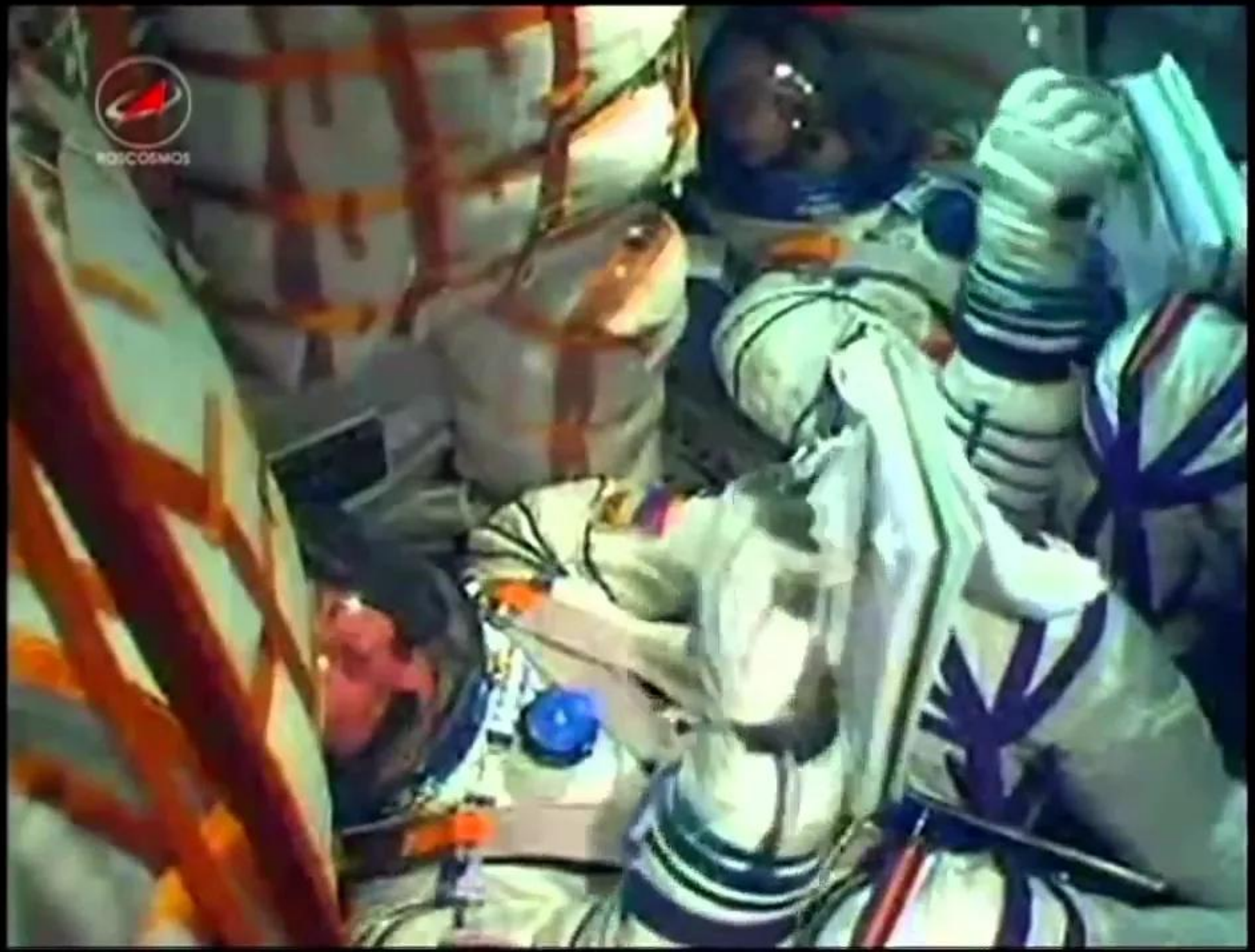
ROSCOSMOS

1
00:00:05,660 --> 00:00:03,309
the ground umbilicals being detached

2
00:00:13,039 --> 00:00:05,670
under 20 seconds launch command has been

3
00:00:16,750 --> 00:00:13,049
issued our now separating 15 seconds and

4
00:00:26,950 --> 00:00:19,060
let Mary command confirmed engines

5
00:00:29,830 --> 00:00:26,960
firing wait five four three two one and

6
00:00:31,480 --> 00:00:29,840
liftoff of tom marshburn robot Romanenko

7
00:00:41,869 --> 00:00:31,490
a Chris Hatfield making their way

8
00:00:47,219 --> 00:00:44,430
getting good first aid performance the

9
00:00:49,500 --> 00:00:47,229
Soyuz delivering 102 tons of thrust from

10
00:00:52,229 --> 00:00:49,510
its board strapped on boosters and

11
00:00:54,359 --> 00:00:52,239
single core engine eight first stage of

12
00:00:57,119 --> 00:00:54,369
that so he's measuring 68 feet in length

13
00:00:58,469 --> 00:00:57,129

and 24 feet diameter burning liquid fuel

14
00:01:13,230 --> 00:00:58,479
for the first two minutes and six

15
00:01:15,330 --> 00:01:13,240
seconds of flight Russian controllers

16
00:01:16,559 --> 00:01:15,340
reporting all vehicle stabilization

17
00:01:31,800 --> 00:01:16,569
continuing as planned

18
00:01:33,660 --> 00:01:31,810
flight is nominal pitch all nominal okay

19
00:01:37,620 --> 00:01:33,670
everything is nominal on board we're

20
00:01:39,240 --> 00:01:37,630
doing well we're now one minute 10

21
00:01:41,699 --> 00:01:39,250
seconds into the flight the rocket now

22
00:01:42,499 --> 00:01:41,709
moving at a velocity of 1,100 miles an

23
00:02:02,200 --> 00:01:42,509
hour

24
00:02:07,130 --> 00:02:04,730
first stage of us are still continuing

25
00:02:11,990 --> 00:02:07,140
to fire nominally white staple

26
00:02:15,259 --> 00:02:12,000
parameters off the poster are stable

27
00:02:17,930 --> 00:02:15,269
okay copy we are feeling great we're

28
00:02:20,120 --> 00:02:17,940
filled yeah there is vibration now one

29
00:02:21,740 --> 00:02:20,130
minute 54 seconds in the launch escape

30
00:02:27,320 --> 00:02:21,750
tower has been jettisoned from the

31
00:02:29,240 --> 00:02:27,330
spacecraft now you can see the four

32
00:02:31,460 --> 00:02:29,250
strap-on boosters separating one minute

33
00:02:33,259 --> 00:02:31,470
58 seconds into flight being jettisoned

34
00:02:35,570 --> 00:02:33,269
they've completed their job and dropped

35
00:02:37,640 --> 00:02:35,580
away to an altitude of about 28 statute

36
00:02:53,860 --> 00:02:37,650
miles so he's now traveling at about

37
00:03:09,800 --> 00:02:59,869
one 57 seconds and quite good booster

38
00:03:12,050 --> 00:03:09,810

stage two is functioning nominally two

39
00:03:14,240 --> 00:03:12,060
minutes 38 seconds now into flight the

40
00:03:25,330 --> 00:03:14,250
launch route being jettisoned rocketed

41
00:03:30,920 --> 00:03:29,179
crew inside vehicle stabilization still

42
00:03:32,869 --> 00:03:30,930
performing as planned everything going

43
00:03:40,880 --> 00:03:32,879
flawlessly on this launch giving the

44
00:03:48,440 --> 00:03:40,890
wave still doing well three observing

45
00:03:49,459 --> 00:03:48,450
and everything as well 200 second oh

46
00:03:52,099 --> 00:03:49,469
right

47
00:04:23,030 --> 00:03:52,109
second stager core stage continuing to

48
00:04:29,940 --> 00:04:25,500
again the second-stage continuing to

49
00:04:31,560 --> 00:04:29,950
fire core stage 56 feet in length 13 and

50
00:04:34,440 --> 00:04:31,570
a half feet in diameter with a single

51
00:04:37,140 --> 00:04:34,450
engine in for fuel chambers providing 96

52
00:04:41,430 --> 00:04:37,150
tons of thrust for the 3 minutes and 28

53
00:04:42,810 --> 00:04:41,440
seconds it'll be operating every stage

54
00:04:45,480 --> 00:04:42,820
will continue to burn for about another

55
00:04:48,120 --> 00:04:45,490
30 seconds Soyuz will then use its hot

56
00:05:02,600 --> 00:04:48,130
staging technique firing the third stage

57
00:05:13,710 --> 00:05:06,570
parameters are nominal we're feeling

58
00:05:16,280 --> 00:05:13,720
well and the third stage now ignited the

59
00:05:19,680 --> 00:05:16,290
second stage shutting down and separated

60
00:05:26,700 --> 00:05:19,690
core booster separating at an altitude

61
00:05:28,920 --> 00:05:26,710
of 105 miles so again second stage

62
00:05:30,900 --> 00:05:28,930
separation is confirmed the Soyuz now

63
00:05:33,990 --> 00:05:30,910

being propelled by its single engine of

64
00:05:35,969 --> 00:05:34,000
the Soyuz third stage that single engine

65
00:05:38,010 --> 00:05:35,979
providing 30 tons of thrust and will

66
00:05:46,830 --> 00:05:38,020
burn for an additional 4 minutes and 2

67
00:05:52,969 --> 00:05:46,840
seconds 320 seconds inside the

68
00:06:02,160 --> 00:05:52,979
parameters of the launch rocket nominal

69
00:06:08,140 --> 00:06:05,710
just over 5 minutes and 30 seconds into

70
00:06:10,840 --> 00:06:08,150
powered flight the soyuz craft now being

71
00:06:12,970 --> 00:06:10,850
propelled by its third stage no issues

72
00:06:20,470 --> 00:06:12,980
being reported everything performing as

73
00:06:47,360 --> 00:06:20,480
planned just now coming up on the 6

74
00:06:55,580 --> 00:06:51,630
380 seconds of flight h3 booster

75
00:07:03,830 --> 00:06:55,590
functioning nominally okay copy

76
00:07:13,980 --> 00:07:11,159
400 seconds of light stabilization is

77
00:07:14,909 --> 00:07:13,990
stable have you loud and clear we're

78
00:07:23,760 --> 00:07:14,919
feeling well

79
00:07:25,620 --> 00:07:23,770
everything is nominal on board coming up

80
00:07:28,950 --> 00:07:25,630
on the 7-minute mark since launch the

81
00:07:31,170 --> 00:07:28,960
crew reporting all going well Soyuz

82
00:07:34,020 --> 00:07:31,180
rocket continuing to perform without a

83
00:07:36,540 --> 00:07:34,030
single hitch that third stage continuing

84
00:07:56,200 --> 00:07:36,550
to fire firing for an entire four

85
00:08:01,520 --> 00:07:59,690
456 of the fight every single nominal

86
00:08:06,320 --> 00:08:01,530
we're feeling well

87
00:08:08,180 --> 00:08:06,330
everything is nominal on board now over

88
00:08:10,280 --> 00:08:08,190

seven and a half minutes since launched

89
00:08:12,500 --> 00:08:10,290
the vehicle now traveling at a velocity

90
00:08:19,040 --> 00:08:12,510
of almost thirteen thousand five hundred

91
00:08:21,410 --> 00:08:19,050
miles an hour once this third stage

92
00:08:23,420 --> 00:08:21,420
delivers the Soyuz into orbit the module

93
00:08:25,580 --> 00:08:23,430
is separated series of pre-programmed

94
00:08:28,810 --> 00:08:25,590
commands will be executed in order to

95
00:08:31,190 --> 00:08:28,820
prepare the Soyuz for orbital operations

96
00:08:32,750 --> 00:08:31,200
parameters are normal these stored

97
00:08:34,520 --> 00:08:32,760
commands are known as time tagged

98
00:08:36,980 --> 00:08:34,530
commands and allow many of the Soyuz

99
00:08:39,290 --> 00:08:36,990
systems to be automatically activated by

100
00:08:43,520 --> 00:08:39,300
onboard computers at precise times

101
00:08:51,950 --> 00:08:43,530
already programmed in five hundred

102
00:08:56,870 --> 00:08:54,410
over eight minutes now since launch no

103
00:08:58,340 --> 00:08:56,880
issues reported so he's continuing to

104
00:09:14,160 --> 00:08:58,350
take these astronauts into their

105
00:09:19,890 --> 00:09:17,490
and we have confirmation of third-stage

106
00:09:22,200 --> 00:09:19,900
cutoff and separation a single

107
00:09:24,000 --> 00:09:22,210
liquid-fueled rocket engine shutting

108
00:09:26,990 --> 00:09:24,010
down and dropping away at an altitude of

109
00:09:30,300 --> 00:09:27,000
about 125 statute miles

110
00:09:32,010 --> 00:09:30,310
third stage performs a short avoidance

111
00:09:38,690 --> 00:09:32,020
maneuver by opening a valve in its

112
00:09:40,880 --> 00:09:38,700
liquid oxygen tank and now getting

113
00:09:43,050 --> 00:09:40,890

confirmation that each of the antennas

114
00:09:48,030 --> 00:09:43,060
onboard the soyuz craft have been

115
00:09:52,770 --> 00:09:48,040
deployed solar arrays also being

116
00:09:57,800 --> 00:09:52,780
successfully deployed capsule and crew

117
00:10:08,100 --> 00:09:57,810
now safely in orbit bottle

118
00:10:11,430 --> 00:10:08,110
congratulation 2020 this is part one we

119
00:10:13,470 --> 00:10:11,440
have you loud and clear how us hello we

120
00:10:17,700 --> 00:10:13,480
have you loud and clear

121
00:10:20,700 --> 00:10:17,710
we are feeling well third stage

122
00:10:26,940 --> 00:10:20,710
separation contact occurred as scheduled

123
00:10:26,950 --> 00:10:36,570
you

124
00:10:41,190 --> 00:10:38,940
so the Soyuz craft and our three

125
00:10:45,240 --> 00:10:41,200
astronauts on board now orbiting on an

126
00:10:47,960 --> 00:10:45,250
altitude of about 143 miles by 118 miles

127
00:10:49,800 --> 00:10:47,970
that orbit will be raised on

128
00:10:51,750 --> 00:10:49,810
systematically over the course of the

129
00:10:53,090 --> 00:10:51,760
next two days placing it in close

130
00:10:57,630 --> 00:10:53,100
proximity to its ultimate destination

131
00:10:59,370 --> 00:10:57,640
the International Space Station control

132
00:11:01,019 --> 00:10:59,380
of the spacecraft from here on out will

133
00:11:07,890 --> 00:11:01,029
be overseen from the Russian Mission

134
00:11:12,240 --> 00:11:09,630
we've gotten confirmation of spacecraft

135
00:11:17,670 --> 00:11:12,250
separation from its third stage all

136
00:11:21,759 --> 00:11:17,680
antennas and solar arrays being deployed

137
00:11:21,769 --> 00:11:24,050
you

138
00:11:28,490 --> 00:11:26,390

all this being done during a flawless

139
00:11:30,890 --> 00:11:28,500
climb to orbit all three stages of the

140
00:11:39,510 --> 00:11:30,900
soyuz rocket performing as expected no

141
00:11:39,520 --> 00:11:46,250
you

142
00:11:46,260 --> 00:11:51,990
MCC Moscow first reading

143
00:12:09,869 --> 00:12:01,439
time 1522 15s our pressure 825 by o8 3 7

144
00:12:15,990 --> 00:12:09,879
3 8 ready to read the information per

145
00:12:19,980 --> 00:12:16,000
page 50 ok so starting with item 17 17

146
00:12:23,699 --> 00:12:19,990
points eight seventeen point five two

147
00:12:25,530 --> 00:12:23,709
sixteen one point you can see the pen

148
00:12:28,350 --> 00:12:25,540
starting to float as these astronauts

149
00:12:30,509 --> 00:12:28,360
are now experiencing microgravity as

150
00:12:34,550 --> 00:12:30,519
they begin their orbit around the Earth

151
00:12:39,269 --> 00:12:34,560
that orbit at about 143 statute miles by

152
00:12:41,670 --> 00:12:39,279
118 they're just about nine minute climb

153
00:12:44,220 --> 00:12:41,680
to orbit going exactly as planned not a

154
00:12:46,139 --> 00:12:44,230
single issue reported all three stages

155
00:12:50,970 --> 00:12:46,149
of the Soyuz rocket performing as

156
00:12:54,420 --> 00:12:50,980
expected so Roman Romanenko there in

157
00:12:56,670 --> 00:12:54,430
that center seat Chris Hadfield over

158
00:12:58,829 --> 00:12:56,680
there on the top of your screen and Tom

159
00:13:01,769 --> 00:12:58,839
Marshburn just beneath camera now