1
00:00:00,000 --> 00:00:04,533
Music

2
00:00:04,568 --> 00:00:06,630
So we were tasked with

3
00:00:06,665 --> 00:00:09,398
essentially loading the largest

4
00:00:09,433 --> 00:00:10,790
launch vehicle ever built by

5
00:00:10,825 --> 00:00:12,949
NASA in history safely with

6
00:00:12,984 --> 00:00:15,149
liquid oxygen. We started

7
00:00:15,184 --> 00:00:17,597
planning this test program about

8
00:00:17,632 --> 00:00:21,077
three years ago. We started by

9
00:00:21,112 --> 00:00:22,868
doing a water development test,

10
00:00:22,903 --> 00:00:25,316
and we learned a lot in that

11
00:00:25,351 --> 00:00:27,013
test. This is the first time

12
00:00:27,048 --> 00:00:28,869
we've built a test article just

13
00:00:28,904 --> 00:00:30,909

like this. It's very unique to

14
00:00:30,944 --> 00:00:32,565
any other LOX system on a launch

15
00:00:32,600 --> 00:00:34,132
vehicle ever built. It's

16
00:00:34,167 --> 00:00:35,492
different from Saturn, it's

17
00:00:35,527 --> 00:00:36,468
different from Delta, it's

18
00:00:36,503 --> 00:00:37,876
different than Shuttle. So there

19
00:00:37,911 --> 00:00:39,324
are a lot of unique things we

20
00:00:39,359 --> 00:00:40,548
got to learn. Today was our

21
00:00:40,583 --> 00:00:42,251
twelfth day of testing. We have

22
00:00:42,286 --> 00:00:44,067
a total of around twenty test

23
00:00:44,102 --> 00:00:45,659
days for our entire test

24
00:00:45,694 --> 00:00:47,700
program. The test program was

25
00:00:47,735 --> 00:00:49,156
designed to make sure that we

26
00:00:49,191 --> 00:00:50,668
had all of the possibilities,

27
00:00:50,703 --> 00:00:52,131
all the variables enveloped.

28
00:00:52,166 --> 00:00:53,531
Things like ambient temperatures

29
00:00:53,566 --> 00:00:56,003
failure of bleed valves on the

30
00:00:56,038 --> 00:00:57,179
engines, failures of helium

31
00:00:57,214 --> 00:00:58,299
injection, facility failures

32
00:00:58,334 --> 00:00:59,947
where we lose supply of liquid

33
00:00:59,982 --> 00:01:02,004
oxygen. We've spent a lot of

34
00:01:02,039 --> 00:01:04,124
time in that realm and failing

35
00:01:04,159 --> 00:01:05,571
certain things that could fail,

36
00:01:05,606 --> 00:01:07,644
and making sure that we have the

37
00:01:07,679 --> 00:01:09,267
right control knobs on and in

38
00:01:09,302 --> 00:01:10,907

place to maintain the system

39
00:01:10,942 --> 00:01:12,826
safety. The time line to fill a

40
00:01:12,861 --> 00:01:14,810
vehicle of this size is on the

41
00:01:14,845 --> 00:01:16,922
order of three or four hours.

42
00:01:16,957 --> 00:01:18,987
Once it's filled we'll sit for a

43
00:01:19,022 --> 00:01:21,107
number of hours, for things like

44
00:01:21,142 --> 00:01:22,619
waiting for the system to

45
00:01:22,654 --> 00:01:23,754
actually stabilize...waiting for

46
00:01:23,789 --> 00:01:25,218
astronauts to board and other

47
00:01:25,253 --> 00:01:27,290
sub-systems to get ready. Once

48
00:01:27,325 --> 00:01:29,330
you get closer to launch time

49
00:01:29,365 --> 00:01:30,954
there's about a ten minute

50
00:01:30,989 --> 00:01:32,498
window where you go into your

51
00:01:32,533 --> 00:01:33,785
launch countdown and that's when

52
00:01:33,820 --> 00:01:34,985
you're closing off the

53
00:01:35,020 --> 00:01:36,361
sub-systems from the facility...

54
00:01:36,396 --> 00:01:37,889
isolating them. So this test

55
00:01:37,924 --> 00:01:39,154
program really demonstrates

56
00:01:39,189 --> 00:01:40,410
every little step along that

57
00:01:40,445 --> 00:01:41,842
entire timeline to make sure

58
00:01:41,877 --> 00:01:43,346
that we have a good

59
00:01:43,381 --> 00:01:44,665
understanding of the system

60
00:01:44,700 --> 00:01:46,089
behavior and that it's safe. And

61
00:01:46,124 --> 00:01:47,705
that's what building a rocket is

62
00:01:47,740 --> 00:01:49,561
all about, is taking all of

63
00:01:49,596 --> 00:01:51,129

those complex pieces, putting

64
00:01:51,164 --> 00:01:52,674
them all together and being

65
00:01:52,709 --> 00:01:54,649
able to then go test our

66
00:01:54,684 --> 00:01:56,873
operations to have a successful