
UNBOXING
A NEW NASA SPACECRAFT

1
00:00:01,350 --> 00:00:03,720
Unboxing

2
00:00:03,740 --> 00:00:05,630
a new

3
00:00:05,650 --> 00:00:08,280
NASA spacecraft

4
00:00:09,000 --> 00:00:11,530
Hey everyone, we're here with Steve Turek from Orbital ATK.

5
00:00:11,550 --> 00:00:15,080
Something is about to happen that we haven't shown here at NASA yet.

6
00:00:15,100 --> 00:00:19,730
What you're seeing behind us is the unboxing of the ICON spacecraft.

7
00:00:19,750 --> 00:00:23,700
We've shipped it from Gilbert, Arizona and we brought it here

8
00:00:23,720 --> 00:00:26,380
to the launch processing facility here at Vandenberg Air Force Base.

9
00:00:26,400 --> 00:00:30,120
Now, ICON is the Ionospheric Connection Explorer.

10
00:00:30,140 --> 00:00:30,590
That's correct.

11
00:00:30,610 --> 00:00:33,280
And that's going to be studying the upper atmosphere.

12
00:00:33,300 --> 00:00:38,420
It's going to give us an understanding of our weather in our atmosphere and spatial weather.

13
00:00:38,440 --> 00:00:42,860

We don’t quite have a handle on what’s going on up there in the ionosphere.

14
00:00:42,880 --> 00:00:45,590
So this will give us an opportunity to understand that.

15
00:00:45,610 --> 00:00:48,680
Now this is not a very big spacecraft in terms of what we normally think of satellites.

16
00:00:48,700 --> 00:00:51,480
That’s correct because it’s going inside a Pegasus rocket.

17
00:00:51,500 --> 00:00:54,120
And what is that Pegasus XL?

18
00:00:54,140 --> 00:01:02,740
It is an Orbital ATK rocket that gets integrated to the bottom of its L-1011.

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00:01:02,760 --> 00:01:09,140
It’ll go to a launch box. It’ll be dropped and then the motors will ignite and it will put it in its orbit.

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00:01:09,160 --> 00:01:12,730
Now I understand what they’re going to do is that they’ve just taken off the top portion of the box.

21
00:01:12,750 --> 00:01:17,350
And why did they take it off in sections as a opposed to just taking all off at once?

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00:01:17,370 --> 00:01:20,510
As you can see there’s a sub-structure underneath the shipping container lid.

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00:01:20,530 --> 00:01:26,650
Now that sub-structure is a melinex-type cover with an aluminum sub-structure

24
00:01:26,670 --> 00:01:30,480
that inside there its being purged to keep ICON very clean.

25
00:01:30,500 --> 00:01:33,520
We want to be able to have eyes on that sub-structure

26
00:01:33,540 --> 00:01:37,480
so we don’t bind up when we’re lifting the lower pieces of the lid.

27
00:01:37,500 --> 00:01:40,300
Alright, Steve. I think we’re getting ready to lift the second half here.

28
00:01:40,320 --> 00:01:42,820
We are. It looks like they have succeeded.

29
00:01:42,840 --> 00:01:44,530
They’re just going around. They’re looking at the perimeter

30
00:01:44,550 --> 00:01:48,750
to make sure there’s no hang ups and they’ll just continue forward lifting it up.

31
00:01:48,770 --> 00:01:51,960
And of course, they’re lifting it very slowly to make sure they’re not going to hit the spacecraft.

32
00:01:51,980 --> 00:01:56,440
That’s correct. And it looks very good at this point.

33
00:01:56,460 --> 00:02:03,960
The crane has three speeds - really fast, fast, and a micro-slow speed.

34
00:02:03,980 --> 00:02:06,530
And right now it’s on a micro-slow speed.

35
00:02:06,550 --> 00:02:09,650
And this will take a few minutes before they can get to the point where they can remove it.

36
00:02:09,670 --> 00:02:16,840
So just, for the first time you are seeing an unboxing of an actual NASA satellite. How cool is that.

37
00:02:16,860 --> 00:02:22,250
You can see the silver covers at the bottom, those are the solar ray panels.

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00:02:22,270 --> 00:02:25,350

The solar rays provide power for the observatory.

39
00:02:25,370 --> 00:02:30,730
At the bottom of the shipping container, you can see a little black box.

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00:02:30,750 --> 00:02:31,720
Okay.

41
00:02:31,740 --> 00:02:36,460
That black box is a shock recorder, so during transit we can monitor,

42
00:02:36,480 --> 00:02:40,140
we will be able to download the data from that little box

43
00:02:40,160 --> 00:02:44,000
and it will tell us how much shock the observatory saw during its shipment.

44
00:02:44,020 --> 00:02:47,340
That's a good point, so you drove this on a truck

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00:02:47,360 --> 00:02:50,340
to California to take it to Vandenberg, but if it hits a pothole,

46
00:02:50,360 --> 00:02:52,500
if it hits, you know, something that, that really

47
00:02:52,520 --> 00:02:59,190
Yeah, there's speed bumps at the truck weighing stations that we try to avoid,

48
00:02:59,210 --> 00:03:04,090
so there's limited -- I mean it's a soft ride environmentally controlled truck.

49
00:03:04,110 --> 00:03:08,120
We don't think there are any issues during the shipment,

50
00:03:08,140 --> 00:03:13,310
but we do have it instrumented to provide that objective evidence that nothing was done during the shipment.

51
00:03:13,330 --> 00:03:20,050
This is probably a dumb question, but, you know, a lot of these unboxings, the person gets to play with it.

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00:03:20,070 --> 00:03:24,180
You know, you open up the box and I get to play with the phone. Can we go play with the spacecraft?

53
00:03:24,200 --> 00:03:28,200
No, no you can't play with the spacecraft. However, the spacecraft will play with us.

54
00:03:28,220 --> 00:03:36,720
So once we get it inside the clean room, we will instrument it with EGSE, and we'll do a post-shipment test.

55
00:03:36,740 --> 00:03:37,360
What's EGSE?

56
00:03:37,380 --> 00:03:43,960
Electrical ground support equipment.\hOkay.

57
00:03:43,980 --> 00:03:49,610
So Steve, this is another part where we're bringing another piece of apparatus to attach to the spacecraft.

58
00:03:49,630 --> 00:03:55,850
Yeah, this is the actual fixture that's going to lift ICON off of its shipping container base.

59
00:03:55,870 --> 00:03:57,850
It's called a vertical lift sling. Okay.

60
00:03:57,870 --> 00:04:03,010
It's a very critical lift. At this point, this is where you're actually lifting the observatory,

61
00:04:03,030 --> 00:04:08,140
the flight hardware, the $40 million-plus piece, off the ground

62
00:04:08,160 --> 00:04:13,480
onto this high stand for all the close-out and testing activities inside the tank A-10.\h

63
00:04:13,500 --> 00:04:16,330

Now the cool thing about this is, we don't get to show this on a normal basis.

64
00:04:16,350 --> 00:04:19,570
This is a first. I mean, to actually see a critical lift of a spacecraft

65
00:04:19,590 --> 00:04:22,540
being lifted off from the platform onto its -- what's this called again?

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00:04:22,560 --> 00:04:25,040
This is the integration high stand.

67
00:04:25,060 --> 00:04:31,240
Yeah so, this is going to be an awesome sight to see. This is the first time, so I'm excited.

68
00:04:31,260 --> 00:04:35,080
Now, one of the things that I noticed for the folks who are in the bunny suits,

69
00:04:35,100 --> 00:04:40,190
they have a device that's attached from their suit to a hard point. What is that for?\h

70
00:04:40,210 --> 00:04:42,280
That's an ESD ground strap.\hOkay.

71
00:04:42,300 --> 00:04:47,970
So it not only protects the hardware from an ESD event -- electrostatic discharge event --

72
00:04:47,990 --> 00:04:51,890
it also protects the operator,

73
00:04:51,910 --> 00:04:58,100
so if there was any surge of power coming back to the operator it would be filtered or absorbed by that.

74
00:04:58,120 --> 00:05:03,900
And it would be a bad day if they weren't wearing those, and they did have a static discharge on the spacecraft