1
00:00:00,000 --> 00:00:07,237
Sound FX music

2
00:00:07,272 --> 00:00:09,213
When you’re designing the world’s

3
00:00:09,248 --> 00:00:10,501
most powerful rocket ever there’s

4
00:00:10,536 --> 00:00:12,725
a million different things to think about.

5
00:00:12,760 --> 00:00:14,853
Here at Marshall l Space Flight Center

6
00:00:14,888 --> 00:00:16,628
we are considering all of those things

7
00:00:16,663 --> 00:00:17,997
in support of the Space Launch

8
00:00:18,032 --> 00:00:20,221
System. One of those things is

9
00:00:20,256 --> 00:00:21,990
the lift off environment produced

10
00:00:22,025 --> 00:00:23,638
by the rocket. Marshall l Space

11
00:00:23,673 --> 00:00:25,701
Flight Center in coordination with

12
00:00:25,736 --> 00:00:27,021
other centers such as Langley

13
00:00:27,056 --> 00:00:28,300

and Kennedy Space Center have

14
00:00:28,335 --> 00:00:30,829
designed this test setup in order

15
00:00:30,864 --> 00:00:32,965
to answer the questions of what

16
00:00:33,000 --> 00:00:34,797
are the lift off environments

17
00:00:34,832 --> 00:00:36,364
produced by the vehicle; what are

18
00:00:36,399 --> 00:00:38,317
the lift off environments seen by

19
00:00:38,352 --> 00:00:40,117
the tower and the mobile launch

20
00:00:40,152 --> 00:00:42,405
pad and what are the water sound

21
00:00:42,440 --> 00:00:44,653
suppression systems needed in

22
00:00:44,688 --> 00:00:46,653
order to mitigate the sound levels.

23
00:00:46,688 --> 00:00:48,221
The design you see back here has

24
00:00:48,256 --> 00:00:50,125
four liquid engines each having

25
00:00:50,160 --> 00:00:51,621
twelve hundred pounds of thrust

26
00:00:51,656 --> 00:00:53,533
…and two solids on either side

27
00:00:53,568 --> 00:00:55,021
each having approximately nine

28
00:00:55,056 --> 00:00:56,189
thousand pounds of thrust.

29
00:00:56,224 --> 00:00:58,494
So during my design I had to hold

30
00:00:58,529 --> 00:01:00,830
that total of approximately

31
00:01:00,865 --> 00:01:03,221
twenty-five thousand pounds of

32
00:01:03,256 --> 00:01:04,901
thrust in place so that it doesn’t

33
00:01:04,936 --> 00:01:06,437
fly away and injure someone.

34
00:01:06,472 --> 00:01:08,901
Our scale model rocket is amazing

35
00:01:08,936 --> 00:01:11,342
and our designer did a fabulous job of

36
00:01:11,377 --> 00:01:14,270
it and it’s an amazing piece of work.

37
00:01:14,305 --> 00:01:17,269
And inside that vehicle there is roughly

38
00:01:17,304 --> 00:01:19,468

over two hundred and fifty different

39
00:01:19,503 --> 00:01:22,100
ports for microphone and pressure

40
00:01:22,135 --> 00:01:24,301
transducer measurements. And each

41
00:01:24,336 --> 00:01:26,261
of those microphone measurements

42
00:01:26,296 --> 00:01:28,389
has a special little holder to hold the

43
00:01:28,424 --> 00:01:30,589
microphone in place. It’s an

44
00:01:30,624 --> 00:01:31,973
engineering marvel.

45
00:01:32,008 --> 00:01:40,109
Rocket sounds.

46
00:01:40,144 --> 00:01:41,509
Very loud sounds can be very

47
00:01:41,544 --> 00:01:43,797
damaging both to the rocket vehicle

48
00:01:43,832 --> 00:01:44,765
and to the crew. The collection of

49
00:01:44,800 --> 00:01:46,693
this data has been very important

50
00:01:46,728 --> 00:01:48,813
to every launch vehicle we’ve

51
00:01:48,848 --> 00:01:50,253
ever designed and it’s especially

52
00:01:50,288 --> 00:01:52,533
important when you’re designing