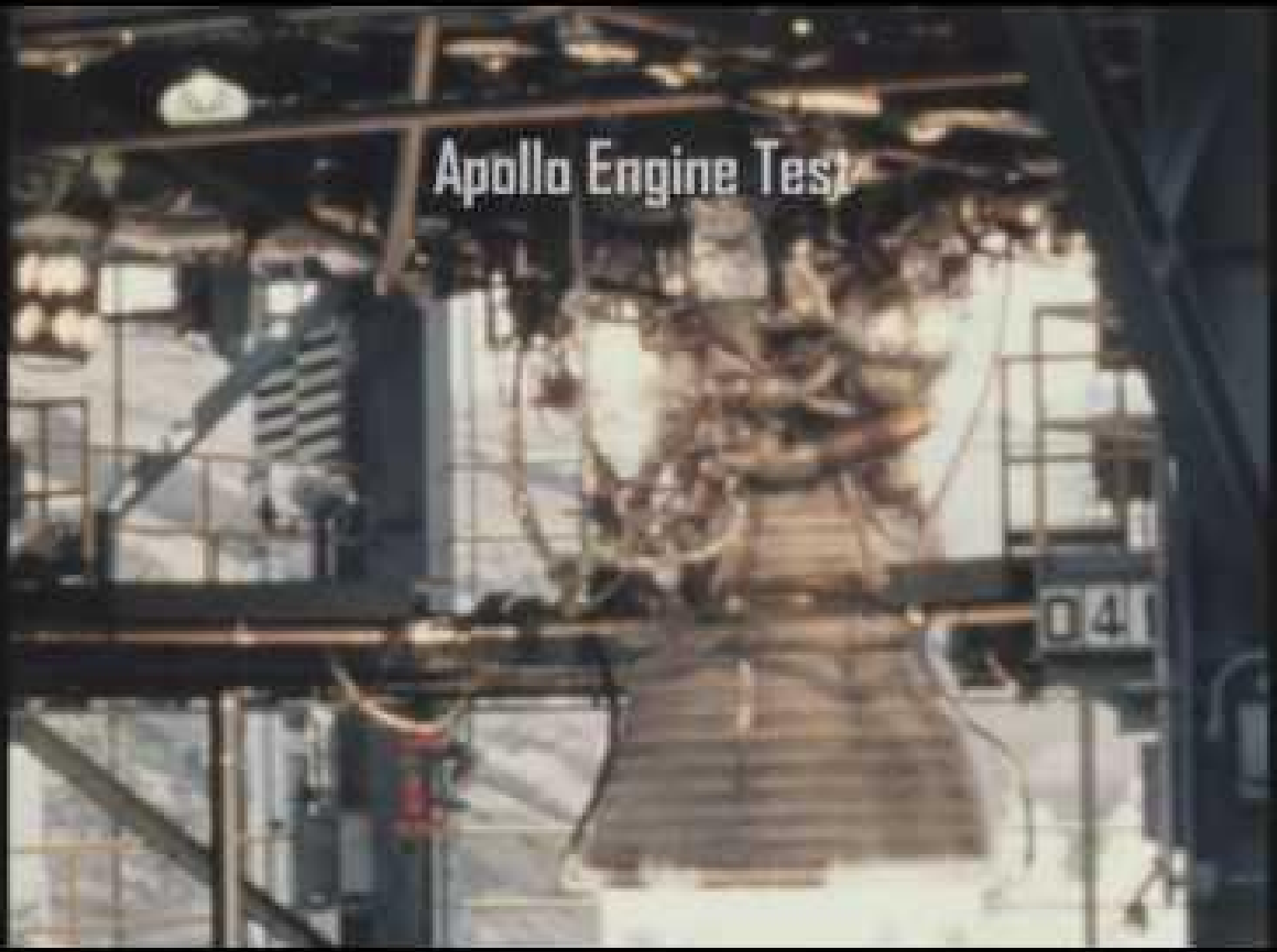
Apollo Engine Test

1
00:00:00,073 --> 00:00:09,040
Music

2
00:00:09,040 --> 00:00:09,083
Creating a

3
00:00:09,083 --> 00:00:11,027
spacecraft is a process.

4
00:00:11,027 --> 00:00:13,063
Engineers conceptualize,

5
00:00:13,063 --> 00:00:15,010
model and predict the

6
00:00:15,010 --> 00:00:16,047
performance of a vehicle

7
00:00:16,047 --> 00:00:18,010
using computers and other

8
00:00:18,010 --> 00:00:20,027
development tools.

9
00:00:20,027 --> 00:00:21,037
Eventually, the design is

10
00:00:21,037 --> 00:00:22,057
put to the test in the

11
00:00:22,057 --> 00:00:23,080
real world...but not all

12
00:00:23,080 --> 00:00:25,083
at once.

13
00:00:25,083 --> 00:00:26,060

Rather than launch an

14
00:00:26,060 --> 00:00:28,033
entire vehicle, components

15
00:00:28,033 --> 00:00:29,097
are tested one piece at a

16
00:00:29,097 --> 00:00:31,033
time before being brought

17
00:00:31,033 --> 00:00:32,083
together in an integrated

18
00:00:32,083 --> 00:00:34,063
flight test.

19
00:00:34,063 --> 00:00:35,037
It's a tried and true

20
00:00:35,037 --> 00:00:37,040
method called "test as you

21
00:00:37,040 --> 00:00:38,027
go".

22
00:00:39,017 --> 00:00:39,063
Geyer- "...it's so

23
00:00:39,063 --> 00:00:40,063
important to, as you're

24
00:00:40,063 --> 00:00:42,003
doing your design, to do

25
00:00:42,003 --> 00:00:45,013
early checks to validate

26
00:00:45,013 --> 00:00:45,093
your fundamental

27
00:00:45,093 --> 00:00:47,030
assumptions.

28
00:00:47,030 --> 00:00:48,050
It's cheaper to test these

29
00:00:48,050 --> 00:00:49,043
individual things by

30
00:00:49,043 --> 00:00:50,047
themselves before they're

31
00:00:50,047 --> 00:00:51,037
part of an integrated

32
00:00:51,037 --> 00:00:52,003
system.

33
00:00:52,003 --> 00:00:52,073
So, in an integrated

34
00:00:52,073 --> 00:00:53,033
system if it failed during

35
00:00:53,033 --> 00:00:54,037
flight, it would be much

36
00:00:54,037 --> 00:00:55,033
more expensive.

37
00:00:55,033 --> 00:00:56,040
So you want to break it

38
00:00:56,040 --> 00:00:58,023

down in pieces.

39
00:00:58,023 --> 00:00:58,080
NARRATOR: Engineers would

40
00:00:58,080 --> 00:00:59,097
rather discover a design

41
00:00:59,097 --> 00:01:01,007
flaw on a test

42
00:01:01,007 --> 00:01:02,070
stand...instead of during

43
00:01:02,070 --> 00:01:03,067
a flight.

44
00:01:03,067 --> 00:01:05,017
(motor blowup sound

45
00:01:05,017 --> 00:01:05,087
effect) The end goal of

46
00:01:05,087 --> 00:01:07,013
using the method is to

47
00:01:07,013 --> 00:01:08,093
build a safer vehicle...

48
00:01:09,070 --> 00:01:10,060
Vanessa Wyche:"Certainly

49
00:01:10,060 --> 00:01:12,090
before the crew is

50
00:01:12,090 --> 00:01:14,037
launched for the first

51
00:01:14,037 --> 00:01:15,073
time the intent would be

52
00:01:15,073 --> 00:01:17,027
to do a really good

53
00:01:17,027 --> 00:01:18,030
thorough ringing out of

54
00:01:18,030 --> 00:01:20,083
all of the systems to

55
00:01:20,083 --> 00:01:22,027
understand that we've

56
00:01:22,027 --> 00:01:23,027
closed our, or brought

57
00:01:23,027 --> 00:01:25,047
down any of the risk that

58
00:01:25,047 --> 00:01:26,077
are involved with, with

59
00:01:26,077 --> 00:01:27,097
the flight of the vehicle

60
00:01:27,097 --> 00:01:28,077
prior to putting humans

61
00:01:28,077 --> 00:01:29,083
on.

62
00:01:29,083 --> 00:01:30,023
NARRATOR: The Space

63
00:01:30,023 --> 00:01:31,040

Shuttle was the only

64
00:01:31,040 --> 00:01:32,097
spacecraft launched as a

65
00:01:32,097 --> 00:01:34,043
complete system without

66
00:01:34,043 --> 00:01:35,097
flying an unmanned test

67
00:01:35,097 --> 00:01:37,017
first.

68
00:01:37,017 --> 00:01:38,053
The integrated flight

69
00:01:38,053 --> 00:01:40,033
included detaching solid

70
00:01:40,033 --> 00:01:41,057
rocket boosters, a

71
00:01:41,057 --> 00:01:43,090
detaching external tank, a

72
00:01:43,090 --> 00:01:45,013
return through the Earth's

73
00:01:45,013 --> 00:01:47,010
atmosphere and unpowered

74
00:01:47,010 --> 00:01:48,080
landing from orbit...all

75
00:01:48,080 --> 00:01:50,037
of which were tested for

76
00:01:50,037 --> 00:01:52,003
the first time with a crew

77
00:01:52,003 --> 00:01:53,083
onboard.

78
00:01:53,083 --> 00:01:55,017
For Constellation, the

79
00:01:55,017 --> 00:01:56,053
spacecraft will see a