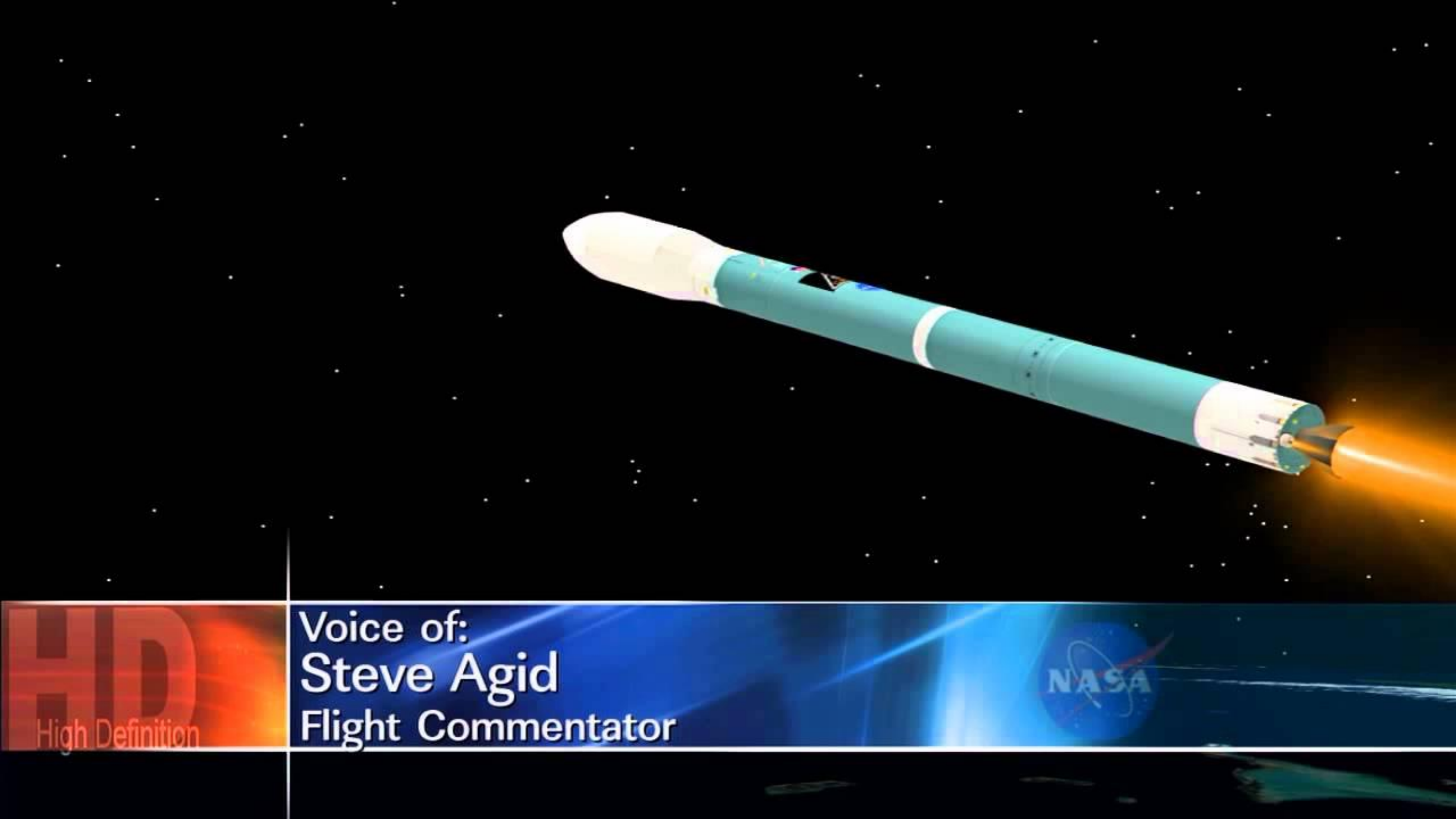
HD
High Definition
Voice of:
Steve Agid
Flight Commentator
NASA

1
00:00:02,000 --> 00:00:06,869
30 seconds

2
00:00:06,879 --> 00:00:10,150
got it

3
00:00:10,160 --> 00:00:13,030
22 seconds

4
00:00:13,040 --> 00:00:16,710
20 seconds

5
00:00:21,429 --> 00:00:19,510
15 seconds

6
00:00:23,910 --> 00:00:21,439
13 seconds

7
00:00:25,589 --> 00:00:23,920
11 3 4 10

8
00:00:26,390 --> 00:00:25,599
9 8

9
00:00:27,189 --> 00:00:26,400
7

10
00:00:28,870 --> 00:00:27,199
6

11
00:00:29,910 --> 00:00:28,880
5 4

12
00:00:30,950 --> 00:00:29,920
3 three

13
00:00:31,990 --> 00:00:30,960

two

14
00:00:35,430 --> 00:00:32,000
one

15
00:00:37,990 --> 00:00:35,440
zero and liftoff of the delta ii with

16
00:00:39,670 --> 00:00:38,000
grail on a journey to the center of the

17
00:00:41,190 --> 00:00:39,680
moon

18
00:00:43,270 --> 00:00:41,200
paper pressure rising in all six

19
00:00:45,510 --> 00:00:43,280
grounded solid motors

20
00:00:48,790 --> 00:00:45,520
good chamber pressure on the main engine

21
00:00:51,350 --> 00:00:48,800
good chamber pressure on both verniers

22
00:00:59,189 --> 00:00:51,360
good chamber pressure on all six ground

23
00:01:05,670 --> 00:01:02,549
we have 29 seconds mark 29 seconds mach

24
00:01:09,830 --> 00:01:05,680
1 vehicle now going transonic

25
00:01:14,630 --> 00:01:12,469
38 seconds in max q maximum dynamic

26
00:01:17,590 --> 00:01:14,640
version of the view

27
00:01:20,310 --> 00:01:17,600
coming up on the 45 second mark mark 45

28
00:01:23,109 --> 00:01:20,320
seconds in altitude 3.4 nautical miles

29
00:01:27,910 --> 00:01:23,119
downrange distance 13.4 nautical miles

30
00:01:27,920 --> 00:01:31,350
up on the one minute mark

31
00:01:35,109 --> 00:01:33,350
mark one minute into the flight standing

32
00:01:38,830 --> 00:01:35,119
by for solid motor

33
00:01:44,630 --> 00:01:38,840
burnout about 10 seconds from

34
00:01:44,640 --> 00:01:50,389
standing by for burnout

35
00:01:58,870 --> 00:01:54,469
and we have burnout standing by for sep

36
00:02:03,109 --> 00:02:01,350
and we have ignition on the three airlit

37
00:02:07,190 --> 00:02:03,119
motors the three air motors have come up

38
00:02:12,470 --> 00:02:10,389

chamber pressure on the airlit motors

39
00:02:13,990 --> 00:02:12,480
one minute 39 seconds into the flight

40
00:02:15,350 --> 00:02:14,000
the delta vehicle now only weighs about

41
00:02:16,790 --> 00:02:15,360
one half of what it did at launch

42
00:02:21,589 --> 00:02:16,800
expelling propellant now at the rate of

43
00:02:21,599 --> 00:02:25,750
one minute 50 seconds in

44
00:02:30,550 --> 00:02:28,070
altitude now 21.8 nautical miles

45
00:02:31,949 --> 00:02:30,560
downrange distance 51 nautical miles

46
00:02:40,309 --> 00:02:31,959
velocity

47
00:02:44,070 --> 00:02:41,910
thirty seconds now remaining on our

48
00:02:48,470 --> 00:02:44,080
three airlit motors

49
00:02:51,990 --> 00:02:50,150
we have a good engine control in the

50
00:02:53,910 --> 00:02:52,000
main engine good engine control in the

51
00:02:56,949 --> 00:02:53,920
verniers settling down from the initial

52
00:03:01,910 --> 00:02:58,390
running by for burnout of the three

53
00:03:18,070 --> 00:03:03,990
and we are we have burnout standing by

54
00:03:22,470 --> 00:03:20,149
and we have separation separation on the

55
00:03:25,110 --> 00:03:22,480
airlit motors now two minutes 50 seconds

56
00:03:27,990 --> 00:03:25,120
into the flight altitude now 41.7

57
00:03:30,190 --> 00:03:28,000
nautical miles downrange distance 130.7

58
00:03:33,430 --> 00:03:30,200
nautical miles velocity

59
00:03:39,350 --> 00:03:33,440
7761 miles per hour three minutes into

60
00:03:43,430 --> 00:03:41,110
smoother ride now main engine pitch and

61
00:03:45,030 --> 00:03:43,440
your control is good well within our

62
00:03:46,949 --> 00:03:45,040
ability to control running your engine

63
00:03:48,869 --> 00:03:46,959

pitch and your control is good three

64
00:03:50,550 --> 00:03:48,879
minutes 15 seconds

65
00:03:52,390 --> 00:03:50,560
chamber pressure holding very well on

66
00:03:53,750 --> 00:03:52,400
the first stage

67
00:03:55,910 --> 00:03:53,760
main engine chamber pressure right where

68
00:03:57,190 --> 00:03:55,920
we want it to be vernier engine control

69
00:03:59,110 --> 00:03:57,200
and chamber pressures right where we

70
00:04:01,429 --> 00:03:59,120
want them to be

71
00:04:09,830 --> 00:04:01,439
coming up three minutes 30 seconds mark

72
00:04:15,830 --> 00:04:11,509
less than one minute until main engine

73
00:04:21,430 --> 00:04:18,629
vehicle now at the 59.7 nautical miles

74
00:04:24,870 --> 00:04:21,440
downrange distance 240.3 nautical miles

75
00:04:28,550 --> 00:04:24,880
velocity 10 000

76
00:04:31,430 --> 00:04:28,560
correction now 11 281 miles per hour

77
00:04:33,430 --> 00:04:31,440
coming up on the four minute mark

78
00:04:35,350 --> 00:04:33,440
mark four minutes into the flight

79
00:04:45,830 --> 00:04:35,360
less than 20 seconds now until main

80
00:04:49,510 --> 00:04:47,990
four minutes 15 seconds in standing by

81
00:04:57,030 --> 00:04:49,520
for main engine cut off about five

82
00:05:04,790 --> 00:04:58,629
and we have mikko

83
00:05:08,870 --> 00:05:06,550
and we have vernier cut off standby for

84
00:05:11,909 --> 00:05:08,880
one two sep

85
00:05:15,909 --> 00:05:13,670
one two step

86
00:05:18,550 --> 00:05:15,919
an ignition on the second stage

87
00:05:20,070 --> 00:05:18,560
good ignition on the second stage

88
00:05:22,070 --> 00:05:20,080

and we have fairing separation good

89
00:05:26,390 --> 00:05:22,080
fairing separation four minutes fifty

90
00:05:36,710 --> 00:05:30,070
four minutes 55 seconds all looks good

91
00:05:40,390 --> 00:05:38,310
as we passed five minutes five seconds

92
00:05:43,430 --> 00:05:40,400
altitude now 80 nautical miles downrange

93
00:05:46,230 --> 00:05:43,440
distance 504 nautical miles velocity 15

94
00:05:49,029 --> 00:05:46,240
135 miles per hour

95
00:05:51,590 --> 00:05:49,039
five minutes 15 seconds in

96
00:05:52,710 --> 00:05:51,600
this first burn of the second stage

97
00:05:54,230 --> 00:05:52,720
today

98
00:05:59,270 --> 00:05:54,240
will last about

99
00:06:04,070 --> 00:06:01,670
coming up five minutes 28 seconds in

100
00:06:07,590 --> 00:06:04,080
altitude now 84 nautical miles downrange

101
00:06:09,189 --> 00:06:07,600
distance 588 nautical miles velocity 15

102
00:06:11,270 --> 00:06:09,199
440

103
00:06:20,309 --> 00:06:11,280
miles per hour

104
00:06:24,950 --> 00:06:21,990
second stage chamber pressure continues

105
00:06:26,309 --> 00:06:24,960
to hold right where we want it to be

106
00:06:32,230 --> 00:06:26,319
as we're coming up on the six minute

107
00:06:32,240 --> 00:06:39,350
mark six minutes

108
00:06:39,360 --> 00:06:45,430
looking good

109
00:06:48,950 --> 00:06:47,270
and receiver decoders are confirmed off

110
00:06:50,629 --> 00:06:48,960
at this time

111
00:06:53,589 --> 00:06:50,639
as we're approaching 6 minutes 20

112
00:06:56,469 --> 00:06:53,599
seconds mark 6 minutes 20 seconds in

113
00:07:00,309 --> 00:06:56,479

altitude now 90 nautical miles downrange

114
00:07:04,390 --> 00:07:00,319
distance 776 nautical miles velocity 16

115
00:07:06,309 --> 00:07:04,400
141 miles per hour just got confirmation

116
00:07:16,309 --> 00:07:06,319
from uh

117
00:07:16,319 --> 00:07:22,790
six minutes 45 seconds in

118
00:07:38,550 --> 00:07:25,110
standing by for seco one

119
00:07:38,560 --> 00:07:49,909
pressure beginning to decline

120
00:07:49,919 --> 00:07:58,469
and we have cico

121
00:07:58,479 --> 00:08:04,390
system pressure now declining

122
00:08:08,710 --> 00:08:06,629
himself

123
00:08:11,710 --> 00:08:08,720
seven minutes 35 seconds in altitude

124
00:08:15,510 --> 00:08:11,720
92.6 nautical miles downrange distance