

1
00:00:12,140 --> 00:00:16,859
as each piece of the James Webb Space

2
00:00:14,519 --> 00:00:19,079
Telescope is built it has to be tested

3
00:00:16,859 --> 00:00:21,960
rigorously but the telescope at some

4
00:00:19,079 --> 00:00:24,239
point needs to be tested as a whole Webb

5
00:00:21,960 --> 00:00:26,910
though is enormous standing several

6
00:00:24,239 --> 00:00:29,519
storeys tall to make sure that the

7
00:00:26,910 --> 00:00:31,920
observatory will work in deep space nASA

8
00:00:29,519 --> 00:00:34,140
has to use its biggest thermal vacuum

9
00:00:31,920 --> 00:00:37,800
chamber the one here at the Johnson

10
00:00:34,140 --> 00:00:40,698
Space Center in Houston Texas hi Mary hi

11
00:00:37,799 --> 00:00:42,689
I understand you can tell us more about

12
00:00:40,698 --> 00:00:45,689
what you guys are doing with this

13
00:00:42,689 --> 00:00:48,179
chamber we embarked on a rather large

14
00:00:45,689 --> 00:00:49,799
construction project to get our thermal

15
00:00:48,179 --> 00:00:52,109
vacuum chamber ready for the James Webb

16
00:00:49,799 --> 00:00:53,728
Space Telescope this chamber has a lot

17
00:00:52,109 --> 00:00:57,119
of history stemming back from Apollo

18
00:00:53,728 --> 00:00:59,670
times the chamber itself was actually

19
00:00:57,119 --> 00:01:02,128
built in the 1960s to get ready for the

20
00:00:59,670 --> 00:01:04,349
space race we see a nice wide angle of

21
00:01:02,128 --> 00:01:05,759
this can we get a closer view of what's

22
00:01:04,349 --> 00:01:08,189
really going on in there we can go

23
00:01:05,760 --> 00:01:10,650
inside and take a closer look Mary why

24
00:01:08,189 --> 00:01:13,079
are you taking us out here well these

25
00:01:10,650 --> 00:01:15,960
are the original liquid nitrogen tanks

26
00:01:13,079 --> 00:01:18,390
that we used for the testing of Apollo

27
00:01:15,959 --> 00:01:20,909
and it contains all the liquid nitrogen

28
00:01:18,390 --> 00:01:22,620
we need to make the chamber below 300

29

00:01:20,909 --> 00:01:24,599
degrees Fahrenheit what are we going to

30
00:01:22,620 --> 00:01:25,920
see next we're going to look at some of

31
00:01:24,599 --> 00:01:27,629
the things we've had to remove from the

32
00:01:25,920 --> 00:01:31,079
Apollo testing to get ready for James

33
00:01:27,629 --> 00:01:33,299
Webb and go up to the fifth level solar

34
00:01:31,079 --> 00:01:36,299
lamps were part of testing for the

35
00:01:33,299 --> 00:01:38,939
Apollo the vehicle needed to have a high

36
00:01:36,299 --> 00:01:41,429
intensity heat source on one side at a

37
00:01:38,939 --> 00:01:44,129
time some of them will be closed off and

38
00:01:41,430 --> 00:01:46,170
some of them will be used to pass in new

39
00:01:44,129 --> 00:01:49,199
piping for the helium the helium is for

40
00:01:46,170 --> 00:01:51,689
what the helium will supply basically

41
00:01:49,200 --> 00:01:53,670
like big soup can inside of the can of

42
00:01:51,689 --> 00:01:56,459
the chamber which is going to make the

43
00:01:53,670 --> 00:01:58,590

chamber cold colder than the 300 degrees

44

00:01:56,459 --> 00:02:00,959

below zero that Apollo had to face

45

00:01:58,590 --> 00:02:03,180

colder than the nitrogen temperatures we

46

00:02:00,959 --> 00:02:06,658

had for Apollo it'll make it it will go

47

00:02:03,180 --> 00:02:08,729

below 400 degrees for the James Webb

48

00:02:06,659 --> 00:02:10,800

Space Telescope here we are at the fifth

49

00:02:08,729 --> 00:02:12,690

level entrance to the chamber and I'll

50

00:02:10,800 --> 00:02:14,439

let our lead for test operations tell

51

00:02:12,689 --> 00:02:17,050

you what we have to do for the vehicle

52

00:02:14,439 --> 00:02:19,509

by the chamber as you can see there's

53

00:02:17,050 --> 00:02:21,700

some work going on here this scaffolding

54

00:02:19,509 --> 00:02:23,560

has just been erected we're about to get

55

00:02:21,699 --> 00:02:26,379

ready to start installing the helium

56

00:02:23,560 --> 00:02:28,240

shroud we have to mask off anything when

57

00:02:26,379 --> 00:02:30,009

we're done that could be a crack or what

58
00:02:28,240 --> 00:02:32,680
we call a stray light path into the

59
00:02:30,009 --> 00:02:35,439
interior of the chamber any heat sources

60
00:02:32,680 --> 00:02:38,620
any light sources those would all affect

61
00:02:35,439 --> 00:02:40,419
the proper operation of the telescope so

62
00:02:38,620 --> 00:02:43,990
we're down on the ground level this is

63
00:02:40,419 --> 00:02:46,539
it this is the floor of the chamber what

64
00:02:43,990 --> 00:02:49,300
you're actually standing on now is used

65
00:02:46,539 --> 00:02:51,370
to be an old Apollo lunar turntable as

66
00:02:49,300 --> 00:02:52,840
part of the floor used to rotate and

67
00:02:51,370 --> 00:02:55,930
that's one of the things that's been

68
00:02:52,840 --> 00:02:58,240
changed for James Webb the mechanism

69
00:02:55,930 --> 00:03:01,750
that turned the floor had an oil-based

70
00:02:58,240 --> 00:03:04,330
seal contamination is a risk for us so

71
00:03:01,750 --> 00:03:06,909
that's been replaced and welded floor

72

00:03:04,330 --> 00:03:10,060

doesn't turn anymore so now you can see

73

00:03:06,909 --> 00:03:12,729

how NASA's past is paving the way for

74

00:03:10,060 --> 00:03:16,560

NASA's future thanks for joining us for

75

00:03:12,729 --> 00:03:16,560

another edition of behind the Webb