



1  
00:00:09,270 --> 00:00:06,789  
40 seconds left the ground umbilical to

2  
00:00:14,629 --> 00:00:09,280  
the third stage has been discontinued

3  
00:00:14,639 --> 00:00:23,990  
30 seconds now

4  
00:00:29,990 --> 00:00:26,070  
and 20 seconds until launch the launch

5  
00:00:32,310 --> 00:00:30,000  
command has been issued

6  
00:00:38,389 --> 00:00:32,320  
15 seconds second time beautiful tower

7  
00:00:40,229 --> 00:00:39,270  
six

8  
00:00:41,350 --> 00:00:40,239  
five

9  
00:00:42,229 --> 00:00:41,360  
four

10  
00:00:52,790 --> 00:00:42,239  
three

11  
00:00:57,430 --> 00:00:55,670  
and as you can see liftoff of the soyuz

12  
00:00:59,590 --> 00:00:57,440  
tma-04m

13  
00:01:01,349 --> 00:00:59,600

on its way for the crew to join the

14

00:01:02,790 --> 00:01:01,359

international space station expedition

15

00:01:04,549 --> 00:01:02,800

31 crew

16

00:01:07,830 --> 00:01:04,559

carrying flight engineers gennady

17

00:01:10,830 --> 00:01:07,840

padalka sergei revin and joe acaba into

18

00:01:15,429 --> 00:01:13,190

um good first stage performance soyuz

19

00:01:17,510 --> 00:01:15,439

now delivering 102 tons of thrust for

20

00:01:19,590 --> 00:01:17,520

its four boosters and single engine

21

00:01:22,469 --> 00:01:19,600

first stage of the soyuz measures 68

22

00:01:24,149 --> 00:01:22,479

feet in length and 24 feet in diameter

23

00:01:25,670 --> 00:01:24,159

it's burning liquid fuel for the first

24

00:01:26,789 --> 00:01:25,680

two minutes and six seconds of the

25

00:01:28,789 --> 00:01:26,799

flight

26

00:01:30,469 --> 00:01:28,799

a nominal glow

27

00:01:33,109 --> 00:01:30,479

increase

28

00:01:36,789 --> 00:01:33,119

it happens very smoothly and we feel

29

00:01:36,799 --> 00:01:52,950

a small vibration other than

30

00:01:56,789 --> 00:01:54,870

hear everything continuing as planned

31

00:01:59,910 --> 00:01:56,799

now a minute and 10 seconds into flight

32

00:02:17,589 --> 00:01:59,920

the velocity of the soyuz rocket is 1100

33

00:02:22,070 --> 00:02:19,589

everything's still going well

34

00:02:24,150 --> 00:02:22,080

great view here from the clear skies in

35

00:02:25,430 --> 00:02:24,160

baikonur as the soyuz makes its way into

36

00:02:28,229 --> 00:02:25,440

space

37

00:02:31,030 --> 00:02:28,239

stage one and two thrusters operate

38

00:02:50,949 --> 00:02:31,040

nominally 100 seconds right as nominal

39

00:02:54,150 --> 00:02:52,309

just over two minutes now into the

40

00:02:56,070 --> 00:02:54,160

flight the four strap-on boosters as you

41

00:02:57,430 --> 00:02:56,080

saw there have been jettison

42

00:02:59,430 --> 00:02:57,440

these have completed their job and

43

00:03:01,190 --> 00:02:59,440

dropped away at an altitude of 28

44

00:03:02,949 --> 00:03:01,200

statute miles and the soyluz now

45

00:03:13,270 --> 00:03:02,959

traveling at about

46

00:03:17,350 --> 00:03:15,110

view here inside

47

00:03:20,229 --> 00:03:17,360

soyluz capsule again looking at gennady

48

00:03:22,710 --> 00:03:20,239

padalka on the left and sergey revin on

49

00:03:24,070 --> 00:03:22,720

the right with joe acaba just out of

50

00:03:25,990 --> 00:03:24,080

view to

51  
00:03:28,070 --> 00:03:26,000  
the right of padalka separation

52  
00:03:30,869 --> 00:03:28,080  
confirmed

53  
00:03:33,030 --> 00:03:30,879  
now two minutes and 45 seconds into

54  
00:03:35,990 --> 00:03:33,040  
today's flight escape tower and launch

55  
00:03:38,550 --> 00:03:36,000  
round have also been jettisoned now

56  
00:03:40,309 --> 00:03:38,560  
and their review of uh joe

57  
00:03:42,229 --> 00:03:40,319  
joe acaba

58  
00:03:44,149 --> 00:03:42,239  
inside the soyuz

59  
00:03:45,670 --> 00:03:44,159  
capsule making his way to the

60  
00:03:47,830 --> 00:03:45,680  
international space station for his

61  
00:03:51,910 --> 00:03:47,840  
first long duration mission his first

62  
00:03:56,229 --> 00:03:54,470  
three minutes now and uh 10 seconds into

63  
00:04:01,990 --> 00:03:56,239

today's flight so he's traveling at a

64

00:04:04,710 --> 00:04:03,670

lots of waves and thumbs up there from

65

00:04:06,229 --> 00:04:04,720

the crew

66

00:04:08,949 --> 00:04:06,239

everything continuing to go well in

67

00:04:11,270 --> 00:04:08,959

today's flight

68

00:04:13,429 --> 00:04:11,280

soyuz core stage is performing as

69

00:04:16,469 --> 00:04:13,439

expected its core stage of the soyuz is

70

00:04:18,629 --> 00:04:16,479

56 feet in length and 13 and a half feet

71

00:04:21,189 --> 00:04:18,639

in diameter with a single engine with

72

00:04:23,670 --> 00:04:21,199

four fuel chambers providing 96 tons of

73

00:04:48,230 --> 00:04:23,680

thrust for its 3 minute and 28 seconds

74

00:04:48,240 --> 00:05:14,469

copy and everything's okay on board

75

00:05:18,790 --> 00:05:17,029

everything is nominal

76  
00:05:20,629 --> 00:05:18,800  
here in this view of joe acaba you can

77  
00:05:23,189 --> 00:05:20,639  
also just make out next to the window

78  
00:05:25,270 --> 00:05:23,199  
that he's sitting by the smokey bear

79  
00:05:28,070 --> 00:05:25,280  
talisman that the crew has chosen to

80  
00:05:30,150 --> 00:05:28,080  
give them a clue when they reach

81  
00:05:33,029 --> 00:05:30,160  
microgravity it'll be

82  
00:05:35,510 --> 00:05:33,039  
of course floating one said they do make

83  
00:05:44,469 --> 00:05:35,520  
it to that point we're now four minutes

84  
00:05:51,270 --> 00:05:48,150  
stage three thrusters are fired

85  
00:05:55,909 --> 00:05:51,280  
stage two separation confirmed no issue

86  
00:06:00,469 --> 00:05:58,150  
booster now burned out and separated an

87  
00:06:03,350 --> 00:06:00,479  
altitude of 105 miles

88  
00:06:17,350 --> 00:06:03,360

and start the third stage the soyuz now

89

00:06:17,360 --> 00:06:23,510

we see you and see you waving at us

90

00:06:29,749 --> 00:06:27,590

stage thruster exaggerated normally

91

00:06:31,909 --> 00:06:29,759

everything on board we feel great now

92

00:06:34,629 --> 00:06:31,919

issues

93

00:06:36,309 --> 00:06:34,639

everything is nominal

94

00:06:38,230 --> 00:06:36,319

third stage as you heard they're now

95

00:06:40,390 --> 00:06:38,240

separated as well that engine provided

96

00:06:43,189 --> 00:06:40,400

30 tons of thrust and burned for four

97

00:06:44,790 --> 00:06:43,199

minutes and two seconds

98

00:06:47,110 --> 00:06:44,800

everything continuing to go well in

99

00:07:15,270 --> 00:06:47,120

today's uh fight to the international

100

00:07:20,230 --> 00:07:18,629

stage three thruster operating nominally

101  
00:07:23,990 --> 00:07:20,240  
copy everything's okay on board no

102  
00:07:30,710 --> 00:07:26,870  
jared they're all continuing to go well

103  
00:07:33,510 --> 00:07:30,720  
now uh six minutes and 45 seconds into

104  
00:07:35,830 --> 00:07:33,520  
flight which occurred on time at 1001 pm

105  
00:07:51,790 --> 00:07:35,840  
central time that's 901 a.m baikonur

106  
00:07:58,869 --> 00:07:54,150  
420 seconds

107  
00:07:58,879 --> 00:08:16,869  
everything's okay

108  
00:08:21,110 --> 00:08:19,270  
four hundred and fifty

109  
00:08:23,189 --> 00:08:21,120  
seconds

110  
00:08:25,350 --> 00:08:23,199  
nominal flight nourish copy every

111  
00:08:26,950 --> 00:08:25,360  
pennsylka on board we also don't have

112  
00:08:29,749 --> 00:08:26,960  
any issues copy

113  
00:08:31,749 --> 00:08:29,759

seven minutes and 45 seconds now in

114

00:08:35,110 --> 00:08:31,759

today's flight velocity of the soyuz

115

00:08:36,870 --> 00:08:35,120

about 13 500 miles an hour

116

00:08:38,709 --> 00:08:36,880

once the third stage delivers the soyuz

117

00:08:40,469 --> 00:08:38,719

to orbit and the module is separated a

118

00:08:42,310 --> 00:08:40,479

series of pre-programmed commands will

119

00:08:44,790 --> 00:08:42,320

be executed to prepare the soyuz for

120

00:08:46,790 --> 00:08:44,800

orbital operations

121

00:08:47,829 --> 00:08:46,800

those stored mounds are called time tag

122

00:08:49,750 --> 00:08:47,839

commands

123

00:08:51,670 --> 00:08:49,760

and allow many of the soyuz systems to

124

00:08:54,070 --> 00:08:51,680

be automatically activated by onboard

125

00:09:06,150 --> 00:08:54,080

computers at precise time stored in the

126  
00:09:11,269 --> 00:09:09,350  
500 seconds

127  
00:09:13,269 --> 00:09:11,279  
normal fight

128  
00:09:36,310 --> 00:09:13,279  
everything's okay on board

129  
00:09:49,590 --> 00:09:39,829  
thermal sensor nominal operation we see

130  
00:09:53,509 --> 00:09:51,590  
third stage separation now has been

131  
00:09:55,590 --> 00:09:53,519  
confirmed the single

132  
00:09:58,470 --> 00:09:55,600  
liquid fuel engine shut down and dropped

133  
00:10:01,590 --> 00:09:58,480  
away at an altitude of about 125 statute

134  
00:10:04,949 --> 00:10:02,949  
it's performing

135  
00:10:07,910 --> 00:10:04,959  
avoidance maneuver by opening a valve

136  
00:10:12,389 --> 00:10:07,920  
and it's liquid oxygen tank

137  
00:10:18,150 --> 00:10:14,150  
standing by

138  
00:10:21,750 --> 00:10:18,160

on the vehicle system

139

00:10:25,910 --> 00:10:21,760

it looks like separation was nominal

140

00:10:46,310 --> 00:10:27,269

proceeding

141

00:10:50,550 --> 00:10:48,230

now ten minutes and three seconds into

142

00:10:53,190 --> 00:10:50,560

five the crew is uh and the soyuz now

143

00:10:54,470 --> 00:10:53,200

safely in orbit and the spacecraft is

144

00:10:56,470 --> 00:10:54,480

automatically executing its