1
00:00:14,790 --> 00:00:12,420
[Music]

2
00:00:18,630 --> 00:00:14,800
there are many places we could begin a

3
00:00:21,720 --> 00:00:18,640
flight of Apollo Saturn five perhaps one

4
00:00:24,929 --> 00:00:21,730
of the best is when the 36 story tall

5
00:00:28,380 --> 00:00:24,939
Saturn 5 moves out of its huge Assembly

6
00:00:31,710 --> 00:00:28,390
Building and heads for the launch pad

7
00:00:34,680 --> 00:00:31,720
once at the pad night and day check out

8
00:00:37,020 --> 00:00:34,690
and testing go on until the final

9
00:00:40,920 --> 00:00:37,030
countdown starts in the launch control

10
00:00:48,119 --> 00:00:40,930
room the countdown continues until the

11
00:00:51,900 --> 00:00:50,880
within the first few seconds many things

12
00:00:54,490 --> 00:00:51,910
happen

13
00:00:57,319 --> 00:00:54,500

here in slow motion or two of them

14
00:01:01,000 --> 00:00:57,329
behind the yellow post

15
00:01:04,009 --> 00:01:01,010
which provides ground power swings clear

16
00:01:06,710 --> 00:01:04,019
the yellow post is one of four which

17
00:01:10,100 --> 00:01:06,720
hold the rocket until engines reach full

18
00:01:12,859 --> 00:01:10,110
power as the rocket moves up it pulls

19
00:01:27,250 --> 00:01:12,869
the cord you see allowing a protective

20
00:01:32,710 --> 00:01:29,830
higher up on the rocket another ground

21
00:01:35,800 --> 00:01:32,720
service time moves clear there are eight

22
00:01:39,190 --> 00:01:35,810
of these arms and they all have to swing

23
00:01:41,800 --> 00:01:39,200
clear of the vehicle at the same time at

24
00:01:44,590 --> 00:01:41,810
this point are about six million pounds

25
00:01:46,880 --> 00:01:44,600
are being moved straight up by sheer

26
00:01:49,040 --> 00:01:46,890
brute force

27
00:01:51,590 --> 00:01:49,050
to provide this force the five engines

28
00:01:54,350 --> 00:01:51,600
are gulping fuel at a fantastic rate a

29
00:01:59,899 --> 00:01:54,360
rate that would drain the fuel tanks of

30
00:02:02,359 --> 00:01:59,909
15 dc-8 in one minute as it flies the

31
00:02:04,220 --> 00:02:02,369
rocket is guided by an on-board computer

32
00:02:06,830 --> 00:02:04,230
a very busy computer

33
00:02:09,370 --> 00:02:06,840
during the entire fight it will make

34
00:02:12,020 --> 00:02:09,380
hundreds of millions of calculations

35
00:02:14,480 --> 00:02:12,030
from these calculations from the

36
00:02:16,460 --> 00:02:14,490
guidance command these go to the

37
00:02:18,950 --> 00:02:16,470
powerful engines which move in any

38
00:02:21,080 --> 00:02:18,960

direction to keep the rocket on the

39
00:02:23,449 --> 00:02:21,090
proper course

40
00:02:25,570 --> 00:02:23,459
these scenes were taken by a camera

41
00:02:28,339 --> 00:02:25,580
mounted on a tracking airplane

42
00:02:30,740 --> 00:02:28,349
notice how the engine exhaust balloon is

43
00:02:33,650 --> 00:02:30,750
spreading out this happens because the

44
00:02:35,460 --> 00:02:33,660
rocket is now about 40 miles up in very

45
00:02:38,190 --> 00:02:35,470
thin air

46
00:02:40,590 --> 00:02:38,200
very shortly now the bottom stage will

47
00:02:42,840 --> 00:02:40,600
drain its fuel tanks and engines shut

48
00:02:46,110 --> 00:02:42,850
off triggering a series of events

49
00:02:49,330 --> 00:02:46,120
leading to the separation and ignition

50
00:02:54,490 --> 00:02:51,790
this is a close view of the first stage

51
00:02:56,380 --> 00:02:54,500
falling away the camera is mounted on

52
00:02:58,780 --> 00:02:56,390
the second stage

53
00:03:01,390 --> 00:02:58,790
liquid hydrogen is the fuel for this

54
00:03:03,310 --> 00:03:01,400
stage and burns much cleaner than the

55
00:03:05,770 --> 00:03:03,320
high-grade kerosene used by the first

56
00:03:08,050 --> 00:03:05,780
state this is why you can't see any

57
00:03:10,530 --> 00:03:08,060
flames even though the engines are

58
00:03:14,809 --> 00:03:12,600
next the ring that connects the two

59
00:03:16,670 --> 00:03:14,819
stages falls off

60
00:03:19,429 --> 00:03:16,680
in the bottom of the picture clouds

61
00:03:23,030 --> 00:03:19,439
cover part of the Florida coast Cape

62
00:03:25,009 --> 00:03:23,040
Kennedy is about in the middle

63
00:03:27,110 --> 00:03:25,019

in a short time the rocket will be out

64
00:03:28,550 --> 00:03:27,120
of camera range but the rest of the

65
00:03:31,460 --> 00:03:28,560
flight will be similar to what you've

66
00:03:34,069 --> 00:03:31,470
already seen the second stage will drop

67
00:03:36,229 --> 00:03:34,079
away and the third stage will boost the

68
00:03:39,319 --> 00:03:36,239
payload into orbit if this were a moon

69
00:03:41,839 --> 00:03:39,329
flight a few hours later the third stage

70
00:03:45,820 --> 00:03:41,849
engine would start again and send the

71
00:03:51,590 --> 00:03:48,710
successful our Perot flights are the

72
00:03:54,620 --> 00:03:51,600
result of careful handling at every