



1
00:00:13,030 --> 00:00:04,470
110

2
00:00:32,950 --> 00:00:15,509
one minute rock report range status this

3
00:00:47,910 --> 00:00:34,069
40.

4
00:00:53,029 --> 00:00:50,869
25 status check go atlas

5
00:00:57,990 --> 00:00:53,039
go centaur

6
00:00:58,000 --> 00:01:02,869
fifteen

7
00:01:02,879 --> 00:01:07,830
ten

8
00:01:07,840 --> 00:01:14,710
five

9
00:01:14,720 --> 00:01:30,950
release

10
00:01:35,270 --> 00:01:33,270
lift off the atlas 5 rocket and twin

11
00:01:48,630 --> 00:01:35,280
spacecraft on a mission to unlock the

12
00:01:53,350 --> 00:01:51,429
booster engine continues to perform well

13
00:02:21,190 --> 00:01:53,360

pump speeds within parameters injector

14

00:02:21,200 --> 00:02:26,390

back the roll program is complete

15

00:02:33,270 --> 00:02:28,390

coming down up on max cube body rates

16

00:02:33,280 --> 00:02:38,710

max q

17

00:02:50,630 --> 00:02:40,470

booster engine continue to operate

18

00:02:55,110 --> 00:02:52,470

max q

19

00:02:57,830 --> 00:02:55,120

vehicle continues to fly well that have

20

00:02:59,750 --> 00:02:57,840

rates look good

21

00:03:02,149 --> 00:02:59,760

and boosters throttle back engine

22

00:03:05,589 --> 00:03:02,159

response looks good

23

00:03:08,710 --> 00:03:05,599

pu continues to control anomaly

24

00:03:12,430 --> 00:03:08,720

current altitude is 11.2 nautical miles

25

00:03:24,630 --> 00:03:12,440

downrange distance 8.1 miles velocity is

26

00:03:27,430 --> 00:03:26,149

range track shows the vehicle making

27

00:03:36,070 --> 00:03:27,440

good progress right down the middle of

28

00:03:39,910 --> 00:03:37,750

and closed loop

29

00:03:42,070 --> 00:03:39,920

out q office steering has been enabled

30

00:03:44,070 --> 00:03:42,080

vehicle body rates look good

31

00:03:45,190 --> 00:03:44,080

also i have performed some row bias

32

00:03:46,949 --> 00:03:45,200

pointing

33

00:03:51,430 --> 00:03:46,959

looking for the rcs pyro valve

34

00:03:56,070 --> 00:03:54,470

and we have the pyroval firing

35

00:04:02,949 --> 00:03:56,080

and that system is now pressurizing the

36

00:04:07,910 --> 00:04:05,190

current altitude is

37

00:04:09,789 --> 00:04:07,920

31 miles downrange distance 50 and a

38

00:04:22,629 --> 00:04:09,799

half velocity

39

00:04:27,670 --> 00:04:24,950

and the q alpha steering portion of the

40

00:04:30,310 --> 00:04:27,680

booster flight has been completed

41

00:04:47,430 --> 00:04:30,320

approaching our 5g throttle segment

42

00:04:55,990 --> 00:04:49,270

and the booster has now begun to

43

00:05:08,230 --> 00:04:57,990

pogo pyramint has been fired boost phase

44

00:05:11,990 --> 00:05:10,469

and we've throttled back to 4.6 g's in

45

00:05:17,830 --> 00:05:12,000

preparation for beco boost phase

46

00:05:24,150 --> 00:05:19,590

and we have beco engine shutdown looks

47

00:05:28,070 --> 00:05:26,469

we have retros and stage separation

48

00:05:30,230 --> 00:05:28,080

looks like a clean set

49

00:05:32,150 --> 00:05:30,240

we have locks and fuel pre-start

50

00:05:35,830 --> 00:05:32,160

chain two purge firing on the rcs is

51
00:05:40,150 --> 00:05:37,749
we have ignition and full thrust on the

52
00:05:42,230 --> 00:05:40,160
air all then looking for payload for

53
00:05:44,150 --> 00:05:42,240
jettison momentarily

54
00:05:45,270 --> 00:05:44,160
and we have indication of payoffer and

55
00:05:53,990 --> 00:05:45,280
jettison

56
00:05:59,270 --> 00:05:56,309
and centaur steering has been enabled

57
00:06:01,189 --> 00:05:59,280
and the pu has been commanded to fixed

58
00:06:04,230 --> 00:06:01,199
angles for the early portion of this 9

59
00:06:06,790 --> 00:06:04,240
minute and 15 second burn

60
00:06:09,029 --> 00:06:06,800
r110 chamber pressures locks pump

61
00:06:12,230 --> 00:06:09,039
discharge inventory pressures look to be

62
00:06:14,550 --> 00:06:12,240
within band for the set mixed ratio

63
00:06:25,590 --> 00:06:14,560

rcs line temperatures are warming

64

00:06:32,309 --> 00:06:29,270

current altitude is 106 miles downrange

65

00:06:33,710 --> 00:06:32,319

distance is 429 miles current velocity

66

00:06:36,150 --> 00:06:33,720

is 11

67

00:06:38,070 --> 00:06:36,160

794 miles per hour

68

00:06:40,070 --> 00:06:38,080

range track shows the vehicle

69

00:06:49,029 --> 00:06:40,080

progressing nicely down the middle of

70

00:06:54,710 --> 00:06:50,870

quick check of booster performance shows

71

00:07:04,230 --> 00:06:54,720

that we are plus 0.36 sigma high on

72

00:07:07,909 --> 00:07:06,390

at this point centaur pew is operating

73

00:07:09,990 --> 00:07:07,919

in closed loop control however it

74

00:07:11,029 --> 00:07:10,000

continues to request an oxidizer rich

75

00:07:19,350 --> 00:07:11,039

condition

76

00:07:24,870 --> 00:07:22,309

current center altitude is 128 miles

77

00:07:26,670 --> 00:07:24,880

downrange distance 603 miles current

78

00:07:30,710 --> 00:07:26,680

velocity is 12

79

00:07:40,390 --> 00:07:30,720

175 miles per hour

80

00:07:56,950 --> 00:07:41,830

coming up on the format change here

81

00:08:01,830 --> 00:07:58,950

and we have had the format change just a

82

00:08:03,670 --> 00:08:01,840

minor loss of data at that point

83

00:08:07,350 --> 00:08:03,680

all centaur systems continue to look

84

00:08:12,390 --> 00:08:09,589

centaur pu is now operating near nominal

85

00:08:14,790 --> 00:08:12,400

mixture ratios

86

00:08:17,110 --> 00:08:14,800

engine response looks good chamber

87

00:08:19,270 --> 00:08:17,120

pressures are still stable

88

00:08:37,670 --> 00:08:19,280

pump discharge and fuel inventories look

89

00:08:43,829 --> 00:08:40,469

current altitude is 129

90

00:08:45,310 --> 00:08:43,839

nautical miles downrange distance 875

91

00:08:48,389 --> 00:08:45,320

velocity 12

92

00:08:50,470 --> 00:08:48,399

844 miles per hour

93

00:08:54,949 --> 00:08:50,480

continue to look good on the range track

94

00:09:17,110 --> 00:08:57,190

and centaur has achieved the head-on

95

00:09:22,949 --> 00:09:19,750

current centaur tank pressures look good

96

00:09:25,190 --> 00:09:22,959

plus some battery voltages are stable

97

00:09:48,949 --> 00:09:25,200

helium bottles are within expected

98

00:09:53,910 --> 00:09:50,790

approximately five minutes left in this

99

00:09:55,430 --> 00:09:53,920

first burn all centaur systems continue

100

00:09:59,030 --> 00:09:55,440

to look excellent

101
00:10:01,430 --> 00:09:59,040
centaur pu is operating near nominal

102
00:10:02,470 --> 00:10:01,440
turbinelet pressures our temperatures

103
00:10:06,470 --> 00:10:02,480
look

104
00:10:27,910 --> 00:10:06,480
as expected for the set mixture ratio

105
00:10:33,670 --> 00:10:30,949
current altitude 159.5 miles downrange

106
00:10:35,790 --> 00:10:33,680
distance 1270 miles

107
00:10:52,630 --> 00:10:35,800
velocity is 13

108
00:10:56,310 --> 00:10:54,710
centaur rcs line temperatures have warm

109
00:11:48,230 --> 00:10:56,320
to bottle temperature so we continue to

110
00:11:53,590 --> 00:11:49,670
with three minutes remaining in this

111
00:11:55,190 --> 00:11:53,600
burn the rl10 continues to perform well

112
00:11:58,230 --> 00:11:55,200
chamber pressures pump discharge

113
00:12:00,629 --> 00:11:58,240

inventory pressures are operating as

114

00:12:02,470 --> 00:12:00,639

expected for the set mixed ratio

115

00:12:04,949 --> 00:12:02,480

rca line temperatures continue to look

116

00:12:07,590 --> 00:12:04,959

good thermal signatures

117

00:12:35,590 --> 00:12:07,600

for the warming firings are good

118

00:12:42,629 --> 00:12:39,030

current center altitude is 152 miles

119

00:12:46,470 --> 00:12:42,639

downrange distance is 1783 miles speed

120

00:12:48,150 --> 00:12:46,480

is 15 640 miles per hour

121

00:12:49,590 --> 00:12:48,160

range track shows the vehicle

122

00:13:30,550 --> 00:12:49,600

progressing well right down the middle

123

00:13:35,829 --> 00:13:32,949

center body rates look good controlling

124

00:13:39,670 --> 00:13:35,839

right down the middle

125

00:13:41,590 --> 00:13:39,680

plus some battery vultures look good

126
00:13:55,269 --> 00:13:41,600
tank pressures are stable as well as

127
00:13:55,279 --> 00:14:06,629
a little under one minute tomiko

128
00:14:29,990 --> 00:14:08,710
i'll scratch that

129
00:14:33,590 --> 00:14:32,150
and we have iap vanish centaur is now

130
00:14:35,829 --> 00:14:33,600
orbital

131
00:14:37,829 --> 00:14:35,839
continue to control near nominal mixed

132
00:14:39,590 --> 00:14:37,839
ratios and they are all 10.

133
00:14:49,350 --> 00:14:39,600
engine performance continues to look

134
00:14:53,430 --> 00:14:51,350
p has been set at fixed angles in

135
00:14:55,269 --> 00:14:53,440
preparation for miko and we have miko

136
00:15:06,150 --> 00:14:55,279
engine shutdown looks good we have 4s

137
00:15:10,550 --> 00:15:08,629
tank pressures are stable lh2 tank has

138
00:15:12,790 --> 00:15:10,560

been vented down as expected storage

139

00:15:17,910 --> 00:15:12,800

bottles are stable as well plus battery

140

00:15:22,230 --> 00:15:20,470

centaur has begun its turn to its ptc

141

00:15:24,310 --> 00:15:22,240

attitude

142

00:15:28,870 --> 00:15:24,320

and it's begun the roll up to one and a

143

00:15:33,749 --> 00:15:31,189

this coast period is expected to last

144

00:15:35,269 --> 00:15:33,759

just short of 56 minutes in duration

145

00:15:37,509 --> 00:15:35,279

prior to