
ROSCOSMOS

1
00:00:08,549 --> 00:00:06,150
launch command issued for ignition

2
00:00:10,870 --> 00:00:08,559
launch command has been issued eight

3
00:00:11,830 --> 00:00:10,880
seven six five

4
00:00:12,950 --> 00:00:11,840
four

5
00:00:14,910 --> 00:00:12,960
three

6
00:00:16,710 --> 00:00:14,920
two

7
00:00:20,150 --> 00:00:16,720
one speed

8
00:00:24,470 --> 00:00:22,310
and liftoff

9
00:00:26,950 --> 00:00:24,480
of kate rubins anatoly ivanishin and

10
00:00:32,630 --> 00:00:26,960
takuya onishi now on their way to the

11
00:00:36,549 --> 00:00:34,950
15 seconds into the flight everything is

12
00:00:46,869 --> 00:00:36,559
phenomenal

13
00:00:51,590 --> 00:00:48,470

good first stage performance soyuz

14
00:00:54,310 --> 00:00:51,600
delivering 930 000 pounds of thrust from

15
00:00:56,630 --> 00:00:54,320
its for four boosters in single engine

16
00:00:58,389 --> 00:00:56,640
the first stage of the soyuz measured 68

17
00:01:00,470 --> 00:00:58,399
feet in length and 24

18
00:01:02,150 --> 00:01:00,480
feet in diameter and it burns liquid

19
00:01:04,229 --> 00:01:02,160
fuel for the first two minutes and six

20
00:01:06,870 --> 00:01:04,239
seconds of flight stabilization is

21
00:01:15,190 --> 00:01:06,880
performing as planned

22
00:01:24,469 --> 00:01:17,429
one minute now in today's flight of the

23
00:01:28,070 --> 00:01:26,550
velocity of the vehicle is now 1100

24
00:01:28,950 --> 00:01:28,080
miles per hour

25
00:01:31,510 --> 00:01:28,960
now

26
00:01:44,950 --> 00:01:31,520
we are fine and everything is good on

27
00:01:48,870 --> 00:01:47,109
a minute and a half until the day's

28
00:01:51,270 --> 00:01:48,880
flight everything looking good on board

29
00:01:54,469 --> 00:01:51,280
the soyuz

30
00:01:56,870 --> 00:01:54,479
90 seconds view here of the crew inside

31
00:01:59,270 --> 00:01:56,880
the soyuz looking at uh anatoly

32
00:02:01,190 --> 00:01:59,280
ivanishin and takuya onishi

33
00:02:10,150 --> 00:02:01,200
not seen here but sitting next to them

34
00:02:13,430 --> 00:02:11,589
and the crew here on the ground

35
00:02:17,190 --> 00:02:13,440
reporting that the escape tower on board

36
00:02:21,030 --> 00:02:19,350
and the soyuz

37
00:02:22,470 --> 00:02:21,040
four strap-on boosters also been

38
00:02:24,470 --> 00:02:22,480

jettisoned they've completed their job

39
00:02:27,030 --> 00:02:24,480
and dropped away at an altitude of 28

40
00:02:28,470 --> 00:02:27,040
statute miles soyuz now traveling at

41
00:02:29,589 --> 00:02:28,480
about 33

42
00:02:32,470 --> 00:02:29,599
or 3

43
00:02:34,630 --> 00:02:32,480
350 miles an hour

44
00:02:52,869 --> 00:02:34,640
130 seconds into the flight

45
00:03:02,149 --> 00:02:56,070
150 seconds into the flight second stage

46
00:03:05,509 --> 00:03:03,910
everything is team here on the ground

47
00:03:07,670 --> 00:03:05,519
reporting the launch shroud has also

48
00:03:17,990 --> 00:03:07,680
been jettisoned now the rockets altitude

49
00:03:21,030 --> 00:03:19,670
three minutes and three seconds into the

50
00:03:22,390 --> 00:03:21,040
flight everything's still going well

51
00:03:27,750 --> 00:03:22,400
this will use traveling at a speed of

52
00:03:33,110 --> 00:03:30,470
and there's kate rubin sitting in the

53
00:03:36,309 --> 00:03:33,120
left seat uh waving at the camera

54
00:03:37,990 --> 00:03:36,319
soyuz core stage performing as expected

55
00:03:40,869 --> 00:03:38,000
we are watching flight engineering where

56
00:03:42,550 --> 00:03:40,879
stage of soyuz is 56 feet in length and

57
00:03:44,149 --> 00:03:42,560
13 and a half feet in diameter and it

58
00:03:49,190 --> 00:03:44,159
has a single engine with four fuel

59
00:03:51,910 --> 00:03:49,200
chambers providing between 178 and 222

60
00:03:54,949 --> 00:03:51,920
601 pounds of thrust for its uh three

61
00:03:56,550 --> 00:03:54,959
minutes and 28 seconds of operation

62
00:03:59,030 --> 00:03:56,560
stage will continue to burn until four

63
00:04:01,190 --> 00:03:59,040

minute and 43 second mark

64
00:04:02,949 --> 00:04:01,200
soyuz uses what's called a hot stage

65
00:04:04,710 --> 00:04:02,959
technique the third stage will ignite

66
00:04:07,429 --> 00:04:04,720
while the second stage is still burning

67
00:04:15,670 --> 00:04:07,439
this is why the soyuz has an open area

68
00:04:19,830 --> 00:04:17,030
four minutes now into the flight

69
00:04:21,349 --> 00:04:19,840
everything continuing to go as planned

70
00:04:33,070 --> 00:04:21,359
as the soyuz begins making its way

71
00:04:39,350 --> 00:04:36,390
250 seconds into the flight your pitch

72
00:05:00,150 --> 00:04:39,360
and roll are nominal we are feeling fine

73
00:05:04,790 --> 00:05:02,469
four minutes and 46 seconds now into the

74
00:05:06,950 --> 00:05:04,800
flight third third stage of the soyuz is

75
00:05:08,070 --> 00:05:06,960
igniting the second stage is shutting

76
00:05:12,070 --> 00:05:08,080
down

77
00:05:17,029 --> 00:05:14,150
and we've confirmed that the core

78
00:05:20,870 --> 00:05:17,039
booster separated an altitude of 105

79
00:05:22,710 --> 00:05:20,880
miles or 170 kilometers

80
00:05:24,390 --> 00:05:22,720
soyuz is now

81
00:05:26,710 --> 00:05:24,400
being propelled by a single engine of

82
00:05:29,510 --> 00:05:26,720
the soyuz's third stage this engine is

83
00:05:31,110 --> 00:05:29,520
providing 67 000 pounds of thrust and

84
00:05:59,990 --> 00:05:31,120
will burn for four minutes and two

85
00:06:03,749 --> 00:06:02,230
five minutes and 45 seconds now into

86
00:06:05,670 --> 00:06:03,759
flight

87
00:06:07,430 --> 00:06:05,680
everything's still looking good so he is

88
00:06:08,870 --> 00:06:07,440

continuing to make its way into low

89
00:06:11,110 --> 00:06:08,880
earth orbit on its way to the

90
00:06:13,510 --> 00:06:11,120
international space station with

91
00:06:14,950 --> 00:06:13,520
kate rubins anatoly ivanishin and takuya

92
00:06:16,550 --> 00:06:14,960
onishi aboard

93
00:06:32,830 --> 00:06:16,560
we are feeling fine everything is good

94
00:06:43,029 --> 00:06:35,510
307 seconds into the flight all

95
00:06:43,039 --> 00:07:03,110
everything is good on board

96
00:07:14,870 --> 00:07:05,110
400 seconds into the flight

97
00:07:18,469 --> 00:07:16,870
seven minutes now into flight and that

98
00:07:42,350 --> 00:07:18,479
single engine of the third stage

99
00:07:47,110 --> 00:07:44,550
140 seconds into the flight

100
00:07:49,510 --> 00:07:47,120
stabilization is performing as planned

101
00:07:52,150 --> 00:07:49,520
we are feeling well and everything is

102
00:07:55,270 --> 00:07:53,589
the crew continuing to report that

103
00:07:58,950 --> 00:07:55,280
everything's going well on board the

104
00:07:59,909 --> 00:07:58,960
soyuz is now going almost 13 500 miles

105
00:08:01,589 --> 00:07:59,919
an hour

106
00:08:03,670 --> 00:08:01,599
once the third stage delivers the soyuz

107
00:08:05,110 --> 00:08:03,680
to orbit and the module is separated

108
00:08:07,589 --> 00:08:05,120
there will be a series of pre-programmed

109
00:08:10,629 --> 00:08:07,599
commands to be executed to prepare the

110
00:08:12,150 --> 00:08:10,639
soyuz for orbital operations

111
00:08:13,830 --> 00:08:12,160
these stored commands are called time

112
00:08:16,710 --> 00:08:13,840
tag commands and allow many of the soyuz

113
00:08:19,270 --> 00:08:16,720

systems to be automatically activated by

114
00:08:21,110 --> 00:08:19,280
onboard computers at precise times

115
00:08:23,029 --> 00:08:21,120
stored in the computers

116
00:08:39,589 --> 00:08:23,039
we're feeling well everything is good on

117
00:08:44,790 --> 00:08:42,230
500 seconds into the flight the flight

118
00:08:47,110 --> 00:08:44,800
is nominal

119
00:08:58,389 --> 00:08:47,120
we are feeling fine everything is good

120
00:08:58,399 --> 00:09:10,710
be ready for the separation

121
00:09:14,470 --> 00:09:12,630
and uh the third stage separation being

122
00:09:16,550 --> 00:09:14,480
confirmed here on the ground you saw the

123
00:09:17,350 --> 00:09:16,560
crew reacting to it on board there and

124
00:09:21,829 --> 00:09:17,360
uh

125
00:09:24,110 --> 00:09:21,839
single liquid fueled engine is shut down

126
00:09:27,509 --> 00:09:24,120
and dropped away at an altitude of

127
00:09:29,269 --> 00:09:27,519
125 miles statute miles

128
00:09:31,190 --> 00:09:29,279
mcc moscow

129
00:09:33,030 --> 00:09:31,200
soyuz capsule and crew inside are now

130
00:09:34,389 --> 00:09:33,040
safely in orbit and the spacecraft is

131
00:09:36,230 --> 00:09:34,399
automatically executing its

132
00:09:38,710 --> 00:09:36,240
pre-programmed commands to deploy the

133
00:09:41,750 --> 00:09:38,720
antennas and solar arrays we copy your

134
00:09:51,190 --> 00:09:41,760
moscow everything is fine the heating of

135
00:09:55,430 --> 00:09:52,870
good report there from the crew soyuz is

136
00:09:57,750 --> 00:09:55,440
orbiting now an altitude of about 143

137
00:09:59,590 --> 00:09:57,760
miles by 118 miles

138
00:10:01,269 --> 00:09:59,600

that'll be raised systematically over

139
00:10:02,710 --> 00:10:01,279
the course of the next two days placing

140
00:10:04,550 --> 00:10:02,720
it in close proximity to the