1
00:00:12,070 --> 00:00:08,470
and there is a final uh farewell between

2
00:00:14,709 --> 00:00:12,080
peggy whitson uh and shane kimbrough

3
00:00:16,630 --> 00:00:14,719
thomas pesquet oleg novitskiy

4
00:00:17,910 --> 00:00:16,640
the final farewells before the hatch

5
00:00:20,630 --> 00:00:17,920
will be closed

6
00:00:31,109 --> 00:00:20,640
and expedition 50 will begin its final

7
00:00:31,119 --> 00:00:44,229
uh

8
00:00:48,069 --> 00:00:46,310
this is mission control carl joff once

9
00:00:49,830 --> 00:00:48,079
again uh

10
00:00:52,630 --> 00:00:49,840
you're looking at the hatchway between

11
00:00:55,830 --> 00:00:52,640
the poisk module and the soyuz mso2

12
00:00:57,510 --> 00:00:55,840
spacecraft soyuz commander

13
00:00:59,110 --> 00:00:57,520

sergey rizhikov

14
00:01:00,549 --> 00:00:59,120
there in the field of view running

15
00:01:02,069 --> 00:01:00,559
through the procedures

16
00:01:03,750 --> 00:01:02,079
wiping down

17
00:01:05,670 --> 00:01:03,760
the hatch to make sure there's no

18
00:01:08,550 --> 00:01:05,680
foreign object debris

19
00:01:10,070 --> 00:01:08,560
that would create any issues with a

20
00:01:12,390 --> 00:01:10,080
solid leak check

21
00:01:14,469 --> 00:01:12,400
once we get to that here a short time

22
00:01:16,550 --> 00:01:14,479
from now

23
00:01:18,390 --> 00:01:16,560
we're standing by for the actual closure

24
00:01:21,350 --> 00:01:18,400
of the hatch the crew

25
00:01:23,510 --> 00:01:21,360
inside the soyuz having said farewell

26
00:01:42,069 --> 00:01:23,520
to the three remaining crew members on

27
00:01:47,030 --> 00:01:45,350
and the hatch on the soyuz ms02 is now

28
00:01:50,230 --> 00:01:47,040
closed

29
00:01:52,469 --> 00:01:50,240
the soyuz was placed on autonomous power

30
00:01:54,069 --> 00:01:52,479
about an hour or so ago

31
00:01:57,030 --> 00:01:54,079
all of its systems are reported in

32
00:01:58,870 --> 00:01:57,040
excellent shape and now uh

33
00:02:01,510 --> 00:01:58,880
oleg novitskiy is in the process of

34
00:02:04,389 --> 00:02:01,520
closing the poisk hatch

35
00:02:08,550 --> 00:02:04,399
again 7 45 a.m

36
00:02:11,190 --> 00:02:08,560
moscow time 11 45 pm central time the

37
00:02:12,710 --> 00:02:11,200
soyuz hatch closed and now the poisk

38
00:02:14,630 --> 00:02:12,720

module

39
00:02:16,869 --> 00:02:14,640
hatch has been closed one and a half

40
00:02:18,869 --> 00:02:16,879
minutes later so both hatches are now

41
00:02:20,710 --> 00:02:18,879
closed setting the stage for the

42
00:02:22,390 --> 00:02:20,720
undocking of the soyuz

43
00:02:25,350 --> 00:02:22,400
from the international space station

44
00:02:29,430 --> 00:02:25,360
with the undocking scheduled at 2 57 am

45
00:02:30,869 --> 00:02:29,440
central time just a few hours from now

46
00:02:33,110 --> 00:02:30,879
the international space station

47
00:02:35,270 --> 00:02:33,120
currently flying over southwest china

48
00:02:37,910 --> 00:02:35,280
moving from southwest to northeast and

49
00:02:39,589 --> 00:02:37,920
in orbit inclined 51.6 degrees to either

50
00:02:41,830 --> 00:02:39,599
side of the equator

51
00:02:44,630 --> 00:02:41,840
we are ready to reset the station

52
00:02:46,790 --> 00:02:44,640
mechanical contact is not illuminated

53
00:02:47,830 --> 00:02:46,800
the physical separation confirmed right

54
00:02:49,670 --> 00:02:47,840
on time

55
00:02:51,670 --> 00:02:49,680
at 257

56
00:02:53,110 --> 00:02:51,680
and 30 seconds

57
00:03:00,630 --> 00:02:53,120
central time

58
00:03:02,149 --> 00:03:00,640
seconds eastern time the soyuz mso2

59
00:03:04,869 --> 00:03:02,159
backing away from the international

60
00:03:06,949 --> 00:03:04,879
space station expedition 51

61
00:03:10,390 --> 00:03:06,959
now officially underway on board the

62
00:03:15,110 --> 00:03:13,110
i'm ready to send the command

63
00:03:18,949 --> 00:03:15,120

copy

64
00:03:21,190 --> 00:03:18,959
we have selected the command

65
00:03:23,990 --> 00:03:21,200
about a minute and a half from now

66
00:03:26,630 --> 00:03:24,000
at the 3 a.m central time

67
00:03:28,710 --> 00:03:26,640
that will uh initiate the

68
00:03:30,390 --> 00:03:28,720
small opening rate

69
00:03:32,869 --> 00:03:30,400
it's it's going to be an eight second

70
00:03:35,270 --> 00:03:32,879
burn about a half a meter per second

71
00:03:37,990 --> 00:03:35,280
opening rate you can see the soyuz as it

72
00:03:39,670 --> 00:03:38,000
slowly backs away from the poisk module

73
00:03:41,430 --> 00:03:39,680
the space-facing side of the russian

74
00:03:43,810 --> 00:03:41,440
segment of the international space

75
00:03:56,869 --> 00:03:43,820
station

76
00:04:00,470 --> 00:03:59,190
a good view of the engine firing on the

77
00:04:02,949 --> 00:04:00,480
soyuz vehicle

78
00:04:05,670 --> 00:04:02,959
an eight second burn this is the first

79
00:04:08,070 --> 00:04:05,680
of two separation burns to increase the

80
00:04:15,190 --> 00:04:08,080
opening rate by about a half a meter per

81
00:04:20,229 --> 00:04:18,390
so the soyuz is on its way

82
00:04:22,710 --> 00:04:20,239
it will uh take

83
00:04:25,670 --> 00:04:22,720
about an orbit and three quarters for it

84
00:04:27,749 --> 00:04:25,680
to reach its uh separation distance from

85
00:04:30,790 --> 00:04:27,759
the international space station

86
00:04:31,510 --> 00:04:30,800
for the soyuz deorbit burn which is a

87
00:04:33,350 --> 00:04:31,520
much

88
00:04:35,909 --> 00:04:33,360

more substantial firing of the engines

89
00:04:38,390 --> 00:04:35,919
that will be a four minute 38 second

90
00:04:41,030 --> 00:04:38,400
retrograde firing a braking maneuver to

91
00:04:46,420 --> 00:04:41,040
slow the soyuz down by 128 meters per

92
00:04:52,070 --> 00:04:48,629
[Music]

93
00:04:58,550 --> 00:04:55,510
once again the soyuz mso2 undocked on

94
00:05:02,950 --> 00:04:58,560
time at 2 57 and 30 seconds am central

95
00:05:05,189 --> 00:05:02,960
time this morning has begun to back away

96
00:05:07,189 --> 00:05:05,199
at a consistent rate

97
00:05:09,909 --> 00:05:07,199
to a safe distance away from the

98
00:05:12,070 --> 00:05:09,919
international space station next major

99
00:05:14,629 --> 00:05:12,080
milestone will be the deorbit burn that

100
00:05:17,189 --> 00:05:14,639
will be a four minute 38 second breaking

101
00:05:23,110 --> 00:05:20,390
this spectacular video of the descent of

102
00:05:25,350 --> 00:05:23,120
the soyuz mso2 under its main parachute

103
00:05:27,350 --> 00:05:25,360
flight controllers have relayed up to

104
00:05:29,510 --> 00:05:27,360
alec novitskiy aboard the international

105
00:05:31,270 --> 00:05:29,520
space station that everything is going

106
00:05:45,189 --> 00:05:31,280
perfectly and that the crew is in

107
00:05:49,510 --> 00:05:47,510
the spectacular video you're watching uh

108
00:05:52,550 --> 00:05:49,520
indicative of

109
00:05:56,309 --> 00:05:52,560
the proximity of the search and recovery

110
00:05:58,390 --> 00:05:56,319
forces to the landing site itself

111
00:06:01,590 --> 00:05:58,400
meaning we're expecting almost a precise

112
00:06:03,830 --> 00:06:01,600
bullseye touchdown for the soyuz mso2

113
00:06:08,550 --> 00:06:03,840

landing scheduled about

114
00:06:08,560 --> 00:06:27,670
[Applause]

115
00:06:35,909 --> 00:06:31,670
remember to locate your elbows

116
00:06:58,150 --> 00:06:38,220
we have eight hundred

117
00:07:03,110 --> 00:07:00,469
as you can see

118
00:07:05,749 --> 00:07:03,120
a pair of uh russian mi8 helicopters

119
00:07:07,749 --> 00:07:05,759
flying in front of the long range camera

120
00:07:10,390 --> 00:07:07,759
that is tracking uh the final moments of

121
00:07:12,790 --> 00:07:10,400
the flight of the soyuz ms02

122
00:07:14,230 --> 00:07:12,800
which was launched atop a soyuz booster

123
00:07:18,629 --> 00:07:14,240
from the baikonur cosmodrome in

124
00:07:22,230 --> 00:07:21,110
crew uh now bracing for touchdown that

125
00:07:25,610 --> 00:07:22,240
is coming up

126
00:07:42,790 --> 00:07:25,620
within the minute

127
00:07:49,270 --> 00:07:45,270
and touchdown is now confirmed

128
00:07:52,150 --> 00:07:49,280
touchdown confirmed at 6 20 and 35

129
00:07:55,909 --> 00:07:52,160
seconds am central time

130
00:07:57,909 --> 00:07:55,919
7 20 and 35 seconds a.m eastern time

131
00:07:59,830 --> 00:07:57,919
the soyuz spacecraft has touched down

132
00:08:01,830 --> 00:07:59,840
you saw it all the way down

133
00:08:04,710 --> 00:08:01,840
almost from the start of the parachute

134
00:08:08,950 --> 00:08:07,430
it appears as if the soyuz was dragged

135
00:08:10,629 --> 00:08:08,960
onto its side

136
00:08:13,749 --> 00:08:10,639
we'll confirm that in a moment or two

137
00:08:16,230 --> 00:08:13,759
but again the soyuz safely back on earth

138
00:08:18,309 --> 00:08:16,240

touchdown confirmed at 6 20 and 35

139
00:08:21,430 --> 00:08:18,319
seconds am central time

140
00:08:29,430 --> 00:08:21,440
5 20 and 35 seconds p.m at the landing

141
00:08:33,509 --> 00:08:31,270
this is mission control courage off the

142
00:08:37,269 --> 00:08:33,519
television now being received from the

143
00:08:40,230 --> 00:08:37,279
landing site in kazakhstan

144
00:08:44,470 --> 00:08:40,240
sergey rijikov the soyuz commander first

145
00:08:47,590 --> 00:08:44,480
out of the soyuz descent module

146
00:08:51,030 --> 00:08:47,600
shane kimbrough now has uh also been

147
00:08:53,430 --> 00:08:51,040
extracted from the spacecraft

148
00:08:55,430 --> 00:08:53,440
being attended to by

149
00:08:57,430 --> 00:08:55,440
nasa personnel

150
00:09:00,790 --> 00:08:57,440
andre borisenko will be out of the

151
00:09:02,550 --> 00:09:00,800
spacecraft just a moment or two from now

152
00:09:04,150 --> 00:09:02,560
the extraction occurring about 14

153
00:09:06,150 --> 00:09:04,160
minutes after touchdown it was a

154
00:09:09,110 --> 00:09:06,160
bulls-eyed touchdown

155
00:09:11,030 --> 00:09:09,120
you see uh chris cassidy who's the chief

156
00:09:13,350 --> 00:09:11,040
of nasa's astronaut office at the

157
00:09:14,470 --> 00:09:13,360
johnson space center kneeling right in

158
00:09:16,550 --> 00:09:14,480
front of

159
00:09:19,590 --> 00:09:16,560
kimbrough talking to him

160
00:09:21,350 --> 00:09:19,600
sean fuller uh right behind kimbrough

161
00:09:22,790 --> 00:09:21,360
fuller is the director of human space

162
00:09:26,389 --> 00:09:22,800
flight programs

163
00:09:31,910 --> 00:09:28,790

touchdown occurring at

164
00:09:35,190 --> 00:09:31,920
6 20 a.m central time 5 20 p.m at the

165
00:09:38,070 --> 00:09:35,200
landing site in kazakhstan

166
00:09:41,190 --> 00:09:38,080
kimbrough rizzakov and borisenko

167
00:09:48,550 --> 00:09:41,200
completing a journey of 73.2 million

168
00:09:52,630 --> 00:09:51,190
and uh andre borisenko now being carried

169
00:09:54,389 --> 00:09:52,640
to his chair

170
00:09:56,710 --> 00:09:54,399
to join his crewmates

171
00:09:59,190 --> 00:09:56,720
all of the crew members are now out of

172
00:10:01,590 --> 00:09:59,200
the soyuz spacecraft

173
00:10:03,590 --> 00:10:01,600
following a textbook touchdown on the

174
00:10:29,910 --> 00:10:03,600
step of kazakhstan

175
00:10:33,910 --> 00:10:31,590
both helicopters one for each crew

176
00:10:35,829 --> 00:10:33,920
member for about a two-hour flight back

177
00:10:37,910 --> 00:10:35,839
to the staging city of karaganda where

178
00:10:39,990 --> 00:10:37,920
they will bid farewell to one another

179
00:10:42,470 --> 00:10:40,000
kimbrough boarding a nasa jet bound for

180
00:10:45,190 --> 00:10:42,480
houston uh while the two cosmonauts fly