1
00:00:17,029 --> 00:00:10,950
the second umbilical now retracting and

2
00:00:22,710 --> 00:00:19,750
the turbo pumps now up to flight speed

3
00:00:26,070 --> 00:00:22,720
counting down to liftoff

4
00:00:27,910 --> 00:00:26,080
engines at maximum thrust

5
00:00:31,189 --> 00:00:27,920
and liftoff

6
00:00:33,430 --> 00:00:31,199
liftoff of the 66th progress resupply

7
00:00:41,090 --> 00:00:33,440
vehicle outbound to the international

8
00:00:46,709 --> 00:00:44,310
[Music]

9
00:00:49,029 --> 00:00:46,719
good roll pitch in your program reported

10
00:00:51,189 --> 00:00:49,039
from the block house at baikonur

11
00:01:05,109 --> 00:00:51,199
the first stage engines operating

12
00:01:22,149 --> 00:01:07,030
vehicle is stable good engine

13
00:01:31,270 --> 00:01:23,910

good your pitch and roll program

14
00:01:35,670 --> 00:01:33,670
73 seconds into the flight everything

15
00:01:49,670 --> 00:01:35,680
reported to be operating normally on the

16
00:01:56,469 --> 00:01:51,030
90 seconds

17
00:02:00,149 --> 00:01:58,389
one minute 40 seconds into the flight

18
00:02:02,310 --> 00:02:00,159
everything proceeding normally with the

19
00:02:04,870 --> 00:02:02,320
first stage performance of the soyuz

20
00:02:09,190 --> 00:02:06,950
the first stage separation the four

21
00:02:18,550 --> 00:02:09,200
strap on boosters separating uh coming

22
00:02:23,110 --> 00:02:21,350
and we have a booster separation

23
00:02:26,710 --> 00:02:23,120
first stage separation reported

24
00:02:29,030 --> 00:02:26,720
everything proceeding nominally

25
00:02:31,750 --> 00:02:29,040
the soyuz booster now 30 miles in

26
00:02:34,229 --> 00:02:31,760
altitude 73 miles downrange from the

27
00:02:39,190 --> 00:02:34,239
baikonur cosmodrome

28
00:02:43,830 --> 00:02:41,750
140 seconds

29
00:02:51,750 --> 00:02:43,840
all the on-board

30
00:03:02,229 --> 00:02:53,750
the next major milestone will be the

31
00:03:02,239 --> 00:03:06,470
and the launch route has been jettisoned

32
00:03:06,480 --> 00:03:20,949
two minutes 41 seconds into the flight

33
00:03:24,630 --> 00:03:22,790
all the vehicle structures and all the

34
00:03:36,390 --> 00:03:24,640
structural parameters are reported to be

35
00:03:40,630 --> 00:03:38,869
three minutes 15 seconds into the flight

36
00:03:44,869 --> 00:03:40,640
seconds into the flight the second stage

37
00:03:49,509 --> 00:03:47,350
repeating exact launch time zero eight

38
00:03:51,030 --> 00:03:49,519

five eight the second stage engine is

39
00:03:53,589 --> 00:03:51,040
firing normally

40
00:03:55,030 --> 00:03:53,599
210 seconds into the flight all booster

41
00:03:56,869 --> 00:03:55,040
perimeters

42
00:03:58,949 --> 00:03:56,879
and onboard systems second stage

43
00:04:02,789 --> 00:03:58,959
shutdown will occur at the four minute

44
00:04:09,190 --> 00:04:02,799
45 second mark into the flight

45
00:04:15,030 --> 00:04:12,149
230 seconds the vehicle is stable

46
00:04:17,590 --> 00:04:15,040
the vehicle is stable as we approach the

47
00:04:19,509 --> 00:04:17,600
four minute mark into the flight

48
00:04:27,590 --> 00:04:19,519
nothing but good reports so far from the

49
00:04:31,830 --> 00:04:29,510
250 seconds

50
00:04:35,030 --> 00:04:31,840
your pitch and roll parameters your

51
00:04:37,350 --> 00:04:35,040
pitch and roll program are perfect

52
00:04:39,110 --> 00:04:37,360
so far the soyuz is dead on

53
00:04:40,390 --> 00:04:39,120
flying straight as an arrow everything

54
00:04:43,909 --> 00:04:40,400
in good shape

55
00:04:49,670 --> 00:04:43,919
four minutes 15 seconds into the flight

56
00:05:01,270 --> 00:04:52,469
270 seconds all parameters of the

57
00:05:08,790 --> 00:05:05,909
four minutes 38 seconds into the flight

58
00:05:10,710 --> 00:05:08,800
we have second stage separation

59
00:05:14,710 --> 00:05:10,720
the third stage the second stage

60
00:05:16,469 --> 00:05:14,720
separating at 104 miles in altitude 179

61
00:05:19,029 --> 00:05:16,479
miles downrange

62
00:05:22,150 --> 00:05:19,039
the soyuz and the progress traveling

63
00:05:24,950 --> 00:05:22,160

almost 7 500 miles an hour

64
00:05:26,550 --> 00:05:24,960
uh lower skirts the third stage engine

65
00:05:28,550 --> 00:05:26,560
up and running

66
00:05:32,150 --> 00:05:28,560
this burn of the third stage engine

67
00:05:32,160 --> 00:05:39,670
good vehicle stabilization reported

68
00:05:48,550 --> 00:05:42,150
320 seconds all booster parameters and

69
00:05:56,950 --> 00:05:50,230
230 seconds

70
00:06:00,629 --> 00:05:59,510
third stage engine continues to burn

71
00:06:03,749 --> 00:06:00,639
normally

72
00:06:05,830 --> 00:06:03,759
at the five minute 40 second mark into

73
00:06:07,670 --> 00:06:05,840
the flight just over three minutes of

74
00:06:17,189 --> 00:06:07,680
powered flight remaining

75
00:06:23,590 --> 00:06:21,749
360 seconds your petrol

76
00:06:25,430 --> 00:06:23,600
parameters are normal

77
00:06:27,670 --> 00:06:25,440
the international fleet of supply

78
00:06:30,309 --> 00:06:27,680
vehicles that started a couple of months

79
00:06:34,070 --> 00:06:30,319
ago with the launch of the htv the white

80
00:06:35,749 --> 00:06:34,080
stork now the progress the spacex dragon

81
00:06:38,629 --> 00:06:35,759
soon to arrive at the international

82
00:06:41,029 --> 00:06:38,639
space station the flotilla of resupply

83
00:06:43,990 --> 00:06:41,039
craft heading for the station

84
00:06:45,830 --> 00:06:44,000
six minutes 15 seconds into the flight

85
00:06:49,469 --> 00:06:45,840
about two and a half minutes left in

86
00:06:52,950 --> 00:06:52,150
390 seconds

87
00:06:58,790 --> 00:06:52,960
all

88
00:07:04,390 --> 00:07:02,150

400 seconds vehicle stable

89
00:07:07,029 --> 00:07:04,400
everything's stable on the soyuz booster

90
00:07:09,510 --> 00:07:07,039
the progress resupply craft riding on

91
00:07:12,469 --> 00:07:09,520
top of the third stage

92
00:07:13,830 --> 00:07:12,479
as we are now six minutes 45 seconds

93
00:07:18,230 --> 00:07:13,840
into the flight with two minutes of

94
00:07:23,350 --> 00:07:21,270
420 seconds european

95
00:07:25,589 --> 00:07:23,360
roll rotation

96
00:07:29,670 --> 00:07:25,599
good yaw pitch and roll program reported

97
00:07:38,790 --> 00:07:32,070
430 seconds

98
00:07:44,469 --> 00:07:41,270
440 seconds the vehicle is stable seven

99
00:07:46,309 --> 00:07:44,479
minutes 15 seconds into the flight the

100
00:07:47,350 --> 00:07:46,319
third stage continues to operate

101
00:07:49,430 --> 00:07:47,360
normally

102
00:08:01,909 --> 00:07:49,440
sending the progress to its preliminary

103
00:08:06,550 --> 00:08:04,070
structure parameters and the booster

104
00:08:08,550 --> 00:08:06,560
parameters are all nominal booster

105
00:08:10,790 --> 00:08:08,560
parameters are normal

106
00:08:12,550 --> 00:08:10,800
according to the flight control team uh

107
00:08:14,629 --> 00:08:12,560
both in baikonur and at the russian

108
00:08:16,950 --> 00:08:14,639
mission control center

109
00:08:18,790 --> 00:08:16,960
performing nominally

110
00:08:20,309 --> 00:08:18,800
approaching the eight-minute mark into

111
00:08:22,029 --> 00:08:20,319
the flight less than a minute of powered

112
00:08:30,029 --> 00:08:22,039
flight remaining

113
00:08:38,550 --> 00:08:33,269

490 the

114
00:08:43,990 --> 00:08:41,750
500 seconds uh

115
00:08:46,630 --> 00:08:44,000
eight minutes 15 seconds into the flight

116
00:08:49,829 --> 00:08:46,640
everything continues uh to be

117
00:08:51,670 --> 00:08:49,839
very very normal on board the soyuz

118
00:08:55,509 --> 00:08:51,680
booster

119
00:08:57,430 --> 00:08:55,519
no issues reported so far

120
00:09:00,910 --> 00:08:57,440
the final few seconds now a powered

121
00:09:00,920 --> 00:09:08,870
520 control parameters nominal

122
00:09:14,389 --> 00:09:11,750
500 we have third stage shutdown

123
00:09:16,230 --> 00:09:14,399
and third stage separation

124
00:09:18,389 --> 00:09:16,240
the progress is now in its preliminary

125
00:09:23,110 --> 00:09:18,399
orbit standing by for array and antenna

126
00:09:23,120 --> 00:09:34,070
the report is over

127
00:09:38,550 --> 00:09:36,710
and reports uh now being received from

128
00:09:40,630 --> 00:09:38,560
the russian mission control center that

129
00:09:42,949 --> 00:09:40,640
the progress has deployed all of its

130
00:09:43,910 --> 00:09:42,959
navigational antennas and its solar

131
00:09:46,710 --> 00:09:43,920
arrays

132
00:09:48,550 --> 00:09:46,720
so the progress has uh ridden a true

133
00:09:50,310 --> 00:09:48,560
soyuz ooh

134
00:09:53,030 --> 00:09:50,320
on a perfect launch from the baikonur

135
00:09:55,269 --> 00:09:53,040
cosmodrome in kazakhstan an eight-minute

136
00:09:57,190 --> 00:09:55,279
46-second ride from the launch pad at

137
00:09:59,430 --> 00:09:57,200
baikonur to its preliminary orbit the

138
00:10:00,870 --> 00:09:59,440

progress now on its way beginning a

139
00:10:02,470 --> 00:10:00,880
two-day rendezvous to reach the

140
00:10:04,790 --> 00:10:02,480
international space station for an

141
00:10:07,190 --> 00:10:04,800
automated docking in the early morning

142
00:10:28,870 --> 00:10:07,200
hours central time on friday docking

143
00:10:34,069 --> 00:10:32,069
and this view from the black and white

144
00:10:35,590 --> 00:10:34,079
engineering camera on the outside of the

145
00:10:37,590 --> 00:10:35,600
progress vehicle

146
00:10:39,670 --> 00:10:37,600
as it begins its journey to the

147
00:10:43,509 --> 00:10:39,680
international space station

148
00:10:48,470 --> 00:10:43,519
again liftoff occurring right on time at

149
00:10:51,269 --> 00:10:48,480
11 58 33 seconds pm central time

150
00:10:53,670 --> 00:10:51,279
12 58 and 33 seconds am eastern time

151
00:10:56,069 --> 00:10:53,680
which was two minutes before noon at the

152
00:10:58,630 --> 00:10:56,079
baikonur cosmodrome in kazakhstan the

153
00:11:00,550 --> 00:10:58,640
soyuz u booster lifted off

154
00:11:03,110 --> 00:11:00,560
all of its operation for all three

155
00:11:05,910 --> 00:11:03,120
stages was perfectly normal eight

156
00:11:08,470 --> 00:11:05,920
minutes and 46 seconds after launch

157
00:11:10,710 --> 00:11:08,480
the third stage shut down and the

158
00:11:12,870 --> 00:11:10,720
progress separated from the third stage

159
00:11:16,069 --> 00:11:12,880
and immediately deployed its antennas

160
00:11:18,230 --> 00:11:16,079
and solar arrays as planned as it begins

161
00:11:38,630 --> 00:11:18,240
its two-day journey to the international

162
00:11:42,550 --> 00:11:40,790
at this point the core's automated

163
00:11:45,190 --> 00:11:42,560

rendezvous system on the progress is

164
00:11:48,550 --> 00:11:45,200
going through what is called a self-test

165
00:11:50,629 --> 00:11:48,560
uh a preliminary test of its systems to

166
00:11:53,350 --> 00:11:50,639
make sure it is operating that will be

167
00:11:56,550 --> 00:11:53,360
the guidance for the progress during the

168
00:11:58,710 --> 00:11:56,560
terminal stage of the rendezvous that on

169
00:12:00,470 --> 00:11:58,720
friday morning that will lead the

170
00:12:02,389 --> 00:12:00,480
progress to a link up to the piers

171
00:12:04,550 --> 00:12:02,399
docking compartment on the earth-facing