

CONCEPT LASER
lightroom technology group

m2
center



Off the Earth,
for the Earth

International Space Station



1
00:00:00,000 --> 00:00:05,470
So, um yea, In front of me we have a

2
00:00:05,510 --> 00:00:08,200
box that contains the first ever parts

3
00:00:08,240 --> 00:00:10,540
that were built off the Earth's surface.

4
00:00:10,580 --> 00:00:11,670
They were built on the International

5
00:00:11,700 --> 00:00:15,240
Space Station. So, yea, let's open this

6
00:00:15,270 --> 00:00:27,460
thing up. Alright. More paperwork, and

7
00:00:27,490 --> 00:00:38,570
a copy of the 1149. A lot of foam. So

8
00:00:38,610 --> 00:00:43,780
let's see. Bag Number 1. Looks like,

9
00:00:43,820 --> 00:00:48,240
wow. That's sealed up pretty good. Some

10
00:00:48,280 --> 00:00:50,540
scissors would help. I don't want to cut

11
00:00:50,570 --> 00:01:00,360
into the bags that they are in And this is

12
00:01:00,400 --> 00:01:09,610
a Ziplock bag. So, let's see this is 018.

13
00:01:09,650 --> 00:01:16,560

This is a tensile coupon. We use this to

14

00:01:16,590 --> 00:01:21,310

test mechanical samples. 014 Tensile

15

00:01:21,340 --> 00:01:26,610

Coupon 3. No. Ames CubeSat part. A

16

00:01:26,650 --> 00:01:30,500

little clip for a CubeSat. So this one is

17

00:01:30,530 --> 00:01:33,040

pretty interesting. It's a ratchet that was

18

00:01:33,070 --> 00:01:37,280

built. And it was also uplinked from the

19

00:01:37,320 --> 00:01:39,460

ground. It wasn't on the printer's

20

00:01:39,490 --> 00:01:44,950

memory to begin with. Let's see how

21

00:01:44,980 --> 00:01:48,070

this one turned out. Actually, it looks

22

00:01:48,110 --> 00:01:51,130

pretty good. So this ratchet is actually

23

00:01:51,170 --> 00:01:52,620

supposed to move. I don't want to mess

24

00:01:52,650 --> 00:01:55,300

with it too much right now. It's really just

25

00:01:55,330 --> 00:01:58,590

kind of a proof of concept that you can

26
00:01:58,630 --> 00:02:01,470
build functional parts in space, so the

27
00:02:01,500 --> 00:02:04,060
astronauts , if they need a ratchet ,

28
00:02:04,090 --> 00:02:06,410
whatever other tool they might need,

29
00:02:06,450 --> 00:02:09,990
they can just build it on demand and

30
00:02:10,020 --> 00:02:11,950
not have to wait a month or two for the

31
00:02:11,990 --> 00:02:23,050
resupply mission. 010, 019, 017. That's

32
00:02:23,090 --> 00:02:35,120
all that's in the box. This one I am

33
00:02:35,150 --> 00:02:37,760
excited to see because it was actually

34
00:02:37,800 --> 00:02:40,510
built with several cantilevers with no

35
00:02:40,550 --> 00:02:46,020
support structure. So with this, we'll see

36
00:02:46,050 --> 00:02:50,130
how far, how much of an overhang we

37
00:02:50,170 --> 00:02:53,450
can build and still make a geometrically

38
00:02:53,490 --> 00:02:56,670

good quality part. My favorite part out

39

00:02:56,700 --> 00:02:59,740

of all of these. So that now that we

40

00:02:59,770 --> 00:03:02,960

have everything out of the box, we'll

41

00:03:02,990 --> 00:03:06,430

start testing them. First, they'll go. First

42

00:03:06,470 --> 00:03:09,780

they'll get their pictures taken, so we

43

00:03:09,810 --> 00:03:12,250

can get an official comparison of the

44

00:03:12,290 --> 00:03:14,040

ground control samples, which we've

45

00:03:14,070 --> 00:03:17,520

already taken those pictures. So if

46

00:03:17,560 --> 00:03:19,050

there's any difference between the part

47

00:03:19,090 --> 00:03:22,060

any visible difference, we'll be able to

48

00:03:22,090 --> 00:03:24,590

take note of that. Then, they'll go

49

00:03:24,620 --> 00:03:25,990

through what's called structured light

50

00:03:26,020 --> 00:03:29,130

scanning, so it will scan the outer

51
00:03:29,170 --> 00:03:32,260
geometry, and compare that back to the

52
00:03:32,290 --> 00:03:34,760
original. CAD model. We really want to

53
00:03:34,800 --> 00:03:37,940
find out if there's any difference in how

54
00:03:37,970 --> 00:03:40,240
the layers adhere to each other in

55
00:03:40,270 --> 00:03:42,950
micro gravity versus 1-g. And the

56
00:03:42,980 --> 00:03:45,110
printer is still on the space station,

57
00:03:45,140 --> 00:03:47,590
and we're gearing up for phase II.

58
00:03:47,620 --> 00:03:50,790
We have more practical parts. This

59
00:03:50,820 --> 00:03:56,400
is mostly test coupons. So the next

60
00:03:56,430 --> 00:03:58,990
phase of prints will be practical

61
00:03:59,030 --> 00:04:01,460
coupons, more like the ratchet, but