
KAREN NYBERG
EXPEDITION 37 FLIGHT ENGINEER

1
00:00:05,590 --> 00:00:03,110
this is mission control houston the

2
00:00:08,310 --> 00:00:05,600
expedition 37 crew has had quite a busy

3
00:00:10,310 --> 00:00:08,320
week over the past few days it all began

4
00:00:14,070 --> 00:00:10,320
on monday as the albert einstein

5
00:00:16,310 --> 00:00:14,080
automated transfer vehicle for this atv4

6
00:00:19,510 --> 00:00:16,320
undocked from the aft port of the zvezda

7
00:00:21,349 --> 00:00:19,520
service module the departure of atv4

8
00:00:23,029 --> 00:00:21,359
ends four months linked to the complex

9
00:00:25,029 --> 00:00:23,039
and the delivery of more than seven tons

10
00:00:26,710 --> 00:00:25,039
of food fuel and supplies for the

11
00:00:28,950 --> 00:00:26,720
station's residents

12
00:00:30,950 --> 00:00:28,960
undocking took place on monday at 3 55

13
00:00:32,870 --> 00:00:30,960

a.m central time

14
00:00:35,030 --> 00:00:32,880
that vehicle will be deorbited and

15
00:00:37,430 --> 00:00:35,040
burned up in the atmosphere

16
00:00:39,190 --> 00:00:37,440
on saturday morning this weekend and

17
00:00:46,069 --> 00:00:39,200
that will end its mission up to the

18
00:00:49,750 --> 00:00:48,150
also on monday mike hopkins while all

19
00:00:52,150 --> 00:00:49,760
this was taking place took part in the

20
00:00:53,750 --> 00:00:52,160
spinal ultrasound experiment this is one

21
00:00:55,910 --> 00:00:53,760
of the human research experiments that

22
00:00:57,910 --> 00:00:55,920
the crew participates in

23
00:00:59,590 --> 00:00:57,920
it uses ultrasound technology to take

24
00:01:01,029 --> 00:00:59,600
measurement of the crew member's spine

25
00:01:02,790 --> 00:01:01,039
the goal of the experiment is to help

26
00:01:04,630 --> 00:01:02,800
determine and better predict

27
00:01:07,109 --> 00:01:04,640
changes that happen to the spine on

28
00:01:08,630 --> 00:01:07,119
orbit the crews sometimes get a little

29
00:01:10,710 --> 00:01:08,640
bit taller while they're up there and

30
00:01:13,350 --> 00:01:10,720
that tends to increase the lower back

31
00:01:14,710 --> 00:01:13,360
pain and other things that they may

32
00:01:16,310 --> 00:01:14,720
suffer through but they've seen up to a

33
00:01:17,749 --> 00:01:16,320
three percent increase in height while

34
00:01:19,670 --> 00:01:17,759
they're up in space

35
00:01:21,350 --> 00:01:19,680
so in order to better predict that the

36
00:01:22,710 --> 00:01:21,360
spinal ultrasound takes a look at their

37
00:01:24,870 --> 00:01:22,720
spines

38
00:01:27,510 --> 00:01:24,880

and their anatomy just to figure out if

39
00:01:29,270 --> 00:01:27,520
they can better predict who might go

40
00:01:33,109 --> 00:01:29,280
through those changes and who might not

41
00:01:36,950 --> 00:01:35,109
on wednesday oleg kotov and sergey

42
00:01:39,109 --> 00:01:36,960
ryazanskiy worked in the russian segment

43
00:01:40,710 --> 00:01:39,119
to set up and resize the russian orlan

44
00:01:43,030 --> 00:01:40,720
spacesuits that they will use on the

45
00:01:44,230 --> 00:01:43,040
november 9th spacesuit

46
00:01:46,469 --> 00:01:44,240
spacewalk they're going to be stepping

47
00:01:48,149 --> 00:01:46,479
outside with the olympic torch and a

48
00:01:50,069 --> 00:01:48,159
ceremonial spacewalk of course we'll

49
00:01:51,990 --> 00:01:50,079
have live coverage of that here on nasa

50
00:01:55,429 --> 00:01:52,000
television that spacewalk will begin at

51
00:01:56,950 --> 00:01:55,439
8 30 a.m central time 9 30 a.m eastern

52
00:01:58,550 --> 00:01:56,960
time

53
00:02:00,789 --> 00:01:58,560
hopkins also worked with what's known

54
00:02:02,630 --> 00:02:00,799
what's known as the slam d

55
00:02:04,469 --> 00:02:02,640
device this stands for space linear

56
00:02:06,950 --> 00:02:04,479
acceleration mass measurement device or

57
00:02:08,469 --> 00:02:06,960
slam d for short it follows newton's

58
00:02:10,550 --> 00:02:08,479
second law of motion by having two

59
00:02:12,309 --> 00:02:10,560
springs generate a known force against a

60
00:02:14,070 --> 00:02:12,319
crew member while they're mounted on an

61
00:02:15,990 --> 00:02:14,080
extension arm this results in

62
00:02:17,670 --> 00:02:16,000
acceleration that can be used to

63
00:02:18,949 --> 00:02:17,680

calculate the subject's mass so

64
00:02:20,630 --> 00:02:18,959
basically it's

65
00:02:22,309 --> 00:02:20,640
a fairly complicated way for them to

66
00:02:23,750 --> 00:02:22,319
weigh themselves up in space of course

67
00:02:25,670 --> 00:02:23,760
you can't really just step on a scale

68
00:02:28,710 --> 00:02:25,680
since there's no gravity up there but

69
00:02:31,430 --> 00:02:28,720
this device is accurate to 0.5 pounds

70
00:02:32,790 --> 00:02:31,440
and has a range from 90 pounds up to 240

71
00:02:35,509 --> 00:02:32,800
pounds so it takes care of pretty much

72
00:02:37,110 --> 00:02:35,519
everybody but again they wear themselves

73
00:02:39,190 --> 00:02:37,120
periodically throughout their expedition

74
00:02:40,630 --> 00:02:39,200
onboard the station and it just helps

75
00:02:42,790 --> 00:02:40,640
the scientists on the ground monitor

76
00:02:44,790 --> 00:02:42,800
their health

77
00:02:46,470 --> 00:02:44,800
nyberg spent the day on wednesday

78
00:02:48,309 --> 00:02:46,480
retrieving some samples from the melfi

79
00:02:50,070 --> 00:02:48,319
this is the minus 80 degree laboratory

80
00:02:51,830 --> 00:02:50,080
freezer for iss it's a giant

81
00:02:53,589 --> 00:02:51,840
refrigerator in the freezer that the

82
00:02:55,350 --> 00:02:53,599
crew stores samples there's different

83
00:02:57,350 --> 00:02:55,360
drawers that are located there that are

84
00:02:58,390 --> 00:02:57,360
different temperatures and periodically

85
00:03:00,390 --> 00:02:58,400
they need to move them from one

86
00:03:01,990 --> 00:03:00,400
temperature to another and also prepare

87
00:03:03,589 --> 00:03:02,000
them for the return back to earth as

88
00:03:06,390 --> 00:03:03,599

those samples come back for scientists

89
00:03:07,990 --> 00:03:06,400
to take a look at

90
00:03:09,589 --> 00:03:08,000
mike hopkins also worked with what's

91
00:03:11,990 --> 00:03:09,599
known as the reversible figures

92
00:03:13,270 --> 00:03:12,000
experiment this takes a look at uh how

93
00:03:15,030 --> 00:03:13,280
the crew members actually see

94
00:03:16,949 --> 00:03:15,040
three-dimensional objects they rely on

95
00:03:18,869 --> 00:03:16,959
different visual cues and perspectives

96
00:03:20,869 --> 00:03:18,879
while they're up there the scientists

97
00:03:22,390 --> 00:03:20,879
and researchers have noticed that that

98
00:03:24,149 --> 00:03:22,400
tends to change while they're up there

99
00:03:25,750 --> 00:03:24,159
their perspective tends to change while

100
00:03:28,470 --> 00:03:25,760
they're off the planet and in the

101
00:03:30,390 --> 00:03:28,480
absence of gravity for up to six months

102
00:03:31,830 --> 00:03:30,400
so they basically take a test they take

103
00:03:33,430 --> 00:03:31,840
a look at different images that are

104
00:03:34,630 --> 00:03:33,440
almost optical illusions like you've

105
00:03:36,070 --> 00:03:34,640
seen on the ground here where if you

106
00:03:38,070 --> 00:03:36,080
look at it a certain way you see one

107
00:03:40,070 --> 00:03:38,080
thing and you sort of concentrate your

108
00:03:41,990 --> 00:03:40,080
eyes you see a different thing they do

109
00:03:44,229 --> 00:03:42,000
this they've got a sort of a trigger in

110
00:03:45,990 --> 00:03:44,239
their hand and they indicate using some

111
00:03:48,229 --> 00:03:46,000
buttons in their hand which image

112
00:03:49,670 --> 00:03:48,239
they're actually seeing and by answering

113
00:03:51,750 --> 00:03:49,680

that test the ground teams can kind of

114
00:03:53,270 --> 00:03:51,760
see what their eyes are are seeing while

115
00:03:55,589 --> 00:03:53,280
they're up there and that data is

116
00:03:59,670 --> 00:03:55,599
downlinked and helps better understand

117
00:04:03,670 --> 00:04:01,270
and this morning friday morning the

118
00:04:05,509 --> 00:04:03,680
soyuz 35 was relocated from the rosfed

119
00:04:07,350 --> 00:04:05,519
module over to the zvezda service module

120
00:04:09,670 --> 00:04:07,360
by fyodor yurchikhin luca parmitano and

121
00:04:11,990 --> 00:04:09,680
karen nyberg undocking took place at 3

122
00:04:14,390 --> 00:04:12,000
30 a.m central time and docking took

123
00:04:17,110 --> 00:04:14,400
place at 3 54 a.m central time the move

124
00:04:19,110 --> 00:04:17,120
with the soyuz spacecraft clears the way

125
00:04:21,509 --> 00:04:19,120
for the arrival of the soyuz 37

126
00:04:23,909 --> 00:04:21,519
spacecraft with rick mastracchio of nasa

127
00:04:27,510 --> 00:04:23,919
mikhail tyrande frost cosmos and koichi

128
00:04:29,189 --> 00:04:27,520
wakata of jaxa on board the strikio and

129
00:04:31,510 --> 00:04:29,199
wakata are scheduled to launch from the

130
00:04:35,510 --> 00:04:31,520
baikonur cosmodrome in kazakhstan at 10

131
00:04:37,430 --> 00:04:35,520
14 p.m central time on november 6. we've

132
00:04:39,189 --> 00:04:37,440
got a full day worth of coverage here on

133
00:04:41,909 --> 00:04:39,199
nasa television as we take a look at

134
00:04:44,469 --> 00:04:41,919
what's ahead in terms of our broadcast

135
00:04:49,350 --> 00:04:44,479
again that launch time is at 10 14 p.m

136
00:04:53,189 --> 00:04:51,030
we'll be bringing you live coverage of

137
00:04:55,670 --> 00:04:53,199
all those activities as this crew

138
00:04:57,270 --> 00:04:55,680

launches on that day heads up to the

139
00:04:58,950 --> 00:04:57,280
space station they got about six hours

140
00:05:01,590 --> 00:04:58,960
to get up there our launch coverage will

141
00:05:03,110 --> 00:05:01,600
begin at 9 15 p.m central time again the

142
00:05:05,510 --> 00:05:03,120
launch at 10 14.

143
00:05:07,590 --> 00:05:05,520
docking coverage will begin at 3 45 a.m

144
00:05:09,830 --> 00:05:07,600
on november 7th with the actual docking

145
00:05:11,350 --> 00:05:09,840
taking place at 4

146
00:05:13,749 --> 00:05:11,360
hatch opening will begin

147
00:05:15,990 --> 00:05:13,759
at 6 15 a.m central time with the actual

148
00:05:18,469 --> 00:05:16,000
patches being opened at 6 40 and then

149
00:05:20,710 --> 00:05:18,479
we'll have a video file at 8 a.m central

150
00:05:23,430 --> 00:05:20,720
time a few days after that on november

151
00:05:24,950 --> 00:05:23,440
10th as fyodor yortikin luca parmitano

152
00:05:26,550 --> 00:05:24,960
and karen nyberg get ready to come home

153
00:05:28,629 --> 00:05:26,560
we've got a full day's worth of coverage

154
00:05:31,189 --> 00:05:28,639
as well the farewell and hatch closure

155
00:05:33,029 --> 00:05:31,199
coverage begins at 1 30 p.m central time

156
00:05:36,150 --> 00:05:33,039
the actual hatch closure will take place

157
00:05:38,150 --> 00:05:36,160
at 2. undocking coverage begins at 5 pm

158
00:05:41,029 --> 00:05:38,160
central time with the undocking about 26

159
00:05:43,670 --> 00:05:41,039
minutes later at 5 26

160
00:05:45,830 --> 00:05:43,680
landing coverage begins at 7 30 pm

161
00:05:47,189 --> 00:05:45,840
central time the deorbit burn that will

162
00:05:49,590 --> 00:05:47,199
bring this crew back into earth's

163
00:05:51,430 --> 00:05:49,600

atmosphere occurs at 7 56

164
00:05:53,029 --> 00:05:51,440
and then actual landing takes place at 8

165
00:05:55,189 --> 00:05:53,039
50 pm

166
00:05:57,270 --> 00:05:55,199
central time that'll be 8 50 a.m the

167
00:05:59,510 --> 00:05:57,280
next morning there in kazakhstan and

168
00:06:03,029 --> 00:05:59,520
then we'll have post landing activities

169
00:06:05,430 --> 00:06:03,039
and a video file beginning at 9 30 a.m

170
00:06:06,790 --> 00:06:05,440
central time here on nasa television if

171
00:06:09,110 --> 00:06:06,800
you missed any of this just log on to

172
00:06:11,110 --> 00:06:09,120
nasa.gov station

173
00:06:13,350 --> 00:06:11,120
and take a look at what's ahead as we

174
00:06:14,870 --> 00:06:13,360
have a very busy few weeks ahead with a