



1
00:00:02,001 --> 00:00:03,970
GETTING CONFIRMATION THE GROUND

2
00:00:03,970 --> 00:00:04,871
PROPELLANT FEED HAS BEEN

3
00:00:04,871 --> 00:00:05,472
TERMINATED.

4
00:00:05,472 --> 00:00:10,377
WE WILL HAVE ONE MORE UMBILICAL

5
00:00:10,377 --> 00:00:10,877
TO SEPARATE.

6
00:00:10,877 --> 00:00:21,154
THERE YOU CAN SEE THE ENGINE

7
00:00:21,154 --> 00:00:23,289
FIRING, VEHICLE LAUNCH COMMAND

8
00:00:23,289 --> 00:00:28,161
HAS BEEN ISSUED, RAMPING OFF AND

9
00:00:28,161 --> 00:00:29,996
LIFTOFF.

10
00:00:29,996 --> 00:00:34,367
MARK VANDE HEI, ALEXANDER

11
00:00:34,367 --> 00:00:35,869
MISURKIN AND JOE ACABA LIFTING

12
00:00:35,869 --> 00:00:40,507
OFF ON THEIR WAY TO THE

13
00:00:40,507 --> 00:00:41,741

INTERNATIONAL SPACE STATION.

14

00:00:41,741 --> 00:00:43,910

A LITTLE OVER TEN SECONDS INTO

15

00:00:43,910 --> 00:00:47,347

THE FLIGHT, GETTING GOOD

16

00:00:47,347 --> 00:00:49,449

FIRST-STAGE PERFORMANCE, SOYUZ

17

00:00:49,449 --> 00:00:52,385

DELIVERING ABOUT 930,000 POUNDS

18

00:00:52,385 --> 00:00:55,822

OF THRUST FROM THE FOUR BOOSTERS

19

00:00:55,822 --> 00:01:08,735

AND CORE ENGINE.

20

00:01:08,735 --> 00:01:12,572

>> 40 SECONDS AND THE VEHICLE IS

21

00:01:12,572 --> 00:01:12,906

STABLE.

22

00:01:12,906 --> 00:01:13,940

>> GETTING GOOD CALLS, THE

23

00:01:13,940 --> 00:01:16,443

VEHICLE IS STABLE, EVERYTHING

24

00:01:16,443 --> 00:01:21,381

LOOKING GOOD AS IT VEERS ACROSS

25

00:01:21,381 --> 00:01:25,218

THE KAZAK STYLE INTO THE LIQUID

26
00:01:25,218 --> 00:01:27,153
BLACK, FIRST STAGE OF FUEL

27
00:01:27,153 --> 00:01:29,889
BURNING OFF TWO MINUTES AND 0

28
00:01:29,889 --> 00:01:32,725
SECONDS INTO FLIGHT.

29
00:01:32,725 --> 00:01:36,830
THE YAW, PITCH AND CONTROL

30
00:01:36,830 --> 00:01:38,498
DETERMINING EVERYTHING ABOUT THE

31
00:01:38,498 --> 00:01:41,501
ROCKET ALL LOOKING GOOD.

32
00:01:41,501 --> 00:01:44,037
NORMALLY GET GOOD FIRST-STAGE

33
00:01:44,037 --> 00:01:47,140
PERFORMANCE FROM THE SOYUZ

34
00:01:47,140 --> 00:01:50,844
ROCKET.

35
00:01:50,844 --> 00:01:51,744
>> 80 SECONDS.

36
00:01:51,744 --> 00:01:53,680
>> AT THIS POINT, THE VEHICLE

37
00:01:53,680 --> 00:01:56,483
ALREADY MOVING IN EXCESS OF

38
00:01:56,483 --> 00:01:57,250

1100 MILES PER HOUR, OVER A

39

00:01:57,250 --> 00:02:16,736
MINUTE AND A HALF INTO THE

40

00:02:16,736 --> 00:02:18,137
FLIGHT SINCE LIFTOFF.

41

00:02:18,137 --> 00:02:18,805
STILL GETTING GOOD CALLS ON

42

00:02:18,805 --> 00:02:19,539
VEHICLE PERFORMANCE, EVERYTHING

43

00:02:19,539 --> 00:02:19,973
LOOKING GREAT.

44

00:02:19,973 --> 00:02:20,740
A MAJOR MILESTONE COMING UP WILL

45

00:02:20,740 --> 00:02:21,374
BE THE ESCAPE TOWER BEING

46

00:02:21,374 --> 00:02:21,975
JETTISONED AND JUST GOT

47

00:02:21,975 --> 00:02:23,109
CONFIRMATION THE ESCAPE TOWER

48

00:02:23,109 --> 00:02:25,879
HAS BEEN JETTISONED AND GETTING

49

00:02:25,879 --> 00:02:28,348
A GREAT VIEW THERE, YOU JUST SAW

50

00:02:28,348 --> 00:02:31,951
THE FOUR STRAP-ON BOOSTERS

51
00:02:31,951 --> 00:02:37,323
JETTISONED, THEIR JOB COMPLETE

52
00:02:37,323 --> 00:02:39,192
AT AN ALTITUDE OF 428 STATUTE

53
00:02:39,192 --> 00:02:53,273
MILES TRAVELING OVER 453 MILES

54
00:02:53,273 --> 00:02:53,907
PER HOUR.

55
00:02:53,907 --> 00:02:56,476
OVER TWO MINUTES NOW SINCE THE

56
00:02:56,476 --> 00:02:58,711
LAUNCH, EVERYTHING LOOKING GREAT

57
00:02:58,711 --> 00:03:01,180
THE FIRST STAGE HAS DONE ITS

58
00:03:01,180 --> 00:03:03,716
JOB, THE FOUR STRAP-ON BOOSTERS

59
00:03:03,716 --> 00:03:05,418
HAVE DROPPED AWAY, THE SINGLE

60
00:03:05,418 --> 00:03:07,687
CORE ENGINE CONTINUING TO FIRE

61
00:03:07,687 --> 00:03:09,556
AND GETTING CONFIRMATION FROM

62
00:03:09,556 --> 00:03:12,926
THE VEHICLE OFFICER HERE THE

63
00:03:12,926 --> 00:03:16,529

LAUNCH SHROUD HAS BEEN

64

00:03:16,529 --> 00:03:20,400
JETTISONED, THE SOYUZ NOW

65

00:03:20,400 --> 00:03:21,334
EXPOSED, ROCKET ALTITUDE

66

00:03:21,334 --> 00:03:23,336
48,000 MILES HIGH AND AT THIS

67

00:03:23,336 --> 00:03:27,307
POINT IN THE FLIGHT, THREE

68

00:03:27,307 --> 00:03:29,042
MINUTES, SOYUZ ALREADY TRAVELING

69

00:03:29,042 --> 00:03:32,045
AT SPEEDS IN EXCESS OF 432 MILES

70

00:03:32,045 --> 00:03:32,412
PER HOUR.

71

00:03:32,412 --> 00:03:34,013
THE CORE STAGE IS THE SECOND

72

00:03:34,013 --> 00:03:40,086
STAGE, CONTINUING TO PERFORM AS

73

00:03:40,086 --> 00:03:40,853
EXPECTED.

74

00:03:40,853 --> 00:03:43,423
56 FEET, 13 1/2 IN DIAMETER, A

75

00:03:43,423 --> 00:03:48,494
SINGLE ENGINE WITH FOUR FUEL

76
00:03:48,494 --> 00:03:51,464
CHAMBERS THAT PROVIDE BETWEEN

77
00:03:51,464 --> 00:03:54,300
178 TO 248,000 POUNDS OF TRUST

78
00:03:54,300 --> 00:03:56,135
DEPENDING ON THE FUEL DURING

79
00:03:56,135 --> 00:03:56,536
OPERATION.

80
00:03:56,536 --> 00:03:59,772
THEY WILL CONTINUE TO BURN TILL

81
00:03:59,772 --> 00:04:02,442
THE 4.43 MINUTE MARK WHEN THE

82
00:04:02,442 --> 00:04:05,044
SOYUZ WILL DO WHAT THEY CALL A

83
00:04:05,044 --> 00:04:08,214
HOT FEED TECHNIQUE MEANING THE

84
00:04:08,214 --> 00:04:09,515
THIRD STAGE WILL IGNITE WHILE

85
00:04:09,515 --> 00:04:11,117
THE SECOND IS STILL BURNING.

86
00:04:11,117 --> 00:04:14,787
IF YOU WILL REMEMBER THERE IS

87
00:04:14,787 --> 00:04:16,289
THAT LATTICE STRUCTURE BETWEEN

88
00:04:16,289 --> 00:04:19,092

THE SECOND AND THIRD STAGES ON

89

00:04:19,092 --> 00:04:20,393

THE ROCKET.

90

00:04:20,393 --> 00:04:45,418

JUST CROSSED FOUR MINUTES SINCE

91

00:04:45,418 --> 00:04:46,252

LAUNCH.

92

00:04:46,252 --> 00:04:47,286

>> EVERYTHING IS NORMAL ONBOARD.

93

00:04:47,286 --> 00:04:50,657

>> YOU HEARD THE CREW DOING

94

00:04:50,657 --> 00:04:51,924

FINE, GETTING AN UNPRESS HE

95

00:04:51,924 --> 00:04:54,794

DENTED LONG VIEW OF THE SOYUZ, A

96

00:04:54,794 --> 00:04:59,232

VERY CLEAR NIGHT THERE IN

97

00:04:59,232 --> 00:04:59,699

VIKONOR.

98

00:04:59,699 --> 00:05:02,802

THERE YOU CAN SEE ACABA INSIDE,

99

00:05:02,802 --> 00:05:05,104

THE CREW DOING WELL AS THE

100

00:05:05,104 --> 00:05:09,108

ROCKET CONTINUES TO SEND THEM

101
00:05:09,108 --> 00:05:19,652
INTO ORBIT, THE SECOND STAGE

102
00:05:19,652 --> 00:05:21,421
STILL GOING.

103
00:05:21,421 --> 00:05:26,859
AND CONFIRMATION THE SECOND

104
00:05:26,859 --> 00:05:28,695
STAGE HAS SEPARATED

105
00:05:28,695 --> 00:05:29,128
SUCCESSFULLY.

106
00:05:29,128 --> 00:05:31,564
>> SEPARATION OF H2, EVERYTHING

107
00:05:31,564 --> 00:05:40,206
IS NORMAL ONBOARD.

108
00:05:40,206 --> 00:05:42,408
>> SO AT THIS POINT, THE SECOND

109
00:05:42,408 --> 00:05:46,479
STAGE HAS DROPPED AWAY, THE CORE

110
00:05:46,479 --> 00:05:48,247
BOOSTERS SEPARATE AT AN ALTITUDE

111
00:05:48,247 --> 00:05:50,717
OF 105 MILES, SPACECRAFT NOW

112
00:05:50,717 --> 00:05:52,485
BEING PROPELLED BY THE SINGLE

113
00:05:52,485 --> 00:05:55,755

ENGINE OF THE SOYUZ THIRD STAGE

114

00:05:55,755 --> 00:05:56,456

PROVIDING 367,000 POUNDS OF

115

00:05:56,456 --> 00:05:58,991

THRUST THAT WILL BURN FOR FOUR

116

00:05:58,991 --> 00:06:00,560

MINUTES AND 2 SECONDS.

117

00:06:00,560 --> 00:06:04,230

FIRST TWO STAGES COMPLETE THE

118

00:06:04,230 --> 00:06:07,567

THIRD AND FINAL STAGE, THE CLIMB

119

00:06:07,567 --> 00:06:10,136

INTO ORBIT UNDERWAY AND

120

00:06:10,136 --> 00:06:12,238

EVERYTHING GOING VERY SMOOTHLY

121

00:06:12,238 --> 00:06:17,343

IN THIS FLIGHT, THE SOYUZ DOING

122

00:06:17,343 --> 00:06:18,845

WELL AND CONTINUING ITS FLIGHT

123

00:06:18,845 --> 00:06:55,248

TO ORBIT.

124

00:06:55,248 --> 00:06:58,184

>> 380 SECONDS FLIGHT THRUSTERS

125

00:06:58,184 --> 00:06:59,418

OPERATING NORMALLY, EVERYTHING

126
00:06:59,418 --> 00:07:02,722
IS NORMAL AND THE CREW IS DOING

127
00:07:02,722 --> 00:07:03,022
FINE.

128
00:07:03,022 --> 00:07:05,324
>> WELL OVER SIX MINUTES NOW.

129
00:07:05,324 --> 00:07:33,986
THE CREW, THE ROCKET ALL DOING

130
00:07:33,986 --> 00:07:34,420
WELL.

131
00:07:34,420 --> 00:07:36,989
>> 420 SECONDS.

132
00:07:36,989 --> 00:07:46,833
EVERYTHING IS NORMAL, THE CREW

133
00:07:46,833 --> 00:07:48,501
IS DOING FINE.

134
00:07:48,501 --> 00:07:52,238
>> OVER SEVEN MINUTES, NOW

135
00:07:52,238 --> 00:07:56,309
APPROACHING THE 7 1/2 MINUTE

136
00:07:56,309 --> 00:08:02,648
MARK, THE SOYUZ TRAVELING

137
00:08:02,648 --> 00:08:04,517
435 MILES PER HOUR, GETTING WORD

138
00:08:04,517 --> 00:08:08,988

THE CREW IS DOING FINE AND THERE

139

00:08:08,988 --> 00:08:12,658

IS THAT SPUTNIK MODEL WHICH,

140

00:08:12,658 --> 00:08:16,195

KEEP YOUR EYE ON IT, AFTER THE

141

00:08:16,195 --> 00:08:18,130

THIRD STAGE AND SEPARATION, YOU

142

00:08:18,130 --> 00:08:33,646

SHOULD SEE IT START TO FLOAT.

143

00:08:33,646 --> 00:08:37,316

ONCE THE THIRD STAGE IS DONE AND

144

00:08:37,316 --> 00:08:38,317

DELIVERS THE SOYUZ TO ORBIT, THE

145

00:08:38,317 --> 00:08:40,853

SPACECRAFT WILL GENUINE EXECUTE

146

00:08:40,853 --> 00:08:41,721

ALL THOSE PRE-PROGRAMMED

147

00:08:41,721 --> 00:08:46,559

COMMANDS TO HEAD OUT A NUMBER OF

148

00:08:46,559 --> 00:08:50,663

ANTENNAES AND DEPLOY THE SOLAR

149

00:08:50,663 --> 00:08:51,864

ARRAYS.

150

00:08:51,864 --> 00:09:03,276

THIRD STAGE SHOULD FIRE UNTIL

151
00:09:03,276 --> 00:09:13,252
THE ORBIT LAUNCH WHICH SHOULD

152
00:09:13,252 --> 00:09:17,490
HAPPEN VERY SOON.

153
00:09:17,490 --> 00:09:17,924
>> 520.

154
00:09:17,924 --> 00:09:34,640
>> AND THE TELL TALE JOLT,

155
00:09:34,640 --> 00:09:36,309
GETTING CONFIRMATION IT HAS

156
00:09:36,309 --> 00:09:37,009
SEPARATED AND THE SOYUZ NOW IN

157
00:09:37,009 --> 00:09:37,310
ORBIT.

158
00:09:37,310 --> 00:09:38,010
>> CONGRATULATIONS ON THE

159
00:09:38,010 --> 00:09:38,744
SUCCESSFUL INSERTION AND HIKE TO

160
00:09:38,744 --> 00:09:39,478
GIVE THE FLOOR TO COSMOS CENTRAL

161
00:09:39,478 --> 00:09:39,879
IN MOSCOW.

162
00:09:39,879 --> 00:09:42,481
YES, WE HAVE ACHIEVED

163
00:09:42,481 --> 00:09:43,149

SEPARATION, EVERYTHING IS

164

00:09:43,149 --> 00:09:43,983

NORMAL, THANK YOU VERY MUCH AND

165

00:09:43,983 --> 00:09:49,889

WE ARE WORKING WITH MOSCOW

166

00:09:49,889 --> 00:09:50,356

MISSION CONTROL.

167

00:09:50,356 --> 00:09:53,225

WE COPY YOU LOUD AND CLEAR.

168

00:09:53,225 --> 00:10:01,934

THAT IS GREAT.

169

00:10:01,934 --> 00:10:04,937

WE ARE STANDING BY FOR YOUR

170

00:10:04,937 --> 00:10:05,871

REPORT AND STANDING BY FOR

171

00:10:05,871 --> 00:10:08,674

FURTHER OPERATIONS.

172

00:10:08,674 --> 00:10:09,041

THANK YOU.

173

00:10:09,041 --> 00:10:19,418

>> AND AGAIN, A A SUCCESSFUL

174

00:10:19,418 --> 00:10:23,055

ORBITAL INSERTION, THE SOYUZ NOW

175

00:10:23,055 --> 00:10:23,789

IN ORBIT, CONFIRMATION ALL THE

176
00:10:23,789 --> 00:10:24,523
ANTENNAES AND SOLAR ARRAYS HAVE

177
00:10:24,523 --> 00:10:25,091
DEPLOYED SUCCESSFULLY.

178
00:10:25,091 --> 00:10:25,958
TEXTBOOK ROCKET LAUNCH FOR THIS

179
00:10:25,958 --> 00:10:27,026
CREW TODAY, THIRD STAGE CUTOFF

180
00:10:27,026 --> 00:10:32,598
AS WE SAW THE CREW GET A BIT OF

181
00:10:32,598 --> 00:10:41,841
A JOLT THERE, THE AVOIDANCE

182
00:10:41,841 --> 00:10:52,685
MANEUVER OPENS A VALVE ON THE

183
00:10:52,685 --> 00:10:53,386
LIQUID OXYGEN TANK THAT FALLS

184
00:10:53,386 --> 00:10:54,120
BACK TO THE EARTH'S ATMOSPHERE.

185
00:10:54,120 --> 00:10:54,787
SO THE SOYUZ IN PRELIMINARY

186
00:10:54,787 --> 00:10:55,488
ORBIT AND THAT WILL GET RAISED

187
00:10:55,488 --> 00:10:56,222
OVER THE NEXT SIX HOURS, CONTROL

188
00:10:56,222 --> 00:11:02,728

SENT TO THE MOSCOW SPACE CENTER