



1
00:00:11,589 --> 00:00:04,630
t minus one minute engine start box go

2
00:00:11,599 --> 00:00:23,590
50 seconds

3
00:00:42,389 --> 00:00:26,630
upper stage lh2 secure at flight level

4
00:00:42,399 --> 00:00:48,470
20 seconds

5
00:00:48,480 --> 00:00:52,069
ignition

6
00:00:54,790 --> 00:00:53,830
igniters have been left nine

7
00:00:55,830 --> 00:00:54,800
eight

8
00:00:56,869 --> 00:00:55,840
seven

9
00:00:58,869 --> 00:00:56,879
six

10
00:00:59,990 --> 00:00:58,879
five four

11
00:01:00,950 --> 00:01:00,000
three

12
00:01:03,349 --> 00:01:00,960
two

13
00:01:09,670 --> 00:01:07,510

and liftoff at dawn the dawn of orion

14

00:01:23,910 --> 00:01:09,680

and a new era of american space

15

00:01:29,830 --> 00:01:26,630

good engine control on the first stage

16

00:01:33,350 --> 00:01:29,840

passing 25 seconds

17

00:01:35,910 --> 00:01:33,360

velocity 1341 feet per second

18

00:01:37,830 --> 00:01:35,920

passing 31 seconds still looking good

19

00:01:39,190 --> 00:01:37,840

good engine control

20

00:01:42,310 --> 00:01:39,200

good chamber pressure on all three

21

00:01:45,030 --> 00:01:42,320

boosters in the full power mode

22

00:01:47,030 --> 00:01:45,040

40 seconds in

23

00:01:52,870 --> 00:01:47,040

standing by to go to the partial thrust

24

00:01:55,670 --> 00:01:54,469

and we have partial thrust command in

25

00:01:57,350 --> 00:01:55,680

the core

26
00:01:59,270 --> 00:01:57,360
four chamber pressure beginning to drop

27
00:02:02,230 --> 00:01:59,280
as expected as we're coming up on the

28
00:02:05,830 --> 00:02:04,149
mark one minute into the flight still

29
00:02:07,270 --> 00:02:05,840
looking good good chamber pressure in

30
00:02:08,790 --> 00:02:07,280
the core booster in the partial thrust

31
00:02:09,830 --> 00:02:08,800
mode good chamber pressure and sport

32
00:02:15,830 --> 00:02:09,840
starboard

33
00:02:20,550 --> 00:02:18,550
one minute 15 seconds of the flight

34
00:02:23,750 --> 00:02:20,560
we have the hydrazine supply valve open

35
00:02:26,229 --> 00:02:23,760
in the second stage

36
00:02:28,229 --> 00:02:26,239
one minute 22 seconds and max q maximum

37
00:02:30,150 --> 00:02:28,239
dynamic pressure on the vehicle passing

38
00:02:32,229 --> 00:02:30,160

124 mach 1.

39

00:02:37,990 --> 00:02:32,239

orion and delta iv now transcending the

40

00:02:45,030 --> 00:02:40,630

control on the first stage

41

00:02:45,040 --> 00:02:52,070

velocity now 1341 feet per second

42

00:02:52,080 --> 00:03:00,229

one minute 50 seconds in

43

00:03:10,790 --> 00:03:02,149

still looking good coming up on two

44

00:03:10,800 --> 00:03:15,350

engine control on the first stage

45

00:03:19,430 --> 00:03:17,110

important starboard boosters

46

00:03:21,509 --> 00:03:19,440

still at good chamber pressures in the

47

00:03:23,750 --> 00:03:21,519

full power mode and the good

48

00:03:25,830 --> 00:03:23,760

core chamber pressure in the

49

00:03:38,229 --> 00:03:25,840

partial thrust mode at two minutes 22

50

00:03:43,670 --> 00:03:40,309

two minutes 35 seconds in

51
00:03:48,070 --> 00:03:45,509
coming up on the two minute 43 second

52
00:03:50,229 --> 00:03:48,080
mark mark two minutes 43 seconds the

53
00:03:52,070 --> 00:03:50,239
delta iv of heavy vodka now just weighs

54
00:03:54,030 --> 00:03:52,080
one half as much as it did at launch

55
00:04:04,949 --> 00:03:54,040
burning propellant the rate of 4

56
00:04:09,110 --> 00:04:07,270
three minutes one second into the flight

57
00:04:20,150 --> 00:04:09,120
still looking good

58
00:04:26,150 --> 00:04:22,310
three minutes 16 seconds in

59
00:04:33,270 --> 00:04:27,749
less than one half minute remains on

60
00:04:36,710 --> 00:04:35,350
three minutes 30 seconds in we're

61
00:04:38,629 --> 00:04:36,720
standing by for the

62
00:04:40,469 --> 00:04:38,639
command to go to the partial thrust mode

63
00:04:42,790 --> 00:04:40,479

in the port and starboard booster that

64

00:04:53,030 --> 00:04:42,800
command should occur about 10 seconds

65

00:04:56,230 --> 00:04:54,790
and we have partial thrust command port

66

00:04:59,909 --> 00:04:56,240
and starboard should be toggling down to

67

00:05:03,270 --> 00:05:01,749
standing by for main engine cut off we

68

00:05:05,590 --> 00:05:03,280
have cutoff and the port and starboard

69

00:05:11,110 --> 00:05:05,600
and separation a good separation of the

70

00:05:15,270 --> 00:05:12,870
core booster now powering up to the full

71

00:05:16,950 --> 00:05:15,280
power mode four minutes 10 seconds into

72

00:05:18,790 --> 00:05:16,960
the flight

73

00:05:20,390 --> 00:05:18,800
good chamber pressure in the port uh

74

00:05:22,790 --> 00:05:20,400
correction good chamber pressure in the

75

00:05:29,110 --> 00:05:22,800
core booster at four minutes 18 seconds

76

00:05:32,390 --> 00:05:30,790

four minutes 25 seconds and still

77

00:05:33,189 --> 00:05:32,400

looking good good engine control in the

78

00:05:34,629 --> 00:05:33,199

core

79

00:05:49,510 --> 00:05:34,639

about one minute remaining on first

80

00:05:53,749 --> 00:05:51,670

four minutes 46 seconds in still looking

81

00:05:55,590 --> 00:05:53,759

good

82

00:05:58,550 --> 00:05:55,600

chamber pressure holding very well in a

83

00:06:03,430 --> 00:05:59,909

as we're approaching the five minute

84

00:06:08,230 --> 00:06:06,629

five minutes into the flight

85

00:06:09,909 --> 00:06:08,240

standing by to go to the partial thrust

86

00:06:16,710 --> 00:06:09,919

command that partial does command about

87

00:06:16,720 --> 00:06:23,029

good engine control

88

00:06:23,039 --> 00:06:26,870

five minutes 20 seconds in

89

00:06:29,430 --> 00:06:28,390

and we have partial thrust command in

90

00:06:30,950 --> 00:06:29,440

the core

91

00:06:31,830 --> 00:06:30,960

core chamber pressure beginning to go

92

00:06:35,590 --> 00:06:31,840

down

93

00:06:37,350 --> 00:06:35,600

as expected standing by from mikko

94

00:06:38,790 --> 00:06:37,360

we have nikko the main engine has cut

95

00:06:44,950 --> 00:06:38,800

off

96

00:06:50,150 --> 00:06:48,390

he's have safe separation

97

00:06:51,270 --> 00:06:50,160

as is deploying the nozzle has been

98

00:06:54,629 --> 00:06:51,280

extending

99

00:06:56,309 --> 00:06:54,639

standing by for igniter spark

100

00:06:57,990 --> 00:06:56,319

and we have igniter spark and we have

101
00:06:59,830 --> 00:06:58,000
ignition ignition on the second stage

102
00:07:01,749 --> 00:06:59,840
second stage chamber pressures beginning

103
00:07:03,510 --> 00:07:01,759
to rise

104
00:07:05,189 --> 00:07:03,520
this is mission control houston we're

105
00:07:06,790 --> 00:07:05,199
taking over commentary at this point as

106
00:07:09,270 --> 00:07:06,800
we come up on the first two critical

107
00:07:11,189 --> 00:07:09,280
orion program milestones the service

108
00:07:13,589 --> 00:07:11,199
module fairing panel jettison and the

109
00:07:22,390 --> 00:07:13,599
launch abort system jettison standing by

110
00:07:27,990 --> 00:07:25,029
the service panel uh jettison

111
00:07:32,550 --> 00:07:28,000
has occurred the three 13 by 14 foot

112
00:07:32,560 --> 00:07:37,029
and we have launch abort system jettison

113
00:07:42,870 --> 00:07:39,990

the 361 pound solid propellant motor has

114

00:07:45,430 --> 00:07:42,880

pulled the launch abort system free from

115

00:07:47,510 --> 00:07:45,440

the upper stage anna from orion

116

00:07:49,589 --> 00:07:47,520

everything going extremely well the

117

00:07:52,230 --> 00:07:49,599

first two critical milestones have been

118

00:07:54,150 --> 00:07:52,240

accomplished and we are now processing a

119

00:07:55,510 --> 00:07:54,160

telemetry from the orion spacecraft

120

00:07:56,950 --> 00:07:55,520

through the tracking and data relay

121

00:07:58,950 --> 00:07:56,960

satellite system

122

00:08:05,749 --> 00:07:58,960

coming up on the seven minute mark into

123

00:08:11,430 --> 00:08:08,189

orion of the delta iv upper stage now

124

00:08:13,589 --> 00:08:11,440

127 miles in altitude

125

00:08:35,350 --> 00:08:13,599

some 700 miles downrange from the cape

126
00:08:39,509 --> 00:08:37,110
reports here in mission control indicate

127
00:08:47,190 --> 00:08:39,519
that orion's guidance

128
00:08:51,190 --> 00:08:49,190
this view once again of the service

129
00:08:52,150 --> 00:08:51,200
module fairing panel jettison that

130
00:08:55,430 --> 00:08:52,160
occurred

131
00:08:57,269 --> 00:08:55,440
just about a minute and a half ago

132
00:08:59,590 --> 00:08:57,279
we are now coming up on the eight minute

133
00:09:02,550 --> 00:08:59,600
mark into the flight orion of the delta

134
00:09:03,990 --> 00:09:02,560
iv upper stage 142 statute miles in

135
00:09:05,829 --> 00:09:04,000
altitude

136
00:09:09,750 --> 00:09:05,839
almost 900 miles downrange from the

137
00:09:15,509 --> 00:09:12,710
gps systems on orion uh

138
00:09:17,670 --> 00:09:15,519

have come into full agreement with

139

00:09:19,590 --> 00:09:17,680

navigation systems on the spacecraft

140

00:09:25,509 --> 00:09:19,600

orion is functioning perfectly at this

141

00:09:29,509 --> 00:09:27,590

orion heading almost due east from the

142

00:09:32,470 --> 00:09:29,519

kennedy space center in an orbit

143

00:09:36,710 --> 00:09:32,480

inclined just about 28.4 degrees to

144

00:09:42,550 --> 00:09:39,030

eight and a half minutes into the flight

145

00:09:44,710 --> 00:09:42,560

the upper stage is currently traveling

146

00:09:47,430 --> 00:09:44,720

and carrying orion to its preliminary

147

00:09:51,190 --> 00:09:48,870

now

148

00:09:52,790 --> 00:09:51,200

traveling at a velocity of almost 14 000

149

00:09:56,949 --> 00:09:52,800

miles an hour

150

00:10:01,829 --> 00:09:59,509

the upper stage ignition will continue

151
00:10:04,470 --> 00:10:01,839
for about 11 minutes and 30 seconds from

152
00:10:05,990 --> 00:10:04,480
the time it began

153
00:10:08,630 --> 00:10:06,000
with a

154
00:10:10,310 --> 00:10:08,640
second one or a second stage cut off

155
00:10:14,550 --> 00:10:10,320
number one just about eight and a half

156
00:10:19,509 --> 00:10:16,949
and this is our first view from

157
00:10:21,430 --> 00:10:19,519
cameras on the orion spacecraft

158
00:10:23,190 --> 00:10:21,440
streaming video that are that is coming

159
00:10:25,750 --> 00:10:23,200
down being processed through the

160
00:10:28,150 --> 00:10:25,760
tracking and data relay satellite system

161
00:10:30,630 --> 00:10:28,160
showing a view of the earth as orion is

162
00:10:32,230 --> 00:10:30,640
being carried to its preliminary orbit

163
00:10:34,790 --> 00:10:32,240

all of its systems operating in