



1  
00:00:10,629 --> 00:00:01,750  
40

2  
00:00:15,749 --> 00:00:13,030  
minus 30 seconds

3  
00:00:18,310 --> 00:00:17,029  
25

4  
00:00:21,189 --> 00:00:18,320  
status checks

5  
00:00:30,950 --> 00:00:21,199  
go centaur go a7

6  
00:00:33,510 --> 00:00:32,549  
t-minus ten

7  
00:00:34,470 --> 00:00:33,520  
nine

8  
00:00:35,430 --> 00:00:34,480  
eight

9  
00:00:36,389 --> 00:00:35,440  
seven

10  
00:00:38,150 --> 00:00:36,399  
six

11  
00:00:39,190 --> 00:00:38,160  
five four

12  
00:00:42,549 --> 00:00:39,200  
three

13  
00:00:46,630 --> 00:00:42,559

two go from eight engine start one

14

00:00:49,590 --> 00:00:46,640

zero and liftoff of the atlas v rocket

15

00:00:52,470 --> 00:00:49,600

with cygnus and the ss john glenn

16

00:01:07,190 --> 00:00:52,480

extending the research legacy for living

17

00:01:34,789 --> 00:01:16,469

good

18

00:01:41,670 --> 00:01:37,670

d180 continues to perform well

19

00:01:43,670 --> 00:01:41,680

now requesting a mixture ratio change

20

00:01:45,590 --> 00:01:43,680

booster has begun the zero angle attack

21

00:01:54,230 --> 00:01:45,600

phase of flight

22

00:01:54,240 --> 00:02:05,429

performance continues

23

00:02:05,439 --> 00:02:15,030

buck one

24

00:02:18,070 --> 00:02:16,470

vehicle now going through the sound

25

00:02:19,990 --> 00:02:18,080

barrier

26  
00:02:33,509 --> 00:02:20,000  
max q audio rates continue to look very

27  
00:02:38,150 --> 00:02:35,270  
five and a half miles current velocity

28  
00:02:40,309 --> 00:02:38,160  
is 1929 miles per hour

29  
00:02:49,430 --> 00:02:40,319  
range track shows good progress right

30  
00:02:54,150 --> 00:02:51,110  
booster engine performance continues to

31  
00:02:56,949 --> 00:02:54,160  
look very good at this point

32  
00:03:00,630 --> 00:02:56,959  
you control is near nominal body rates

33  
00:03:04,550 --> 00:03:02,470  
steering has been enabled at this point

34  
00:03:11,750 --> 00:03:04,560  
fire rates look good vehicle is now one

35  
00:03:15,030 --> 00:03:12,949  
two and a half minutes

36  
00:03:19,830 --> 00:03:15,040  
light steering has begun

37  
00:03:24,550 --> 00:03:23,030  
and we've fired the rcs pyro valve that

38  
00:03:29,030 --> 00:03:24,560

system is now pressurizing the flight

39

00:03:34,110 --> 00:03:31,670

current altitude is 29 miles downrange

40

00:03:55,190 --> 00:03:34,120

distance 39 miles current velocity

41

00:03:59,350 --> 00:03:57,030

booster has begun to throttle to

42

00:04:01,589 --> 00:03:59,360

maintain three and a half g's

43

00:04:11,910 --> 00:04:01,599

close loop stirring has begun body rates

44

00:04:14,710 --> 00:04:13,429

vehicle is now one quarter of its

45

00:04:17,670 --> 00:04:14,720

liftoff weight

46

00:04:31,510 --> 00:04:17,680

rd-180 continues to perform well

47

00:04:31,520 --> 00:04:50,790

blue space children has begun

48

00:04:58,230 --> 00:04:53,189

and boost phase drill down has completed

49

00:05:08,469 --> 00:04:59,670

and we have deco

50

00:05:15,590 --> 00:05:11,670

get stage separation

51  
00:05:36,230 --> 00:05:17,830  
we have ignition and full thrust on the

52  
00:05:36,240 --> 00:05:41,189  
body rates look good

53  
00:05:44,710 --> 00:05:42,629  
data now coming in from the new

54  
00:05:47,029 --> 00:05:44,720  
hampshire tracking station

55  
00:05:53,909 --> 00:05:47,039  
range distance 317 miles current

56  
00:05:56,550 --> 00:05:55,510  
still data coming in from the cape as

57  
00:05:58,629 --> 00:05:56,560  
well

58  
00:06:00,550 --> 00:05:58,639  
centaur pew is requesting an oxidizer

59  
00:06:02,550 --> 00:06:00,560  
rich condition at this point chamber

60  
00:06:11,909 --> 00:06:02,560  
pressures injector

61  
00:06:18,390 --> 00:06:13,350  
fine temperatures are warming towards

62  
00:06:18,400 --> 00:06:22,469  
ready

63  
00:06:28,150 --> 00:06:24,629

and we have a quick report of atlas

64

00:06:29,990 --> 00:06:28,160

first stage performance it was plus 106

65

00:06:37,990 --> 00:06:30,000

pounds of pe

66

00:06:42,070 --> 00:06:39,270

we have begun seeing our thermal

67

00:06:43,909 --> 00:06:42,080

conditioning ferns on the rcs

68

00:06:46,070 --> 00:06:43,919

now controlling near nominal fixture

69

00:06:53,270 --> 00:06:46,080

ratio also

70

00:06:56,070 --> 00:06:54,950

cinder now steering and powering the

71

00:06:57,830 --> 00:06:56,080

rocket

72

00:07:02,390 --> 00:06:57,840

centaur is completing the dogleg

73

00:07:24,230 --> 00:07:03,830

body rates are now controlling down the

74

00:07:37,510 --> 00:07:26,230

and centauri has begun to roll to

75

00:07:43,029 --> 00:07:40,070

are all 10 chamber crushers box pump

76  
00:07:53,029 --> 00:07:43,039  
discharge and fuel venturi all look good

77  
00:07:57,510 --> 00:07:54,550  
centaur currently is flying at an

78  
00:08:01,150 --> 00:07:57,520  
altitude of 191 miles downrange distance

79  
00:08:12,230 --> 00:08:01,160  
is 685 miles current velocity 10

80  
00:08:16,309 --> 00:08:14,309  
this first burn of centaur is scheduled

81  
00:08:18,070 --> 00:08:16,319  
for 13 minutes and 42 seconds in

82  
00:08:19,830 --> 00:08:18,080  
duration

83  
00:08:26,790 --> 00:08:19,840  
all systems continue to look very good

84  
00:08:31,189 --> 00:08:28,550  
continuing to observe our thermal

85  
00:08:37,110 --> 00:08:31,199  
conditioning firings on the rcs

86  
00:08:40,469 --> 00:08:38,630  
entire has completed the role to

87  
00:08:41,670 --> 00:08:40,479  
optimize telemetry

88  
00:08:42,709 --> 00:08:41,680

going right down the middle at this

89

00:08:45,350 --> 00:08:42,719

point

90

00:08:49,590 --> 00:08:45,360

range track shows good progress down the

91

00:08:54,630 --> 00:08:51,430

about another 10 minutes on the centaur

92

00:08:58,630 --> 00:08:56,630

centaur cuts off at 18 minutes into the

93

00:08:59,509 --> 00:08:58,640

flight we're just over eight eu limiting

94

00:09:00,550 --> 00:08:59,519

has