



1
00:00:02,080 --> 00:00:09,350
t minus 60 seconds and counting

2
00:00:16,150 --> 00:00:12,629
we have auto sequence start

3
00:00:17,990 --> 00:00:16,160
on the timeline yeah we copy that

4
00:00:24,470 --> 00:00:18,000
everything's in order up here we feel

5
00:00:28,070 --> 00:00:26,230
vehicle to internal power separation of

6
00:00:29,910 --> 00:00:28,080
the first tower

7
00:00:33,750 --> 00:00:29,920
the first umbilical now separating from

8
00:00:38,069 --> 00:00:36,790
umbilical tower separation in process

9
00:00:41,510 --> 00:00:38,079
copy that

10
00:00:41,520 --> 00:00:49,270
t-minus 20 seconds and counting

11
00:00:55,189 --> 00:00:50,950
independent

12
00:00:55,199 --> 00:01:11,510
second tower separate

13
00:01:16,789 --> 00:01:13,190

are on a fast track to the international

14

00:01:21,030 --> 00:01:19,270

everything stable

15

00:01:22,230 --> 00:01:21,040

vibration

16

00:01:31,510 --> 00:01:22,240

is in

17

00:01:34,950 --> 00:01:33,429

30 seconds into the flight the rocket is

18

00:01:36,789 --> 00:01:34,960

nominal the crew is doing well we have

19

00:01:39,590 --> 00:01:36,799

good first stage performance the soyuz

20

00:01:41,830 --> 00:01:39,600

delivering 102 tons of thrust from its

21

00:01:43,910 --> 00:01:41,840

four boosters in single engine the first

22

00:01:46,230 --> 00:01:43,920

stage of the soyuz measures 68 feet in

23

00:01:47,590 --> 00:01:46,240

length and 24 feet in diameter it is

24

00:02:03,350 --> 00:01:47,600

burning liquid fuel for the first two

25

00:02:03,360 --> 00:02:11,670

spacecraft is nominal we're one minute

26
00:02:17,030 --> 00:02:14,150
velocity is now approaching 1 100 miles

27
00:02:30,949 --> 00:02:19,190
70 seconds into the flight

28
00:02:45,910 --> 00:02:32,470
one minute 30 seconds into the flight

29
00:02:45,920 --> 00:02:54,630
spacecraft is nominal we feel great

30
00:02:54,640 --> 00:03:07,750
110 seconds

31
00:03:10,869 --> 00:03:09,190
two minutes five seconds into the flight

32
00:03:12,229 --> 00:03:10,879
the four strap-on boosters have now been

33
00:03:13,830 --> 00:03:12,239
jettisoned these have completed their

34
00:03:16,149 --> 00:03:13,840
job and have dropped away at an altitude

35
00:03:17,509 --> 00:03:16,159
of 28 statute miles the soyuz is

36
00:03:20,630 --> 00:03:17,519
traveling at about thousand three

37
00:03:31,190 --> 00:03:20,640
hundred fifty miles an hour now

38
00:03:34,470 --> 00:03:33,430

there's a look at chris cassidy

39

00:03:35,910 --> 00:03:34,480

sitting in the left seat pavel

40

00:03:37,030 --> 00:03:35,920

vinogradov the commander of the soyuz

41

00:03:38,390 --> 00:03:37,040

there in the middle just off to the

42

00:03:39,990 --> 00:03:38,400

right of the screen

43

00:03:44,869 --> 00:03:40,000

alexander misurkin they're off to the

44

00:03:48,710 --> 00:03:47,270

we shroud that protects the soyuz has

45

00:03:50,149 --> 00:03:48,720

been jettisoned the crew can now see

46

00:03:51,430 --> 00:03:50,159

outside

47

00:03:52,550 --> 00:03:51,440

his hearing

48

00:03:54,390 --> 00:03:52,560

separation

49

00:04:07,110 --> 00:03:54,400

jettison is confirmed yeah we confirmed

50

00:04:07,120 --> 00:04:19,590

we have 15 eliminated

51
00:04:28,230 --> 00:04:21,349
rocket structure

52
00:04:31,990 --> 00:04:30,150
everything's completely nominal up here

53
00:04:33,830 --> 00:04:32,000
on the spacecraft and we feel great

54
00:04:35,189 --> 00:04:33,840
pressing on copy three minutes and 30

55
00:04:36,710 --> 00:04:35,199
seconds into the flight through

56
00:04:38,629 --> 00:04:36,720
reporting that everything is going well

57
00:04:40,950 --> 00:04:38,639
they feel well the soyuz core stage is

58
00:04:43,270 --> 00:04:40,960
performing as expected the core stage of

59
00:04:45,350 --> 00:04:43,280
the soyuz is 56 feet in length 13 and a

60
00:04:47,270 --> 00:04:45,360
half feet in diameter with a single

61
00:04:49,189 --> 00:04:47,280
engine with four fuel chambers providing

62
00:04:53,030 --> 00:04:49,199
96 tons of thrust for its three minutes

63
00:04:55,590 --> 00:04:54,469

this stage will continue to burn until

64

00:04:57,189 --> 00:04:55,600

the four-minute

65

00:04:59,270 --> 00:04:57,199

second mark

66

00:05:01,029 --> 00:04:59,280

the soyuz uses what's called a hot stage

67

00:05:02,870 --> 00:05:01,039

technique the third stage will ignite

68

00:05:04,629 --> 00:05:02,880

while the second is still burning this

69

00:05:26,629 --> 00:05:04,639

is why the soyuz has an open area in

70

00:05:26,639 --> 00:05:30,950

spacecraft is nominal we feel great

71

00:05:30,960 --> 00:05:55,909

inaudible

72

00:05:59,510 --> 00:05:57,990

four minutes 54 seconds into the flight

73

00:06:01,990 --> 00:05:59,520

the core booster is separating at an

74

00:06:04,070 --> 00:06:02,000

altitude of 105 miles the soyuz is now

75

00:06:06,070 --> 00:06:04,080

being propelled by the single engine

76
00:06:07,350 --> 00:06:06,080
of the soyuz's third stage as we take a

77
00:06:09,830 --> 00:06:07,360
live look inside the mission control

78
00:06:11,350 --> 00:06:09,840
center there in moscow

79
00:06:12,950 --> 00:06:11,360
this engine is providing 30 tons of

80
00:06:29,909 --> 00:06:12,960
thrust and will burn for four minutes in

81
00:06:33,909 --> 00:06:32,550
rocket structure parameters are nominal

82
00:06:35,270 --> 00:06:33,919
five and a half minutes into the flight

83
00:06:36,870 --> 00:06:35,280
the flight controllers continue to

84
00:06:38,629 --> 00:06:36,880
confirm that the rocket is behaving as

85
00:06:40,230 --> 00:06:38,639
expected everything looking good feel

86
00:06:41,749 --> 00:06:40,240
great there you see paul vinogradov in

87
00:06:43,110 --> 00:06:41,759
the middle

88
00:06:58,629 --> 00:06:43,120

alexander misurkin there on the

89

00:06:58,639 --> 00:07:03,430

did the camera transition take place yet

90

00:07:08,230 --> 00:07:05,350

we're getting a really clear crisp

91

00:07:29,510 --> 00:07:08,240

picture excellent we feel great copy

92

00:07:29,520 --> 00:07:36,070

third stage engines are operating stable

93

00:07:40,230 --> 00:07:38,230

six minutes 35 seconds into the flight

94

00:07:42,230 --> 00:07:40,240

the third stage is

95

00:07:45,350 --> 00:07:42,240

behaving and performing as expected

96

00:07:48,469 --> 00:07:45,360

everything being reported as nominal

97

00:07:50,150 --> 00:07:48,479

400 seconds four zero zero

98

00:08:01,350 --> 00:07:50,160

everything's nominal

99

00:08:25,189 --> 00:08:03,029

seven minutes into the flight less than

100

00:08:28,790 --> 00:08:26,790

430 seconds

101
00:08:31,909 --> 00:08:28,800
spacecraft's nominal we feel great copy

102
00:08:36,230 --> 00:08:33,350
seven and a half minutes into the flight

103
00:08:37,190 --> 00:08:36,240
the velocity now almost 13 500 miles an

104
00:08:39,029 --> 00:08:37,200
hour

105
00:08:40,630 --> 00:08:39,039
once the third stage delivers the soyuz

106
00:08:42,230 --> 00:08:40,640
to orbit and the module is separated a

107
00:08:44,389 --> 00:08:42,240
series of pre-programmed commands will

108
00:08:46,949 --> 00:08:44,399
be executed to prepare the soyuz for

109
00:08:49,350 --> 00:08:46,959
orbital operations these stored commands

110
00:08:50,790 --> 00:08:49,360
called time tagged commands allow many

111
00:08:52,389 --> 00:08:50,800
of the soyuz's systems to be

112
00:08:54,949 --> 00:08:52,399
automatically activated by onboard

113
00:08:59,110 --> 00:08:54,959

computers at precise times stored in

114

00:09:03,430 --> 00:09:01,910

engine nominal structure nominal

115

00:09:04,710 --> 00:09:03,440

eight minutes into the flight everything

116

00:09:09,590 --> 00:09:04,720

going well

117

00:09:09,600 --> 00:09:35,190

we copy you karate

118

00:10:01,269 --> 00:09:37,110

five hundred and ten seconds five one

119

00:10:04,710 --> 00:10:03,190

third stage separation is confirmed the

120

00:10:06,150 --> 00:10:04,720

single liquid-fueled engine has shut

121

00:10:09,110 --> 00:10:06,160

down and dropped away at an altitude of

122

00:10:11,990 --> 00:10:09,120

about 125 statute miles

123

00:10:13,670 --> 00:10:12,000

the spacecraft is a perfection

124

00:10:16,550 --> 00:10:13,680

congratulations on having successfully

125

00:10:18,949 --> 00:10:16,560

completed stage one

126

00:10:20,790 --> 00:10:18,959

we're standing by to uh have you guys

127

00:10:22,470 --> 00:10:20,800

come close to the station in about six