1
00:00:09,669 --> 00:00:03,110
t-minus 45 seconds

2
00:00:14,870 --> 00:00:11,190
the ground umbilical is beginning to

3
00:00:14,880 --> 00:00:31,109
t-minus 30 seconds and counting

4
00:00:31,119 --> 00:00:35,350
t minus 15 seconds and counting

5
00:00:37,670 --> 00:00:36,790
two minus ten

6
00:00:38,549 --> 00:00:37,680
nine

7
00:00:39,430 --> 00:00:38,559
eight

8
00:00:40,310 --> 00:00:39,440
seven

9
00:00:41,190 --> 00:00:40,320
six

10
00:00:42,069 --> 00:00:41,200
five

11
00:00:43,030 --> 00:00:42,079
four

12
00:00:50,150 --> 00:00:43,040
three

13
00:00:50,160 --> 00:00:53,270

fly now

14
00:00:56,709 --> 00:00:55,029
and the soyuz is now on its way with

15
00:00:58,549 --> 00:00:56,719
mike hopkins oled kotov and sergey

16
00:01:08,950 --> 00:00:58,559
ryazanskiy on a six-hour ride to the

17
00:01:08,960 --> 00:01:17,270
everything is fine

18
00:01:20,870 --> 00:01:18,870
good first stage performance the soyuz

19
00:01:23,109 --> 00:01:20,880
delivering 102 tons of thrust from its

20
00:01:25,109 --> 00:01:23,119
four boosters in single engine the first

21
00:01:27,510 --> 00:01:25,119
stage of the soyuz measures 68 feet in

22
00:01:28,870 --> 00:01:27,520
length and 24 feet in diameter it is

23
00:01:30,310 --> 00:01:28,880
currently burning liquid fuel for the

24
00:01:52,550 --> 00:01:30,320
first two minutes and six seconds of the

25
00:01:52,560 --> 00:02:02,389
60 seconds nominal flights

26
00:02:22,150 --> 00:02:03,990
70 seconds into the flight velocity is

27
00:02:27,510 --> 00:02:23,350
9

28
00:02:27,520 --> 00:02:45,910
stable condition

29
00:02:45,920 --> 00:02:53,670
also

30
00:02:56,550 --> 00:02:55,190
the four strap-on boosters have now been

31
00:02:57,990 --> 00:02:56,560
jettisoned these have completed their

32
00:02:59,830 --> 00:02:58,000
job and have dropped away at an altitude

33
00:03:00,910 --> 00:02:59,840
of 30 statute miles the soyuz is now

34
00:03:22,949 --> 00:03:00,920
traveling at

35
00:03:27,670 --> 00:03:24,229
150

36
00:03:27,680 --> 00:03:42,710
all is nominal

37
00:03:42,720 --> 00:03:53,670
altitude is now 52 miles high

38
00:03:53,680 --> 00:04:10,869

absorbing

39
00:04:16,310 --> 00:04:12,390
there's a look at mike hopkins there in

40
00:04:34,469 --> 00:04:17,590
everything on board going according to

41
00:04:34,479 --> 00:04:38,230
uh vibration

42
00:04:47,189 --> 00:04:40,629
isolation

43
00:04:47,199 --> 00:04:55,990
normal iteration of the systems

44
00:04:59,270 --> 00:04:57,590
the soyuz core stage is performing as

45
00:05:01,510 --> 00:04:59,280
expected the core stage of this vehicle

46
00:05:02,629 --> 00:05:01,520
is 56 feet in length 13 and a half feet

47
00:05:04,310 --> 00:05:02,639
in diameter

48
00:05:06,230 --> 00:05:04,320
with a single engine with four fuel

49
00:05:07,749 --> 00:05:06,240
chambers providing 96 tons of thrust for

50
00:05:09,430 --> 00:05:07,759
its three minutes and 28 seconds of

51
00:05:10,710 --> 00:05:09,440
operation

52
00:05:12,950 --> 00:05:10,720
the stage will continue to burn until

53
00:05:14,710 --> 00:05:12,960
the four minute 43 second mark

54
00:05:16,230 --> 00:05:14,720
the soyuz uses what's called a hot stage

55
00:05:18,790 --> 00:05:16,240
technique the third stage will ignite

56
00:05:20,710 --> 00:05:18,800
while the second stage is still burning

57
00:05:35,270 --> 00:05:20,720
this is why the soyuz has an open area

58
00:05:41,830 --> 00:05:37,670
second stage is separating and shutting

59
00:05:51,990 --> 00:05:44,150
turn up to 105 miles

60
00:05:55,830 --> 00:05:53,749
the soyuz now being propelled by the

61
00:05:57,830 --> 00:05:55,840
single engine of the soyuz's third stage

62
00:05:59,270 --> 00:05:57,840
this engine is providing 30 tons of

63
00:06:04,309 --> 00:05:59,280

thrust and will burn for four minutes

64
00:06:04,319 --> 00:06:23,270
separation on the third stage

65
00:06:23,280 --> 00:06:43,110
350 seconds the thrust is nominal

66
00:06:43,120 --> 00:06:48,950
down

67
00:06:52,550 --> 00:06:50,550
once the third stage delivers the soyuz

68
00:06:54,230 --> 00:06:52,560
to orbit and the module is separated a

69
00:06:55,830 --> 00:06:54,240
series of pre-programmed commands will

70
00:06:58,950 --> 00:06:55,840
be executed to prepare the soyuz for

71
00:07:02,469 --> 00:07:00,550
these stored commands called time tagged

72
00:07:04,469 --> 00:07:02,479
commands allow many of the soyuz systems

73
00:07:07,110 --> 00:07:04,479
to be automatically activated by onboard

74
00:07:56,830 --> 00:07:07,120
computers at precise times stored within

75
00:08:23,589 --> 00:07:58,710
seconds

76
00:08:23,599 --> 00:08:41,750
properly

77
00:08:46,790 --> 00:08:43,509
the soyuz continuing to fly everything

78
00:08:46,800 --> 00:09:10,310
right down the line

79
00:09:40,230 --> 00:09:12,470
500

80
00:09:43,269 --> 00:09:41,670
at 8 minutes and 45 seconds into the

81
00:09:44,870 --> 00:09:43,279
flight we have third stage cutoff and

82
00:09:46,630 --> 00:09:44,880
separation

83
00:09:48,310 --> 00:09:46,640
the single liquid fueled engine has shut

84
00:09:52,550 --> 00:09:48,320
down and dropped away at an altitude of

85
00:09:56,630 --> 00:09:54,550
alex

86
00:09:57,750 --> 00:09:56,640
congratulations

87
00:10:01,910 --> 00:09:57,760
the third stage is performing an

88
00:10:10,790 --> 00:10:03,269

all the communication systems and the

89
00:10:10,800 --> 00:10:20,870
and the coors antenna has been deployed

90
00:10:26,069 --> 00:10:22,710
the soyuz is now orbiting at an altitude

91
00:10:27,509 --> 00:10:26,079
of 143 miles by 118 miles that orbit

92
00:10:29,670 --> 00:10:27,519
will be raised systematically over the

93
00:10:31,430 --> 00:10:29,680
course of the next six hours placing it

94
00:10:32,550 --> 00:10:31,440
in close proximity to the international

95
00:10:33,910 --> 00:10:32,560
space station

96
00:10:35,350 --> 00:10:33,920
control of the spacecraft from here on

97
00:10:38,949 --> 00:10:35,360
will be overseen by the russian mission

98
00:10:41,190 --> 00:10:38,959
control center just outside of moscow

99
00:10:43,190 --> 00:10:41,200
but again an uneventful and successful

100
00:10:45,910 --> 00:10:43,200
flight into space for ole kotov sergey

101
00:10:47,509 --> 00:10:45,920
ryazanskiy and nasa's mike hopkins they

102
00:10:50,389 --> 00:10:47,519
are now on a six hour journey to the

103
00:10:51,350 --> 00:10:50,399
international space station

104
00:10:53,190 --> 00:10:51,360
and

105
00:10:54,790 --> 00:10:53,200
pressure reporting everything went

106
00:10:56,470 --> 00:10:54,800
according to plan everything went as

107
00:10:59,269 --> 00:10:56,480
expected

108
00:11:00,710 --> 00:10:59,279
again the soyuz has reached orbit all of