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00:00:06,700 --> 00:00:10,070

NASA is about to attempt something they've never done before.

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00:00:10,070 --> 00:00:15,139

"This is the first time we've had an interplanetary launch from Vandenberg Air Force Base in California.

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00:00:15,139 --> 00:00:21,250

The cool thing about this launch is that we've got such a capable rocket, the Atlas V, we

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00:00:21,250 --> 00:00:23,060

don't have to launch from Florida."

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00:00:23,060 --> 00:00:27,130

"InSight is going to be the first time we've had a spacecraft leave Earth's orbit launching

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00:00:27,130 --> 00:00:28,340

from California.

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00:00:28,340 --> 00:00:33,050

We've actually done studies for it, even up to decades ago, but it just comes down to

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00:00:33,050 --> 00:00:37,760

whether or not the mission had extra propellant left over, and whether there was an operational

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00:00:37,760 --> 00:00:41,030

reason to switch from an East Coast launch to a West Coast.

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00:00:41,030 --> 00:00:43,080

This is just the first time all of it came together."

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00:00:43,080 --> 00:00:47,540

"What we're going to do is we're going to unload the spacecraft really, really carefully

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00:00:47,540 --> 00:00:50,860

and then we're going to drive it a couple of miles to the Astrotech facility, where

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00:00:50,860 --> 00:00:54,080

they have a clean room all set up for us.

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00:00:54,080 --> 00:00:55,230

Got about two months here.

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00:00:55,230 --> 00:01:00,540

All we got to do is clean it up, test it out, put the fuel in the tanks, and bolt it on

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00:01:00,540 --> 00:01:04,839

the rocket, and off we go to Mars."

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00:01:04,839 --> 00:01:07,280

"It's unlike other missions that we've done on Mars.

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00:01:07,280 --> 00:01:11,259

We have a number of orbiters, a number of landers that we've successfully explored this

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00:01:11,259 --> 00:01:12,509

amazing planet.

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00:01:12,509 --> 00:01:16,520

But this actually is the first mission where we're looking on the inside, the inner space

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00:01:16,520 --> 00:01:17,520

of Mars."

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00:01:17,520 --> 00:01:20,719

Sending a science mission to Mars is not easy.

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00:01:20,719 --> 00:01:23,520
Landing a probe on the surface is even harder.

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00:01:23,520 --> 00:01:28,420
InSight's compact and incredibly efficient design makes sure it gets there and touches

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00:01:28,420 --> 00:01:29,549
down safely.

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00:01:29,549 --> 00:01:34,850
"So the crew stage itself is the critical component that actually gets us to Mars.

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00:01:34,850 --> 00:01:38,369
There's an aeroshell that absorbs the heat as we re-enter the atmosphere.

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00:01:38,369 --> 00:01:42,799
That aeroshell enables us to go through the atmosphere of Mars successfully without getting

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00:01:42,799 --> 00:01:44,939
the inside of the lander itself too hot.

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00:01:44,939 --> 00:01:47,729
We deploy a parachute, that parachute does two things.

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00:01:47,729 --> 00:01:52,649
It really ensures the stability of the aeroshell as it's starting to get closer to the surface.

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00:01:52,649 --> 00:01:57,689
It also slows down the spacecraft further until finally we drop out of the combination

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00:01:57,689 --> 00:02:03,759

back shell and parachute and then we do a propulsive decent down to the surface."

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00:02:03,759 --> 00:02:13,220

"Planetary protection is what we do to responsibly explore other planets and moons in our solar system.

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00:02:14,220 --> 00:02:17,920

In order to do that, we need to make sure we send a clean spacecraft there.

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00:02:17,920 --> 00:02:21,640

We would hate to get to another planet or moon and think we discovered life, but it

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00:02:21,640 --> 00:02:24,090

was actually something that we brought with us.

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00:02:24,090 --> 00:02:28,409

So we collect our samples on InSight, any part of InSight that's going to land on the

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00:02:28,409 --> 00:02:33,540

surface of Mars, we bring it back to our lab and we process it using a NASA procedure.

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00:02:33,540 --> 00:02:38,500

If we run into a situation where we take a sample and it comes back as having higher

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00:02:38,500 --> 00:02:43,691

number of bacteria than what we want, then we make sure that engineers go back in and

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00:02:43,691 --> 00:02:49,180

clean those surfaces with the whole idea that eventually with missions that have life detection

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00:02:49,180 --> 00:02:55,750

capabilities, we don't want to cloud our ability
to potentially find life on another planet

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00:02:55,750 --> 00:02:56,750

or moons."

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00:02:56,750 --> 00:03:01,030

The work being done now here at Astrotech
is critical to insure InSight's safe arrival

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00:03:01,030 --> 00:03:03,560

and landing on the red planet.

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00:03:03,560 --> 00:03:08,720

It has to be perfect before it leaves Earth
on the six-month journey to Mars.

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00:03:08,720 --> 00:03:14,220

As soon as the spacecraft is fueled and tested,
InSight will be encapsulated and sent to the