SPACE TO GROUND

1
00:00:00,919 --> 00:00:05,850
Dan Huot: Welcome to space to ground, your weekly look at what's happening on board

2
00:00:05,850 --> 00:00:08,000
ISS. I'm Dan Huot.

3
00:00:08,000 --> 00:00:11,480
Three new crewmembers are now on board the International Space Station.

4
00:00:11,480 --> 00:00:15,920
On Wednesday, Reid Wiseman, Max Suraev and Alexander Gerst launched from the Baikonur

5
00:00:15,920 --> 00:00:20,840
Cosmodrome in Kazakhstan. Following a flawless nine minute ride up, the three found themselves

6
00:00:20,840 --> 00:00:23,689
in orbit chasing after the International Space Station.

7
00:00:23,689 --> 00:00:28,250
Wiseman, Suraev and Gerst were very busy in the hours leading up to launch, waking up

8
00:00:28,250 --> 00:00:32,850
early to sign the doors inside the Cosmonaut Hotel. After that, it was time to suit up

9
00:00:32,850 --> 00:00:37,559
and say farewell one last time to friends, family and well-wishers. With one final wave,

10
00:00:37,559 --> 00:00:41,079
they loaded into their Soyuz and were strapped in for launch.

11

00:00:41,079 --> 00:00:45,289
The trio caught up with the International
Space Station after about six hours and docked

12
00:00:45,289 --> 00:00:49,350
to the Rassvet module. Once the hatches were
open, they were greeted by the crew members

13
00:00:49,350 --> 00:00:53,299
already on board before getting the chance
to say hello to friends and family watching

14
00:00:53,299 --> 00:00:54,909
from down on Earth.

15
00:00:54,909 --> 00:00:58,229
This week was also an important first for
robotics in space.

16
00:00:58,229 --> 00:01:03,510
The station's Special Purpose Dextrous Manipulator,
or Dextre for short, became the first robot

17
00:01:03,510 --> 00:01:08,619
to actually repair itself in space. It was
controlled by teams on the ground in Houston

18
00:01:08,619 --> 00:01:13,329
to swap two cameras on the station's robotic
arm and its mobile base. Tasks like this for

19
00:01:13,329 --> 00:01:18,049
Dextre have important implications down the
road for potential robotic missions in space

20
00:01:18,049 --> 00:01:22,219
like repairing and refueling satellites or
even helping to clean up the amount of space

21
00:01:22,219 --> 00:01:25,030

debris currently orbiting the planet.

22
00:01:25,030 --> 00:01:29,070
This week's social media question comes
from Alex on YouTube: Alex asks, "How do

23
00:01:29,070 --> 00:01:30,920
you extinguish fires inside a spacecraft?"

24
00:01:30,920 --> 00:01:35,590
Well as you might imagine, it can be a lot
trickier to put out a flame in microgravity.

25
00:01:35,590 --> 00:01:41,469
In the event of a fire on the ISS, the astronauts
focus on eliminating three things: ignition,

26
00:01:41,469 --> 00:01:46,859
oxygen and fuel. Ignition is removed by cutting
off electrical power from the fire source.

27
00:01:46,859 --> 00:01:51,380
Oxygen is then removed by turning off ventilation.
Since there is no convection in microgravity,

28
00:01:51,380 --> 00:01:56,039
the fire will starve itself of oxygen. The
astronauts can also use fire extinguishers

29
00:01:56,039 --> 00:02:01,170
to remove oxygen from the nearby environment.
Finally, fuel is controlled by only flying

30
00:02:01,170 --> 00:02:04,429
materials to space that are very unlikely
to burn.