



1
00:00:00,900 --> 00:00:01,868
[Whirring, people talking,
metal clinking]

2
00:00:01,901 --> 00:00:03,903
"Engineering for Mars
Behind the Scenes 360"

3
00:00:03,936 --> 00:00:06,339
"2020 Rover Descent
Stage Assembly"

4
00:00:06,372 --> 00:00:08,241
"Use headphones
and look around

5
00:00:08,274 --> 00:00:10,643
for the most immersive
experience."

6
00:00:12,878 --> 00:00:15,915
Hi, my name is Emily Howard and
I'm a mechanical engineer for

7
00:00:16,015 --> 00:00:17,884
the Mars 2020 rover...

8
00:00:17,917 --> 00:00:19,552
which is the next rover
we're sending to Mars

9
00:00:19,585 --> 00:00:21,954
in the year 2020.

10
00:00:21,987 --> 00:00:23,923
Once on Mars, this
rover will

11
00:00:23,956 --> 00:00:25,591

seek out signs of
ancient life,

12

00:00:25,624 --> 00:00:27,193

and capture samples for
possible return

13

00:00:27,226 --> 00:00:28,628

by future missions.

14

00:00:28,661 --> 00:00:31,231

It will also help us prepare
for human missions to Mars.

15

00:00:32,465 --> 00:00:34,267

Right now we're working
on the Descent Stage

16

00:00:34,300 --> 00:00:37,036

of the Mars 2020 rover.

17

00:00:37,069 --> 00:00:39,572

We're in High Bay One in the
Spacecraft Assembly Facility at

18

00:00:39,672 --> 00:00:43,843

NASA's Jet Propulsion Laboratory
in Pasadena, California.

19

00:00:44,743 --> 00:00:46,712

All of the emblems you see
on the wall represent

20

00:00:46,745 --> 00:00:48,915

missions that were
assembled here.

21

00:00:48,948 --> 00:00:51,317

Missions to
Venus, Mars, Jupiter,

22

00:00:51,350 --> 00:00:53,553

Saturn and beyond.

23

00:00:55,988 --> 00:00:57,623

I'm right here!

24

00:00:57,656 --> 00:01:00,059

Just kidding. That's

"High Bay Bob."

25

00:01:00,092 --> 00:01:04,130

"High Bay Bob" is there to show
off the current gowning state

26

00:01:04,163 --> 00:01:07,400

in the High Bay, based on the
project that's in there.

27

00:01:07,433 --> 00:01:09,135

Sometimes it's just smocks

28

00:01:09,168 --> 00:01:12,371

but right now we're
in the full "bunny suit."

29

00:01:12,404 --> 00:01:15,041

"High Bay Bob" does not
celebrate "Casual Fridays."

30

00:01:17,910 --> 00:01:21,147

We're wearing "bunny suits,"
protective clothing to minimize

31

00:01:21,247 --> 00:01:24,150

particles and bacteria from
getting on sensitive equipment

32

00:01:24,250 --> 00:01:27,720

and optics also we don't want
microbes jumping off of us onto

33

00:01:27,820 --> 00:01:31,157
the spacecraft, hitching a ride
to Mars, then us thinking

34

00:01:31,257 --> 00:01:33,159
we discovered life there.

35

00:01:33,192 --> 00:01:35,495
I'm right here.

36

00:01:37,062 --> 00:01:39,465
On the table here we're
measuring the different parts,

37

00:01:39,498 --> 00:01:42,001
weighing them and
then putting them back in

38

00:01:42,034 --> 00:01:46,473
Amerstat bags in preparation
for the installation.

39

00:01:49,608 --> 00:01:52,812
The Descent Stage AKA the "Sky
Crane" is a really cool part of

40

00:01:52,912 --> 00:01:54,747
how the rover actually
lands on Mars.

41

00:01:56,115 --> 00:01:59,319
It's part of the complex Entry,
Descent and Landing system in

42

00:01:59,419 --> 00:02:01,921
which the rover enters the
Martian atmosphere guided

43

00:02:02,021 --> 00:02:04,824

towards a specific landing point
on the surface of Mars.

44

00:02:10,329 --> 00:02:12,665

When it reaches a certain height
above the landing site, it will

45

00:02:12,765 --> 00:02:16,169

stop, hover, and lower the rover
suspended on cables

46

00:02:16,202 --> 00:02:18,471

to the surface.

47

00:02:18,571 --> 00:02:21,007

Once the rover is safely on
the surface of Mars,

48

00:02:21,040 --> 00:02:23,809

the cables are detached and the
Descent Stage will fly off,

49

00:02:23,842 --> 00:02:26,980

crash landing thousands of feet
away from the rover.

50

00:02:32,284 --> 00:02:35,188

The Descent Stage weighs
about 1500 pounds.

51

00:02:35,221 --> 00:02:37,123

That's about the same
weight as a dairy cow.

52

00:02:38,123 --> 00:02:39,892

When it's built, the
rover will be mated

53

00:02:39,925 --> 00:02:42,762

underneath the Descent
Stage for its trip to Mars.

54

00:02:44,463 --> 00:02:46,666

It's vital to the success
of the mission.

55

00:02:46,699 --> 00:02:47,900

So, once our work
here is done,

56

00:02:47,933 --> 00:02:49,335

we'll be testing
it for the next

57

00:02:49,368 --> 00:02:51,471

three years before launch.

58

00:02:53,339 --> 00:02:54,473

Hope you enjoyed
your tour of

59

00:02:54,506 --> 00:02:55,875

the Spacecraft
Assembly Facility.

60

00:02:55,908 --> 00:02:57,710

Thanks for stopping by!

61

00:02:58,143 --> 00:02:58,977

[Whoosh]

62

00:02:59,011 --> 00:03:00,313

[NASA LOGO / Jet
Propulsion Laboratory /