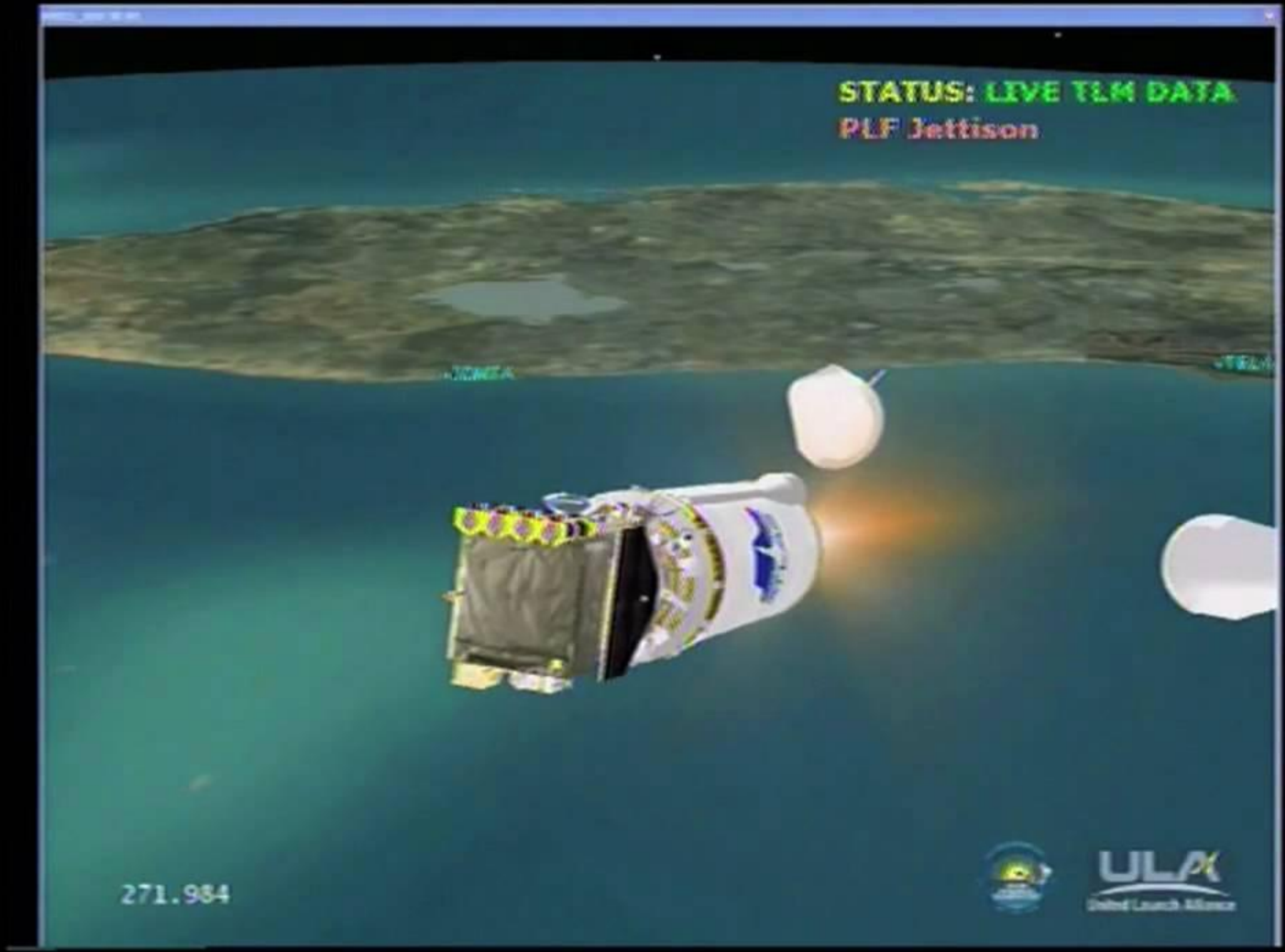
STATUS: LIVE TLM DATA
PLF Jettison
271.984
ULA

1
00:00:10,790 --> 00:00:31,760
she might us one minute and Counting

2
00:00:31,770 --> 00:00:40,660
stable at step 3

3
00:01:07,840 --> 00:00:56,770
t-minus 30 seconds and counting t-minus

4
00:01:12,249 --> 00:01:07,850
15 seconds t-minus 10 9 8 7 6 5 4 go for

5
00:01:15,850 --> 00:01:12,259
main engine start 3 2 1 0

6
00:01:18,420 --> 00:01:15,860
and ignition and liftoff of the Atlas 5

7
00:01:21,580 --> 00:01:18,430
with the Solar Dynamics Observatory

8
00:01:31,240 --> 00:01:21,590
learning why our star is changing our

9
00:01:31,250 --> 00:01:54,609
jitties get out

10
00:02:07,940 --> 00:02:02,319
what do you think up like a closed-loop

11
00:02:13,590 --> 00:02:10,800
and we try to close with control panel

12
00:02:15,240 --> 00:02:13,600
is propelling inflation system and

13
00:02:20,880 --> 00:02:15,250

operating pressures continue to look

14
00:02:23,220 --> 00:02:20,890
good flight control data is smooth

15
00:02:34,520 --> 00:02:23,230
as expected for this portion of

16
00:02:42,960 --> 00:02:38,630
and the vehicle is now supersonic

17
00:02:47,420 --> 00:02:42,970
approaching maximum pressure everything

18
00:02:50,100 --> 00:02:47,430
is looking good and we are hitting max Q

19
00:02:53,309 --> 00:02:50,110
bu as controlling as expected engine

20
00:03:01,559 --> 00:02:53,319
operating as expected everything looking

21
00:03:05,100 --> 00:03:01,569
good and the vehicle continues right

22
00:03:07,830 --> 00:03:05,110
down the center of the range track we

23
00:03:10,710 --> 00:03:07,840
are 12 miles in altitude 11 miles

24
00:03:15,509 --> 00:03:10,720
downrange traveling at 2300 miles per

25
00:03:17,220 --> 00:03:15,519
hour Rhode Island propulsion and

26
00:03:20,580 --> 00:03:17,230
hydraulics securing an vehicles

27
00:03:22,350 --> 00:03:20,590
transition to 95% less traffic to easy

28
00:03:30,300 --> 00:03:22,360
systems here continuing to control as

29
00:03:34,710 --> 00:03:30,310
expected and we are now at 50 percent of

30
00:03:37,880 --> 00:03:34,720
our liftoff weight engine continues to

31
00:03:41,690 --> 00:03:37,890
operate as expected at 95 percent thrust

32
00:03:44,250 --> 00:03:41,700
sent automatically approaching our

33
00:03:46,710 --> 00:03:44,260
center pneumatics it's not automatic

34
00:03:53,160 --> 00:03:46,720
closed-loop steering fails when we have

35
00:03:58,559 --> 00:03:56,420
and we fired the power valve activating

36
00:04:02,030 --> 00:03:58,569
pressurizing the reaction control system

37
00:04:13,280 --> 00:04:02,040
on centaur who's the Canadians perform

38
00:04:15,720 --> 00:04:13,290

nominally can using normal PU control

39
00:04:21,080 --> 00:04:15,730
like control parameters are nice and

40
00:04:23,960 --> 00:04:21,090
smooth vehicle accelerating at 3.6 G's

41
00:04:28,110 --> 00:04:23,970
you know thirty eight miles in altitude

42
00:04:35,190 --> 00:04:28,120
83 miles downrange traveling at 6600

43
00:04:43,290 --> 00:04:35,200
miles per hour site control parameters

44
00:04:47,130 --> 00:04:43,300
look good vehicle now weighs 25 percent

45
00:04:51,480 --> 00:04:47,140
of its liftoff weight and we've entered

46
00:04:53,490 --> 00:04:51,490
a constant 5g throttling phase the

47
00:04:55,409 --> 00:04:53,500
rd-180 is compensating to maintain sy

48
00:04:59,030 --> 00:04:55,419
abusive acceleration as expected we have

49
00:05:11,700 --> 00:05:01,740
introducing fuel to vol 10 engine to

50
00:05:17,240 --> 00:05:11,710
condition it for operation 56 0 66 miles

51
00:05:23,120 --> 00:05:17,250
in altitude 195 miles downrange at 1103

52
00:05:34,980 --> 00:05:30,719
we have cut off everything looking good

53
00:05:36,529 --> 00:05:34,990
the ignition full thrust all 10 is up

54
00:05:40,260 --> 00:05:36,539
and running normally

55
00:05:41,550 --> 00:05:40,270
coming up on fairing jet and we have

56
00:05:44,490 --> 00:05:41,560
jettison the fairing right on time

57
00:05:46,969 --> 00:05:44,500
everything looking good you're seeing

58
00:05:58,980 --> 00:05:46,979
normal study state operating levels on

59
00:06:05,670 --> 00:06:01,290
and we started thermal conditioning

60
00:06:07,320 --> 00:06:05,680
firings on the RCS thrusters Center PU

61
00:06:10,140 --> 00:06:07,330
is in this fixed angle position as

62
00:06:13,070 --> 00:06:10,150
expected and in operating parameters did

63
00:06:15,390 --> 00:06:13,080

respond to the change in mixture ratio

64
00:06:19,260 --> 00:06:15,400
vehicle continues let's do another line

65
00:06:22,710 --> 00:06:19,270
strat access control now 108 miles in

66
00:06:24,480 --> 00:06:22,720
altitude 407 miles downrange traveling

67
00:06:32,040 --> 00:06:24,490
at eleven thousand six hundred miles per

68
00:06:36,689 --> 00:06:32,050
hour we are seeing expected activity on

69
00:06:44,850 --> 00:06:36,699
the reaction control system vehicles

70
00:06:47,659 --> 00:06:44,860
accelerating nice and smooth engine

71
00:06:50,520 --> 00:06:47,669
operating levels look good

72
00:07:01,460 --> 00:06:50,530
ten during our open-loop bays and

73
00:07:09,400 --> 00:07:04,250
and we're now closed-loop control on

74
00:07:11,810 --> 00:07:09,410
center P you mentioned parameters and

75
00:07:16,220 --> 00:07:11,820
changing as expected now operating a

76
00:07:20,780 --> 00:07:16,230
fuel rich stop this is the expected

77
00:07:33,320 --> 00:07:20,790
behavior at this time in flight reaction

78
00:07:34,820 --> 00:07:33,330
control system is as expected data are

79
00:07:43,940 --> 00:07:34,830
now coming through the integral I line

80
00:07:47,240 --> 00:07:43,950
tracking station and we've begun our 104

81
00:07:50,990 --> 00:07:47,250
degrees mobile to mitigate solar heating

82
00:08:01,670 --> 00:07:51,000
and the SDO spacecraft vehicles

83
00:08:10,290 --> 00:08:01,680
controlling as expected engine operating

84
00:08:24,050 --> 00:08:12,629
centaur PU has come off the stop now

85
00:08:31,530 --> 00:08:28,440
we're now 156 miles in altitude 830

86
00:08:37,620 --> 00:08:31,540
miles downrange traveling at 12,500

87
00:08:39,089 --> 00:08:37,630
miles per hour I'll tend chamber

88
00:08:41,820 --> 00:08:39,099

pressure can hit me look good pump

89
00:08:47,100 --> 00:08:41,830
discharge pressure kill venturi and that

90
00:08:50,540 --> 00:08:47,110
pressure look good and we've completed

91
00:08:54,450 --> 00:08:50,550
the roll for solar heating mitigation

92
00:08:58,020 --> 00:08:54,460
we're turning to null rates everything

93
00:09:05,310 --> 00:08:58,030
is nice and smooth so everything at 0.47

94
00:09:07,110 --> 00:09:05,320
G's expected firings on the reaction

95
00:09:15,320 --> 00:09:07,120
control system for roll control and

96
00:09:15,330 --> 00:09:31,730
Center PU operating normally

97
00:09:37,980 --> 00:09:34,199
passing through 500 seconds into the

98
00:09:40,860 --> 00:09:37,990
mission we are well into a planned 11

99
00:09:47,460 --> 00:09:40,870
minute burn on center engine operating

100
00:09:50,430 --> 00:09:47,470
parameters look good we're now 168 miles

101
00:09:57,500 --> 00:09:50,440
in altitude 1,100 miles downrange

102
00:10:04,079 --> 00:10:00,150
also signal at the Cape all data now

103
00:10:07,800 --> 00:10:04,089
coming through Antigua everything

104
00:10:20,400 --> 00:10:07,810
continues to look good and we have

105
00:10:29,980 --> 00:10:24,360
can you continue to control as expected

106
00:10:32,980 --> 00:10:29,990
I'll tend burning nominally vehicle

107
00:10:42,040 --> 00:10:32,990
rates are very smooth vehicle

108
00:10:48,939 --> 00:10:42,050
accelerating at 0.5 to G's continuing to

109
00:10:52,780 --> 00:10:48,949
follow a nominal trajectory 169 miles in

110
00:11:13,749 --> 00:10:52,790
altitude 1350 miles downrange traveling

111
00:11:27,220 --> 00:11:16,009
now hit the ten-minute mark into the

112
00:11:36,400 --> 00:11:31,610
body rates continued to be smooth right

113
00:11:44,259 --> 00:11:36,410

now 1500 miles downrange traveling at

114
00:11:52,579 --> 00:11:47,269
can we see good steady state operating

115
00:11:57,049 --> 00:11:52,589
levels on centaur also signal at antigua

116
00:12:03,920 --> 00:11:57,059
acquisition through t dress so awaiting

117
00:12:07,030 --> 00:12:03,930
smoothly at 0.57 G's RCS activity is as

118
00:12:13,420 --> 00:12:09,259
hydrazine loop temps right where we

119
00:12:37,100 --> 00:12:13,430
expect him to be body rates look good

120
00:12:44,280 --> 00:12:42,060
you know 1770 miles downrange traveling

121
00:12:53,360 --> 00:12:44,290
at fifteen thousand four hundred miles

122
00:12:58,680 --> 00:12:55,710
passing through 700 seconds into the

123
00:13:02,100 --> 00:12:58,690
mission center burning normally PU is

124
00:13:05,490 --> 00:13:02,110
controlling right down the middle body

125
00:13:10,500 --> 00:13:05,500
rates are smooth soul everything

126
00:13:11,970 --> 00:13:10,510
smoothly at point six five g's about

127
00:13:18,120 --> 00:13:11,980
another three minutes and the Centaur

128
00:13:20,700 --> 00:13:18,130
burned - check for pad reentry Atlas lo2

129
00:13:22,980 --> 00:13:20,710
momentarily will bring a vehicle roll

130
00:13:25,110 --> 00:13:22,990
who point the antenna policy average

131
00:13:25,890 --> 00:13:25,120
Madras East position with hydraulics

132
00:13:39,900 --> 00:13:25,900
ready

133
00:13:46,170 --> 00:13:39,910
down the center of the ranger Center lh2

134
00:13:48,470 --> 00:13:46,180
ready 2,000 miles downrange environment

135
00:14:00,530 --> 00:13:48,480
thousand three hundred miles per hour

136
00:14:06,780 --> 00:14:03,240
vehicles continuing his turn for two

137
00:14:10,560 --> 00:14:06,790
disappointing good steady state

138
00:14:14,880 --> 00:14:10,570

operating levels on the engine expected

139
00:14:17,520 --> 00:14:14,890
PU activity good hydrazine cluster

140
00:14:29,160 --> 00:14:17,530
activity we're now telling out our roll

141
00:14:30,600 --> 00:14:29,170
rate achieving our pointing attitude two

142
00:14:35,630 --> 00:14:30,610
minutes remaining in the Centaur burn

143
00:14:35,640 --> 00:14:49,980
vehicle's plumbing nominally

144
00:14:56,710 --> 00:14:52,810
everything is looking good good steady

145
00:15:04,450 --> 00:14:56,720
state operating levels on center normal

146
00:15:30,140 --> 00:15:04,460
PU and RCS activity and we've just chief

147
00:15:42,500 --> 00:15:33,500
one minute to a nominal Miko one and

148
00:15:44,390 --> 00:15:42,510
everything is looking good releasing to

149
00:15:56,180 --> 00:15:44,400
rob Ganon or Atlas five telemetry

150
00:16:07,010 --> 00:15:56,190
manager for United Launch Alliance loop

151
00:16:08,420 --> 00:16:07,020
control on Centre PU correction will

152
00:16:15,200 --> 00:16:08,430
achieve that milestone pass me ten

153
00:16:16,970 --> 00:16:15,210
seconds 20 seconds - Miko one and we've

154
00:16:29,260 --> 00:16:16,980
now gone to open loop control on centre

155
00:16:32,660 --> 00:16:29,270
PU coming up on cut off and shut down

156
00:16:34,370 --> 00:16:32,670
may be chief Miko one possibly five

157
00:16:44,210 --> 00:16:34,380
seconds earlier we have Forrest settling

158
00:16:51,019 --> 00:16:44,220
on as expected we've begun our turn to

159
00:16:58,460 --> 00:16:56,629
we are now entering and eighty seven and