> 00:04:24,980

I wanted to make sure you guys have video.

53

00:04:24,980 --> 00:04:26,890

Yes we do Mike, we're on downlink one.

54

00:04:26,890 --> 00:04:27,630

Outstanding.

55

00:04:27,630 --> 00:04:33,140

Well I wanted to welcome everybody aboard the International Space Station today.

56

00:04:33,140 --> 00:04:36,340

I have the Fluids Integrated Rack open right behind me.

57

00:04:36,340 --> 00:04:39,450

I'm going to dig in here and do a little bit of work this morning.

58

00:04:39,450 --> 00:04:44,570

First is changing out a camera to give us or giving us a better view and then I'm going

59

00:04:44,570 --> 00:04:50,820

to be changing out some samples so we can get this rack up and running in the next few days.

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00:04:50,820 --> 00:04:55,170

So welcome aboard, glad to have you watching over my shoulder.

61

00:05:14,550 --> 00:05:20,560

And so the Fluids Integrated Rack is one of the two powered racks that compose Fluids

62

00:05:20,560 --> 00:05:23,420

and Combustion Facility on the International Space Station.

63

00:05:23,420 --> 00:05:28,130

The other the rack is called
the Combustion Integrated Rack.

64

00:05:28,130 --> 00:05:33,640

This combined set of experiment
platforms provides the opportunity to look

65

00:05:33,640 --> 00:05:40,120

at unique challenges of working with both
fluids, flame or combustion in microgravity.

66

00:05:40,120 --> 00:05:41,670

The Fluids Integrated Rack which we're looking

67

00:05:41,670 --> 00:05:46,390

at here features a large user configurable
volume for experiments and it kind

68

00:05:46,390 --> 00:05:49,500

of resembles a laboratory optics bench.

69

00:05:49,500 --> 00:05:52,880

The experiment can be built on the
bench from different components

70

00:05:52,880 --> 00:05:58,100

and the data acquisition and
control sensor interfaces.

71

00:05:58,100 --> 00:06:03,590

There is also a laser and white light sources
and advanced imaging capabilities, power cooling

72

00:06:03,590 --> 00:06:07,140

and other resources needed for a
variety of different experiments.

73

00:06:07,140 --> 00:06:11,280

It's built to accommodate a wide range of experiments and it focuses

74
00:06:11,280 --> 00:06:18,060
on the complex fluids, interfacial phenomena,
dynamics in instabilities of fluids,

75
00:06:18,060 --> 00:06:23,090
multi-phase flows and changes
in phase of fluids.