1
00:00:00,000 --> 00:00:11,047
Music.60's Surf Music

2
00:00:11,047 --> 00:00:12,003
NARRATOR: It's the mid

3
00:00:12,003 --> 00:00:13,093
1960's, and the Apollo

4
00:00:13,093 --> 00:00:15,023
Program is testing its

5
00:00:15,023 --> 00:00:16,067
Launch Escape System.

6
00:00:16,067 --> 00:00:18,033
At the White Sands Missile

7
00:00:18,033 --> 00:00:19,063
Range in Las Cruces New

8
00:00:19,063 --> 00:00:21,017
Mexico, a squatty rocket

9
00:00:21,017 --> 00:00:23,010
nicknamed Little Joe 2

10
00:00:23,010 --> 00:00:24,093
launches an Apollo capsule

11
00:00:24,093 --> 00:00:28,023
for a high altitude test.

12
00:00:28,023 --> 00:00:29,020
Engineers want to see if

13
00:00:29,020 --> 00:00:30,060

the escape system can pull

14
00:00:30,060 --> 00:00:31,077
the capsule away from

15
00:00:31,077 --> 00:00:33,007
danger in the event of an

16
00:00:33,007 --> 00:00:34,057
emergency.

17
00:00:34,057 --> 00:00:35,070
The unmanned test shows

18
00:00:35,070 --> 00:00:37,063
the escape system works!

19
00:00:41,020 --> 00:00:42,030
Years later, an escape

20
00:00:42,030 --> 00:00:43,060
system was used for real

21
00:00:43,060 --> 00:00:45,067
on a Russian Soyuz rocket.

22
00:00:45,067 --> 00:00:47,020
When spilt fuel caught

23
00:00:47,020 --> 00:00:49,007
fire on the launch pad, an

24
00:00:49,007 --> 00:00:50,037
escape rocket pulled the

25
00:00:50,037 --> 00:00:51,083
crew away from the hazard,

26
00:00:51,083 --> 00:00:54,053
saving their lives.

27
00:00:54,053 --> 00:00:56,077
For Orion, crew safety is

28
00:00:56,077 --> 00:00:58,010
a prime factor in its

29
00:00:58,010 --> 00:00:59,053
design.

30
00:00:59,053 --> 00:01:00,073
Engineers have included a

31
00:01:00,073 --> 00:01:02,033
Launch Abort System which

32
00:01:02,033 --> 00:01:03,047
is more robust and

33
00:01:03,047 --> 00:01:04,087
features more control

34
00:01:04,087 --> 00:01:06,057
capability than any of its

35
00:01:06,057 --> 00:01:09,040
predecessors

36
00:01:09,040 --> 00:01:10,063
Once again,

37
00:01:10,063 --> 00:01:11,090
the White Sands Missile

38
00:01:11,090 --> 00:01:13,023

Range will play host to

39
00:01:13,023 --> 00:01:14,040
the escape system flight

40
00:01:14,040 --> 00:01:15,063
tests.

41
00:01:15,063 --> 00:01:17,043
A mock crew module will

42
00:01:17,043 --> 00:01:18,060
sit in for the Orion

43
00:01:18,060 --> 00:01:20,023
spacecraft.

44
00:01:20,023 --> 00:01:21,037
Instead of a crew, a

45
00:01:21,037 --> 00:01:22,067
battery of sensors are

46
00:01:22,067 --> 00:01:24,030
installed inside to help

47
00:01:24,030 --> 00:01:26,053
analyze the flight.

48
00:01:26,053 --> 00:01:28,013
Called Pad Abort-1, the

49
00:01:28,013 --> 00:01:29,063
test will simulate an

50
00:01:29,063 --> 00:01:31,050
abort off the Ares I,

51
00:01:31,050 --> 00:01:32,047
while it is still sitting

52
00:01:32,047 --> 00:01:33,083
on the launch pad.

53
00:01:33,097 --> 00:01:34,067
Because an abort must

54
00:01:34,067 --> 00:01:36,050
happen quickly, the entire

55
00:01:36,050 --> 00:01:38,030
test will take place in a

56
00:01:38,030 --> 00:01:41,007
matter of seconds...

57
00:01:41,007 --> 00:01:41,063
Don Reed:"So the first

58
00:01:41,063 --> 00:01:42,057
thing that happens is we

59
00:01:42,057 --> 00:01:44,037
fire, send a command to

60
00:01:44,037 --> 00:01:46,007
fire the abort motor and,

61
00:01:46,007 --> 00:01:47,027
at the same time, we fire

62
00:01:47,027 --> 00:01:48,063
the command, send the

63
00:01:48,063 --> 00:01:49,037

command to fire the

64
00:01:49,037 --> 00:01:50,073
attitude control motor.

65
00:01:50,073 --> 00:01:52,060
So right off the bat we,

66
00:01:52,060 --> 00:01:53,067
we put out five hundred

67
00:01:53,067 --> 00:01:54,050
thousand pounds of thrust

68
00:01:54,050 --> 00:01:56,000
and in the first two

69
00:01:56,000 --> 00:01:57,050
seconds we accelerate to

70
00:01:57,050 --> 00:02:00,080
about Mach point six...

71
00:02:00,080 --> 00:02:02,010
about ten seconds we send

72
00:02:02,010 --> 00:02:04,000
the command to reorient...

73
00:02:04,000 --> 00:02:04,077
what'll happen then is

74
00:02:04,077 --> 00:02:05,060
that the attitude control

75
00:02:05,060 --> 00:02:07,000
motor will then start to

76
00:02:07,000 --> 00:02:08,043
pitch the vehicle over and

77
00:02:08,043 --> 00:02:10,010
reorient it ...we're now

78
00:02:10,010 --> 00:02:11,030
flying that the heat

79
00:02:11,030 --> 00:02:12,023
shield is now forward into

80
00:02:12,023 --> 00:02:14,053
the air stream.

81
00:02:14,053 --> 00:02:16,057
At twenty-one seconds

82
00:02:16,057 --> 00:02:17,070
we'll go ahead and fire

83
00:02:17,070 --> 00:02:19,013
the jettison motor which

84
00:02:19,013 --> 00:02:20,030
then jettisons this whole

85
00:02:20,030 --> 00:02:21,053
tower so now you just have

86
00:02:21,053 --> 00:02:22,077
the, the crew module

87
00:02:22,077 --> 00:02:25,003
flying by itself.

88
00:02:25,003 --> 00:02:26,000

Twenty-three seconds,

89
00:02:26,000 --> 00:02:27,017
we'll then jettison the

90
00:02:27,017 --> 00:02:28,067
forward bay cover and then

91
00:02:28,067 --> 00:02:30,027
two seconds later, at

92
00:02:30,027 --> 00:02:31,040
twenty-five seconds, we'll

93
00:02:31,040 --> 00:02:32,063
deploy the drogue chutes.

94
00:02:32,063 --> 00:02:34,047
And then for the next

95
00:02:34,047 --> 00:02:35,063
fifty seconds we're

96
00:02:35,063 --> 00:02:36,067
basically descending in

97
00:02:36,067 --> 00:02:38,013
stable flight, under the

98
00:02:38,013 --> 00:02:40,000
three main parachutes.

99
00:02:40,000 --> 00:02:41,023
And so by testing this

100
00:02:41,023 --> 00:02:42,073
abort system, we directly

101
00:02:42,073 --> 00:02:45,003
influence the ability to

102
00:02:45,003 --> 00:02:48,037
keep the crew safe.

103
00:02:48,037 --> 00:02:49,027
It's what I've done my

104
00:02:49,027 --> 00:02:50,060
career is doing

105
00:02:50,060 --> 00:02:51,050
flight tests, so to

106
00:02:51,050 --> 00:02:52,050
actually be here and be

107
00:02:52,050 --> 00:02:53,083
part of this program and

108
00:02:53,083 --> 00:02:55,037
doing flight tests...I