



1
00:00:18,151 --> 00:00:20,286
- [Al Hibbs] We are now
well into the countdown

2
00:00:20,320 --> 00:00:23,356
at approximately three
minutes before liftoff.

3
00:00:25,090 --> 00:00:26,626
All systems are reported
in excellent condition

4
00:00:26,659 --> 00:00:28,360
at this time.

5
00:00:28,394 --> 00:00:29,262
- [Voiceover] Pressurization.

6
00:00:29,295 --> 00:00:29,896
Go Atlas.

7
00:00:29,929 --> 00:00:30,630
- [Voiceover] Go Centaur.

8
00:00:30,663 --> 00:00:32,298
- Atlas autopilot, go.

9
00:00:32,331 --> 00:00:33,433
Centaur autopilot, go.

10
00:00:33,466 --> 00:00:34,501
Launch director, go.

11
00:00:34,534 --> 00:00:38,505
(rocket roars)

12
00:00:46,513 --> 00:00:48,247
The Atlas looks good.

13

00:00:48,281 --> 00:00:49,548

Doppler readout
is nominal.

14

00:00:49,581 --> 00:00:51,884

Chamber pressure looks good.

15

00:00:51,918 --> 00:00:55,387

Liftoff was at 7:41
Pacific Daylight Time

16

00:00:55,421 --> 00:00:58,658

on an azimuth of 102 degrees.

17

00:00:59,625 --> 00:01:01,326

The aerodynamic shroud is off

18

00:01:01,360 --> 00:01:03,797

and Grand Bahama is tracking.

19

00:01:05,331 --> 00:01:08,902

Liftoff plus four
minutes and three seconds

20

00:01:09,769 --> 00:01:12,338

as shown by the animated
diagrams in the monitor

21

00:01:12,371 --> 00:01:16,009

the atlas centaur
separation has occurred.

22

00:01:18,378 --> 00:01:19,445

Centaur cut off.

23

00:01:19,479 --> 00:01:22,449

Surveyor is injected on
its lunar flight path.

24

00:01:23,149 --> 00:01:24,350
Separation.

25

00:01:25,085 --> 00:01:28,353
and report that the landing
legs are extended.

26

00:01:28,387 --> 00:01:30,790
The Surveyor is now in space.

27

00:01:37,363 --> 00:01:39,132
- [Voiceover] 63
hours after launch,

28

00:01:39,165 --> 00:01:43,536
Surveyor 1 was only 1000
miles away from the moon.

29

00:01:43,636 --> 00:01:44,770
With the speed increasing

30

00:01:44,804 --> 00:01:48,341
as the moon's gravitational
attraction beckoned.

31

00:01:51,710 --> 00:01:52,612
-[Voiceover] Vernier ignition.

32

00:01:52,645 --> 00:01:53,679
Retro is now firing.

33

00:01:53,712 --> 00:01:55,348
Ignition looks stable.

34

00:01:57,483 --> 00:01:58,384
Falling steadily.

35

00:01:59,652 --> 00:02:02,622
63,000 feet, 3500 MPH.

36

00:02:06,392 --> 00:02:07,526
Now at 30,000 feet.

37

00:02:07,559 --> 00:02:09,395
Retro burnout confirmed.

38

00:02:09,429 --> 00:02:10,663
- The vehicle was
supposed to enter

39

00:02:10,696 --> 00:02:14,500
a fixed rate of descent.

40

00:02:14,767 --> 00:02:16,636
So that happens.

41

00:02:17,737 --> 00:02:19,038
- [Hibbs] 28,000 feet

42

00:02:19,706 --> 00:02:21,440
425 feet per second.

43

00:02:21,474 --> 00:02:22,841
24,000 feet

44

00:02:22,875 --> 00:02:24,177
falling steadily.

45

00:02:25,277 --> 00:02:26,446
Down to 12,000 feet.

46

00:02:27,513 --> 00:02:29,582
10,000, all signals normal.

47

00:02:29,615 --> 00:02:31,550

Surveyor reported in excellent condition.

48

00:02:31,584 --> 00:02:33,219

All signals good.

49

00:02:33,619 --> 00:02:34,587

1000 foot mark.

50

00:02:35,521 --> 00:02:36,389

800 feet.

51

00:02:37,657 --> 00:02:38,224

600.

52

00:02:38,758 --> 00:02:40,326

400 feet.

53

00:02:40,726 --> 00:02:42,362

200 feet.

54

00:02:43,629 --> 00:02:46,165

100 feet, 13 feet

per second speed.

55

00:02:46,632 --> 00:02:47,733

- [Suggs] Certain distance

above the surface

56

00:02:47,767 --> 00:02:50,269

the engines are all

supposed to shut off.

57

00:02:50,703 --> 00:02:53,006

And then it's supposed

to drop to the surface.

58

00:02:53,639 --> 00:02:54,741

The engines all shut off.

59

00:03:02,548 --> 00:03:04,284

And you could hear a pin drop.

60

00:03:07,453 --> 00:03:08,587

It worked.

61

00:03:08,621 --> 00:03:09,622

We're down.

62

00:03:10,489 --> 00:03:11,857

It's still transmitting.

63

00:03:11,957 --> 00:03:13,492

(Cheering)

64

00:03:13,526 --> 00:03:16,862

- [Voiceover] Surveyor

1 touched down at 5 MPH.

65

00:03:16,896 --> 00:03:20,800

A mere one second off the
intended landing time.

66

00:03:20,833 --> 00:03:22,435

- [Hibbs] The moon

behind it is very dark.

67

00:03:22,468 --> 00:03:23,703

- [Voiceover] For

the first time,

68

00:03:23,736 --> 00:03:26,439

an American spacecraft had
achieved a soft landing

69

00:03:26,472 --> 00:03:28,641

on another celestial body.

70

00:03:28,674 --> 00:03:31,744
(garbled radio cheering)

71

00:03:31,777 --> 00:03:34,414
Surveyor 1 operated
for six weeks.

72

00:03:34,447 --> 00:03:36,148
Surprising engineers
by surviving

73

00:03:36,181 --> 00:03:38,284
a bitter, cold lunar night.

74

00:03:40,653 --> 00:03:42,521
In all, the sturdy
lander sent back

75

00:03:42,555 --> 00:03:44,489
more than 11,000 images before

76

00:03:44,523 --> 00:03:46,593
its batteries ceased to work.

77

00:03:49,628 --> 00:03:53,600
Surveyor 1 now rests
where it landed in 1966.

78

00:03:54,534 --> 00:03:55,901
Telling us of its presence

79

00:03:55,935 --> 00:04:00,807
by casting a silent, but long
shadow on the lunar surface.

80

00:04:04,910 --> 00:04:06,646
Six more Surveyors were launched

81

00:04:06,679 --> 00:04:09,649
over the next two years,
providing a treasure trove

82

00:04:09,682 --> 00:04:11,651
of science about the moon.

83

00:04:12,718 --> 00:04:14,520
Although two of the
missions would fail,

84

00:04:14,554 --> 00:04:17,389
the increasing ratio
of success to failure

85

00:04:17,423 --> 00:04:19,558
demonstrated that JPL
was clearly learning

86

00:04:19,591 --> 00:04:21,694
from its past mistakes.

87

00:04:24,329 --> 00:04:26,599
And NASA had the
answer to its question.

88

00:04:27,967 --> 00:04:30,669
The lunar surface was
solid and suitable