1
00:00:00,000 --> 00:00:04,000
Silent.

2
00:00:04,000 --> 00:00:09,000
Ian Clark: On June 28th, NASA's Low-Density Supersonic Decelerator project conducted the first shakeout flig

3
00:00:09,000 --> 00:00:12,000
of a new way of testing technologies that will one day be used

4
00:00:12,000 --> 00:00:16,000
to land heavier, more massive payloads on the surface of Mars.

5
00:00:16,000 --> 00:00:20,000
We used a large 34-million cubic foot scientific balloon

6
00:00:20,000 --> 00:00:26,000
to hoist a 7,000 pound test vehicle to an altitude of 120,000 feet.

7
00:00:26,000 --> 00:00:29,000
The test vehicle was then released from the balloon,

8
00:00:29,000 --> 00:00:30,000
spun up for stability

9
00:00:30,000 --> 00:00:34,000
Sound: Rockets firing

10
00:00:34,000 --> 00:00:39,000
Clark: and a large solid rocket motor accelerated to over four times the speed of sound

11
00:00:39,000 --> 00:00:45,000
and an altitude of 180,000 feet, a condition very similar to conditions you would see at Mars.

12
00:00:45,000 --> 00:00:48,000
Once we reached the correct speed and altitude, we de-spun the vehicle.

13
00:00:48,000 --> 00:00:51,000

Sound: Rockets firing

14
00:00:51,000 --> 00:00:55,000
Clark: And then we got a chance test our new supersonic inflatable decelerator.

15
00:00:55,000 --> 00:00:56,000
Sound: Pop

16
00:00:56,000 --> 00:00:57,000
Clark: The camera lends covers deploy.

17
00:00:57,000 --> 00:00:58,000
Sound: Pop

18
00:00:58,000 --> 00:01:03,000
Clark: We see that it inflated very uniformly, without disturbing the vehicle too much.

19
00:01:03,000 --> 00:01:07,000
And now we're seeing previously-unreleased high-definition, high-resolution, high-speed video,

20
00:01:07,000 --> 00:01:09,000
taken during the test.

21
00:01:09,000 --> 00:01:11,000
We used this supersonic inflatable decelerator to slow us

22
00:01:11,000 --> 00:01:16,000
to something closer to two and a half times the speed of sound.

23
00:01:16,000 --> 00:01:17,000
Sound: Wind

24
00:01:17,000 --> 00:01:20,000
We used a ballute to help deploy the new supersonic parachute.

25
00:01:20,000 --> 00:01:24,000
The ballute is shot out the back of the vehicle at over 200 feet per second.

26
00:01:24,000 --> 00:01:28,000
And then we cut the ballute free and it begins to pull the parachute off the back of the vehicle.

27
00:01:28,000 --> 00:01:30,000
Sound: Wind

28
00:01:30,000 --> 00:01:35,000
As the parachute begins to inflate, we see one of the surprising aspects of this test,

29
00:01:35,000 --> 00:01:39,000
which is the early on set of tears in the parachute.

30
00:01:39,000 --> 00:01:44,000
We see where those tears began, how they propagated and otherwise how the parachute behaved

31
00:01:44,000 --> 00:01:50,000
as it began trying to inflate behind this very blunt object, moving two and a half times the speed of sound,

32
00:01:50,000 --> 00:01:51,000
punching a hole in the atmosphere,