1
00:00:16,670 --> 00:00:11,870
one minute until launch we're ready for

2
00:00:22,220 --> 00:00:16,680
the lunch we are happy to do that core

3
00:00:24,019 --> 00:00:22,230
team we are ready for the launch crew

4
00:00:26,080 --> 00:00:24,029
reporting they're ready to go the

5
00:00:28,849 --> 00:00:26,090
vehicle on internal power

6
00:00:33,889 --> 00:00:28,859
the first umbilical Tower separating

7
00:00:44,470 --> 00:00:33,899
from the booster just under 30 seconds

8
00:00:52,870 --> 00:00:50,470
I would initiate it the second umbilical

9
00:00:54,610 --> 00:00:52,880
now separating from the tower marking

10
00:00:59,389 --> 00:00:54,620
less than 15 seconds the engines

11
00:01:07,740 --> 00:01:06,870
ramping up and liftoff the year in space

12
00:01:10,080 --> 00:01:07,750
starts now

13
00:01:20,780 --> 00:01:10,090

Kelly kornienko and padalka on their way

14
00:01:24,260 --> 00:01:22,100
getting good first stage performance

15
00:01:26,240 --> 00:01:24,270
Soyuz delivering about nine hundred and

16
00:01:27,800 --> 00:01:26,250
thirty thousand pounds of thrust through

17
00:01:34,010 --> 00:01:27,810
its four strap-on boosters and single

18
00:01:36,350 --> 00:01:34,020
engine and to getting reports nominal

19
00:01:38,210 --> 00:01:36,360
operation the first age measuring 68

20
00:01:40,460 --> 00:01:38,220
feet in length and 24 feet in diameter

21
00:01:54,560 --> 00:01:40,470
burning liquid fuel for the first two

22
00:01:59,300 --> 00:01:56,960
continuing to get views from the cabin

23
00:02:01,610 --> 00:01:59,310
inside as you heard NASA astronaut Reid

24
00:02:07,760 --> 00:02:01,620
Wiseman a fairly smooth flight into

25
00:02:17,090 --> 00:02:07,770
orbit for these crew members each your

26
00:02:18,620 --> 00:02:17,100
control god me we feel we come up on 70

27
00:02:21,350 --> 00:02:18,630
seconds into the flight the velocity

28
00:02:23,930 --> 00:02:21,360
will be just around 1,100 miles per hour

29
00:02:28,970 --> 00:02:23,940
continuing you could get good data from

30
00:02:37,100 --> 00:02:28,980
the Soyuz craft 800 meters of the

31
00:02:39,290 --> 00:02:37,110
control system I know the crew looking

32
00:02:49,900 --> 00:02:39,300
good inside again padalka in the center

33
00:03:10,060 --> 00:02:53,570
structure a nominal copy everything is

34
00:03:13,729 --> 00:03:10,070
fine on board we are feeling good copy

35
00:03:16,370 --> 00:03:13,739
the first stage has separated so at this

36
00:03:18,410 --> 00:03:16,380
point the escape tower and has been

37
00:03:20,449 --> 00:03:18,420
jettisoned and the four strap-on

38
00:03:22,970 --> 00:03:20,459

boosters of the first stage have also

39
00:03:24,800 --> 00:03:22,980
been jettisoned completing their job

40
00:03:27,560 --> 00:03:24,810
they've dropped away at an altitude of

41
00:03:30,979 --> 00:03:27,570
about 28 statute miles so use right now

42
00:03:37,699 --> 00:03:30,989
traveling at about 3,000 350 miles an

43
00:03:40,940 --> 00:03:37,709
hour 100 and continuing to hear good

44
00:03:42,500 --> 00:03:40,950
things from the mission controllers over

45
00:03:46,370 --> 00:03:42,510
in the Russian Mission Control Center in

46
00:03:48,410 --> 00:03:46,380
Corey off crew continuing to feed

47
00:04:06,619 --> 00:03:48,420
reports in good health the vehicle

48
00:04:13,140 --> 00:04:09,690
at this point we're over three minutes

49
00:04:15,780 --> 00:04:13,150
into launch since launch Soyuz craft now

50
00:04:17,430 --> 00:04:15,790
passing a speed of over 4,700 miles an

51
00:04:19,229 --> 00:04:17,440
hour getting a look now at NASA

52
00:04:32,100 --> 00:04:19,239
astronaut scott kelly there on the right

53
00:04:34,650 --> 00:04:32,110
seat giving a big thumbs-up functioning

54
00:04:38,400 --> 00:04:34,660
nominally copy everything is fine on

55
00:04:40,680 --> 00:04:38,410
board we are good so the core stage

56
00:04:43,110 --> 00:04:40,690
which makes up both the first and the

57
00:04:45,629 --> 00:04:43,120
second is continuing to perform as

58
00:04:47,250 --> 00:04:45,639
expected that core stage 56 feet in

59
00:04:49,950 --> 00:04:47,260
length 13 and a half feet in diameter

60
00:04:52,460 --> 00:04:49,960
has one single engine with four fuel

61
00:04:54,570 --> 00:04:52,470
chambers and is able to provide between

62
00:04:56,129 --> 00:04:54,580
178 thousand and two hundred and

63
00:04:58,320 --> 00:04:56,139

twenty-two thousand pounds of thrust

64
00:05:01,080 --> 00:04:58,330
depending on the altitude and the

65
00:05:05,700 --> 00:05:01,090
outside pressure it's gonna fire for

66
00:05:08,250 --> 00:05:05,710
three minutes and 28 seconds it'll burn

67
00:05:10,680 --> 00:05:08,260
until the four-minute forty-three second

68
00:05:13,409 --> 00:05:10,690
mark and then the Soyuz will use what's

69
00:05:15,270 --> 00:05:13,419
known as a hot stage technique where the

70
00:05:18,510 --> 00:05:15,280
third stage will ignite while the second

71
00:05:20,520 --> 00:05:18,520
is still burning as being the reason for

72
00:05:24,350 --> 00:05:20,530
the Soyuz to have that small open area

73
00:05:40,740 --> 00:05:31,200
two hundred meters of this structure a

74
00:05:42,719 --> 00:05:40,750
nominal everything's still looking

75
00:05:45,029 --> 00:05:42,729
flawless for this launch getting close

76
00:05:58,399 --> 00:05:45,039
now to third stage ignite and second

77
00:06:05,059 --> 00:06:03,049
second stage separation copy and there

78
00:06:07,699 --> 00:06:05,069
you hear the second stage confirmed to

79
00:06:10,459 --> 00:06:07,709
be separated that Corbeau sir separated

80
00:06:12,979 --> 00:06:10,469
in an altitude of about 105 statute

81
00:06:14,659 --> 00:06:12,989
miles so use now being propelled by the

82
00:06:17,839 --> 00:06:14,669
single engine of the third stage

83
00:06:19,939 --> 00:06:17,849
providing just a little over 67,000

84
00:06:26,600 --> 00:06:19,949
pounds of thrust that's going to burn

85
00:06:28,459 --> 00:06:26,610
for four minutes and two seconds yes we

86
00:06:38,419 --> 00:06:28,469
observe oh they come under in flight

87
00:06:40,040 --> 00:06:38,429
engineer on our monitors three hundred

88
00:06:41,389 --> 00:06:40,050

and thirty seconds into the flight the

89
00:06:50,119 --> 00:06:41,399
thruster of the second stage of

90
00:06:54,529 --> 00:06:50,129
functioning nominally but it

91
00:07:04,219 --> 00:06:54,539
confirm l5 the automated defense we

92
00:07:06,830 --> 00:07:04,229
confirm so just past the six-minute mark

93
00:07:10,330 --> 00:07:06,840
everything continuing to look good from

94
00:07:12,980 --> 00:07:10,340
launch all the way now until third stage

95
00:07:16,100 --> 00:07:12,990
getting nothing but good readings from

96
00:07:20,990 --> 00:07:16,110
the controllers over in choreo and the

97
00:07:22,850 --> 00:07:21,000
Russian MCC Soyuz being propelled by

98
00:07:25,120 --> 00:07:22,860
that third stage right now which fires

99
00:07:27,050 --> 00:07:25,130
for four minutes and two seconds

100
00:07:44,690 --> 00:07:27,060
expected to fire for about another

101
00:08:07,950 --> 00:07:49,470
400 seconds into the flight the

102
00:08:09,990 --> 00:08:07,960
everything is stable and padalka there

103
00:08:12,720 --> 00:08:10,000
in that center seat commanding the Soyuz

104
00:08:15,140 --> 00:08:12,730
is continues to watch over its systems

105
00:08:18,150 --> 00:08:15,150
while it makes this flight into orbit

106
00:08:26,580 --> 00:08:18,160
for over seven minutes 15 seconds now

107
00:08:31,200 --> 00:08:26,590
since liftoff party everything is final

108
00:08:33,390 --> 00:08:31,210
words no issues right about now the

109
00:08:37,620 --> 00:08:33,400
Soyuz already traveling at a speed of

110
00:08:39,420 --> 00:08:37,630
almost 13,000 500 miles an hour just a

111
00:08:42,779 --> 00:08:39,430
little over seven and a half minutes now

112
00:08:43,680 --> 00:08:42,789
since liftoff everything continuing to

113
00:08:45,360 --> 00:08:43,690

look great

114
00:08:50,600 --> 00:08:45,370
these three crew members are well on

115
00:08:56,220 --> 00:08:53,910
once the third stage delivers the craft

116
00:08:58,590 --> 00:08:56,230
into orbit the module will be separated

117
00:09:00,750 --> 00:08:58,600
and all those pre-programmed commands

118
00:09:04,820 --> 00:09:00,760
will be executed to prepare the Soyuz

119
00:09:09,960 --> 00:09:07,650
so bring up a number of the systems to

120
00:09:18,640 --> 00:09:09,970
be automatically activated by the

121
00:09:24,990 --> 00:09:21,370
and just about 30 seconds or so away

122
00:09:27,490 --> 00:09:25,000
from third-stage cutoff and separation

123
00:09:30,040 --> 00:09:27,500
500 seconds into the flight

124
00:09:57,110 --> 00:09:30,050
everything is nominal everything is fine

125
00:10:04,290 --> 00:10:02,160
we have k1 k2 first three and third

126
00:10:07,280 --> 00:10:04,300
stage separation confirmed you can see

127
00:10:09,930 --> 00:10:07,290
the snowman giving a view of that

128
00:10:12,449 --> 00:10:09,940
microgravity is indeed the new home for

129
00:10:14,220 --> 00:10:12,459
these three space fliers the single

130
00:10:15,720 --> 00:10:14,230
liquid fueled engine shut down on the

131
00:10:20,670 --> 00:10:15,730
third stage dropping away at an altitude

132
00:10:22,440 --> 00:10:20,680
of about 125 statute miles it performs a

133
00:10:27,470 --> 00:10:22,450
quick avoidance maneuver by opening a

134
00:10:33,030 --> 00:10:30,389
Soyuz craft now separated the crew

135
00:10:34,440 --> 00:10:33,040
inside safely in orbit getting ready to

136
00:10:36,360 --> 00:10:34,450
execute all those pre-programmed

137
00:10:38,639 --> 00:10:36,370
commands deploying the antennas and the

138
00:10:40,740 --> 00:10:38,649

solar arrays which will provide power to

139
00:10:43,019 --> 00:10:40,750
the batteries onboard the craft