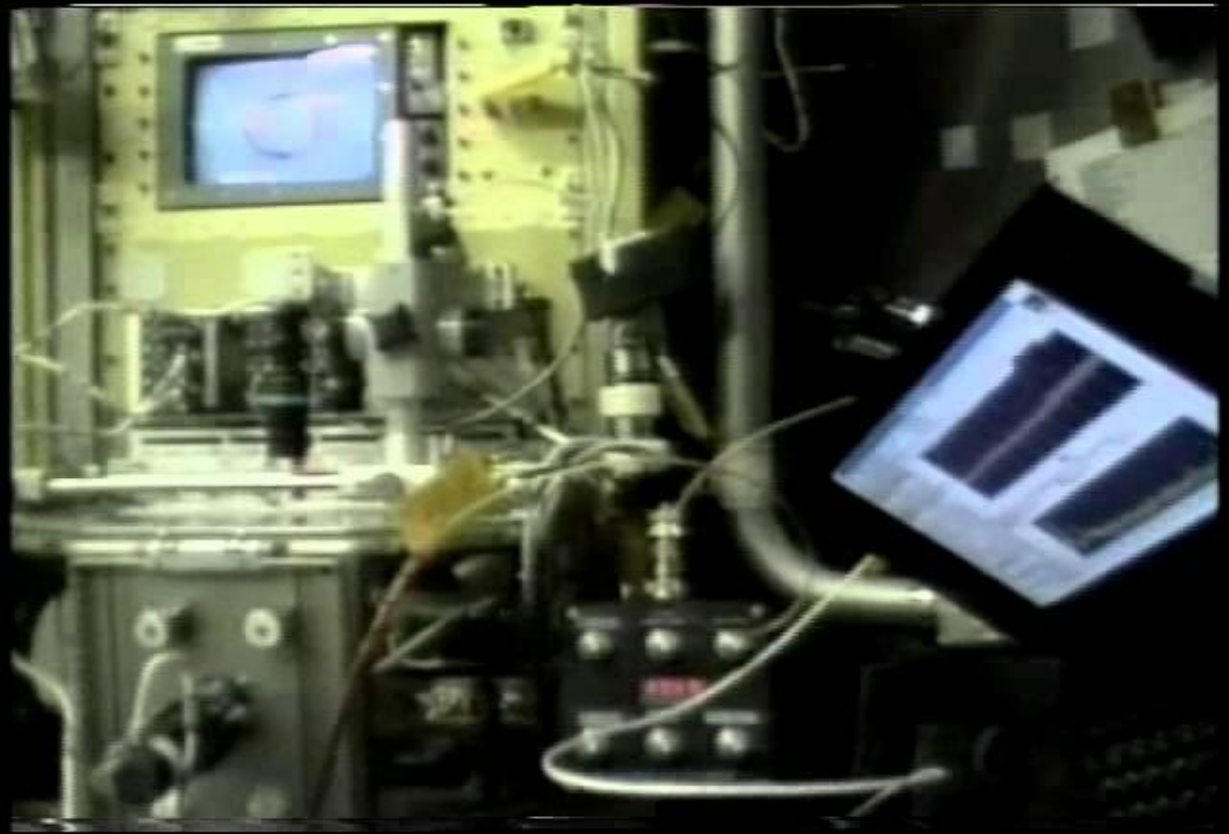

1
00:00:00,000 --> 00:01:04,649
I

2
00:01:14,530 --> 00:01:08,890
okay at zero hour 45 minutes that test

3
00:01:17,950 --> 00:01:14,540
point should be Delta 10 2015 Charlie

4
00:01:22,120 --> 00:01:17,960
you do not need an f4 and you need to

5
00:01:36,150 --> 00:01:22,130
start at hotels for which is on page 9

6
00:01:44,710 --> 00:01:39,310
okay copy that i'll be doing this point

7
00:01:48,700 --> 00:01:44,720
Delta when 0 2015 Charlie I do not need

8
00:01:53,460 --> 00:01:48,710
an f4 I'll start with step hotel got

9
00:01:55,480 --> 00:01:53,470
four and i'll be using in the fifth way

10
00:01:57,969 --> 00:01:55,490
that's good copy and i have the

11
00:02:01,960 --> 00:01:57,979
information for the one at one hour 23

12
00:02:14,980 --> 00:02:01,970
minutes hey we got a big crowd watching

13
00:02:55,010 --> 00:02:17,020

and we got a big crowd down here

14
00:03:03,860 --> 00:02:57,990
there's a chance to change your mind

15
00:03:03,870 --> 00:03:18,570
not a problem

16
00:03:18,580 --> 00:03:56,580
you

17
00:04:02,470 --> 00:03:59,020
and we worked a little bit together that

18
00:04:06,000 --> 00:04:02,480
pull it apart the face connector has

19
00:04:09,370 --> 00:04:06,010
some robots on so it's a real tight fit

20
00:04:13,300 --> 00:04:09,380
like a paper thin gap it's just not

21
00:04:16,030 --> 00:04:13,310
quite perfectly such as far down we can

22
00:04:23,200 --> 00:04:16,040
get it is it okay to just leave it like

23
00:04:58,810 --> 00:04:23,210
that see how it goes yes tht says that

24
00:05:05,240 --> 00:05:01,249
this is not Thomas looking out an

25
00:05:07,909 --> 00:05:05,250
experiment called the bubble PD bubble

26
00:05:10,700 --> 00:05:07,919
drops and nonlinear dynamics is what

27
00:05:12,439 --> 00:05:10,710
we're looking at here are levitating a

28
00:05:14,570 --> 00:05:12,449
drop in an acoustic wave and then

29
00:05:16,640 --> 00:05:14,580
exciting that with another sound wave

30
00:05:18,890 --> 00:05:16,650
and watching the decay of the vibrations

31
00:05:21,050 --> 00:05:18,900
as we go along you can see the bubble

32
00:05:26,120 --> 00:05:21,060
under between the drop on the TV screen

33
00:05:27,860 --> 00:05:26,130
there and you can see it vibrating a

34
00:05:31,760 --> 00:05:27,870
little bit the vibrations are being

35
00:05:34,550 --> 00:05:31,770
induced bass sonic waves or sound waves

36
00:05:37,460 --> 00:05:34,560
and there's a computer over to guns

37
00:05:40,520 --> 00:05:37,470
right there paying around fantasy and on

38
00:05:42,469 --> 00:05:40,530

that computer you can see what will look

39
00:05:45,830 --> 00:05:42,479
like fennel sort of waves or ways their

40
00:05:50,180 --> 00:05:45,840
regular oscillations and this is done

41
00:05:52,520 --> 00:05:50,190
recording the data and helping the ptsc

42
00:05:56,150 --> 00:05:52,530
to record that day for the PM when we

43
00:05:57,920 --> 00:05:56,160
return we have a large number of

44
00:06:00,320 --> 00:05:57,930
combustion experiments onboard this is

45
00:06:02,990 --> 00:06:00,330
one of our experiments that sitting

46
00:06:05,540 --> 00:06:03,000
house it is formed this is a abilene

47
00:06:07,189 --> 00:06:05,550
flame burning you can see those the

48
00:06:09,230 --> 00:06:07,199
flame in the top of the minor in the

49
00:06:10,610 --> 00:06:09,240
center there redmond terrace was so

50
00:06:12,320 --> 00:06:10,620
interested in watching this stuff he

51
00:06:14,450 --> 00:06:12,330
came back to come get ready to go to bed

52
00:06:15,980 --> 00:06:14,460
needs hang in there helping me he's

53
00:06:17,570 --> 00:06:15,990
upside down because that's actually the

54
00:06:19,219 --> 00:06:17,580
orientation of the flame the flame burns

55
00:06:20,570 --> 00:06:19,229
from the top of Andhra now so he gets a

56
00:06:23,360 --> 00:06:20,580
better view of it that way and he and I

57
00:06:24,890 --> 00:06:23,370
are defaulting on the safe of the flame

58
00:06:27,110 --> 00:06:24,900
we do have some adjustments on board

59
00:06:32,120 --> 00:06:27,120
that can that it's real time adjust how

60
00:06:34,249 --> 00:06:32,130
that flame burn okay I guess I'll talk

61
00:06:37,430 --> 00:06:34,259
about this one that is Greg les terres

62
00:06:40,550 --> 00:06:37,440
yes to demonstrate how you wash your

63
00:06:42,830 --> 00:06:40,560

carrots the face and when he had their

64
00:06:44,620 --> 00:06:42,840
this hand is what we call Ritz free

65
00:06:47,420 --> 00:06:44,630
shampoo it actually works very well

66
00:06:50,899 --> 00:06:47,430
everybody has different style Greg likes

67
00:06:53,240 --> 00:06:50,909
to heat up water in the galley as you

68
00:06:55,490 --> 00:06:53,250
see him holding the water there and he

69
00:06:59,300 --> 00:06:55,500
puts the water to find that winter winds

70
00:07:01,279 --> 00:06:59,310
free shampoo and on earth water would

71
00:07:02,930 --> 00:07:01,289
run down your face it be a real mass but

72
00:07:05,629 --> 00:07:02,940
in space because there's no gravity it

73
00:07:08,170 --> 00:07:05,639
just kind of hang build your hair see if

74
00:07:12,050 --> 00:07:08,180
using the towel there to tell it off

75
00:07:13,460 --> 00:07:12,060
these towels are sort of lint free time

76
00:07:18,290 --> 00:07:13,470
they're not all that great at absorbing

77
00:07:20,659 --> 00:07:18,300
the water and over to Roger and as

78
00:07:23,180 --> 00:07:20,669
astronauts now but other people may not

79
00:07:25,129 --> 00:07:23,190
know so much they do a lot for family

80
00:07:27,170 --> 00:07:25,139
support while the crews appear on orbit

81
00:07:30,320 --> 00:07:27,180
this is an example of big talking on the

82
00:07:32,710 --> 00:07:30,330
shuttle amateur radio experiment to my

83
00:07:35,840 --> 00:07:32,720
mother displaying I've got to wish her a

84
00:07:37,940 --> 00:07:35,850
happy fourth of July and their family

85
00:07:39,350 --> 00:07:37,950
reunion today she's going to so that was

86
00:07:41,210 --> 00:07:39,360
a real opportunity for me to have a

87
00:07:46,820 --> 00:07:41,220
contact with the family back home well

88
00:07:49,790 --> 00:07:46,830

from up here okay this is me record some

89
00:07:52,100 --> 00:07:49,800
data on the Astro pcba experiment and

90
00:07:54,440 --> 00:07:52,110
this is basically a small greenhouse

91
00:07:56,300 --> 00:07:54,450
that we fly in space to grow plants and

92
00:07:58,659 --> 00:07:56,310
there's a couple reasons scientists are

93
00:08:02,090 --> 00:07:58,669
into that one is that an understanding

94
00:08:03,830 --> 00:08:02,100
plant growth without gravity they can

95
00:08:06,530 --> 00:08:03,840
better understand the physiology of

96
00:08:09,080 --> 00:08:06,540
plants that could help improve plant

97
00:08:10,700 --> 00:08:09,090
production on earth the other reason is

98
00:08:12,200 --> 00:08:10,710
that eventually as we do longer missions

99
00:08:15,080 --> 00:08:12,210
and suppose we're going to have to grow

100
00:08:16,850 --> 00:08:15,090
plan to take our food with us the other

101
00:08:19,250 --> 00:08:16,860
anything about this experiment is it

102
00:08:22,430 --> 00:08:19,260
involves the Express rack which is a

103
00:08:24,469 --> 00:08:22,440
modular rack system that will use to

104
00:08:26,450 --> 00:08:24,479
change that experiments on space station

105
00:08:28,190 --> 00:08:26,460
this is our chance to prototype that and

106
00:08:31,340 --> 00:08:28,200
figure out how well it works before we

107
00:08:33,110 --> 00:08:31,350
light on Space Station actually officers

108
00:08:35,390 --> 00:08:33,120
that don took that experiment for the

109
00:08:37,760 --> 00:08:35,400
big deck and transferred it back to the

110
00:08:39,079 --> 00:08:37,770
space lab in this raft if you would

111
00:08:40,700 --> 00:08:39,089
accidentally cut yourself in

112
00:08:42,770 --> 00:08:40,710
microgravity with your blood clot like

113
00:08:46,190 --> 00:08:42,780

it does here on earth and you may be

114
00:08:47,480 --> 00:08:46,200
aware Wes that we do studying in system

115
00:08:48,620 --> 00:08:47,490
up here there's some data that shows

116
00:08:50,630 --> 00:08:48,630
immune system works a little bit

117
00:08:52,220 --> 00:08:50,640
differently in space but the climbing

118
00:08:54,200 --> 00:08:52,230
system as far as we know works exactly

119
00:08:55,550 --> 00:08:54,210
the same way and certainly let me get

120
00:08:57,110 --> 00:08:55,560
minor cut to they actually in fact

121
00:08:59,240 --> 00:08:57,120
currently have on this finger right now

122
00:09:01,010 --> 00:08:59,250
yeah they caught up just find a normally

123
00:09:03,170 --> 00:09:01,020
though I think it is a little different

124
00:09:05,300 --> 00:09:03,180
in space that I've noticed over my four

125
00:09:07,310 --> 00:09:05,310
flights is that you don't have your hand

126
00:09:09,050 --> 00:09:07,320
in and out of water all the time so

127
00:09:10,579 --> 00:09:09,060
sometimes the cuts don't heal quite as

128
00:09:12,230 --> 00:09:10,589
fast because it's harder to keep them

129
00:09:14,030 --> 00:09:12,240
clean you don't realize how much

130
00:09:15,199 --> 00:09:14,040
cleaning you get by accident on the

131
00:09:20,720 --> 00:09:15,209
ground that you don't get up here in

132
00:09:25,949 --> 00:09:22,920
okay I guess I didn't that's a question

133
00:09:27,299 --> 00:09:25,959
this says that at it that this is the

134
00:09:29,040 --> 00:09:27,309
first time that we've taken internet

135
00:09:31,949 --> 00:09:29,050
questions on the computer so I'm looking

136
00:09:34,049 --> 00:09:31,959
across the cockpit at the at the

137
00:09:38,359 --> 00:09:34,059
computer screen and this one is from Jim

138
00:09:41,069 --> 00:09:38,369

roach from Jerry north phila and he asks

139
00:09:43,429 --> 00:09:41,079
being in a controlled environment for a

140
00:09:46,650 --> 00:09:43,439
long period of time increasing

141
00:09:49,169 --> 00:09:46,660
percentage of inhaled oxygen do you

142
00:09:52,109 --> 00:09:49,179
periodically run blood gases on the crew

143
00:09:54,809 --> 00:09:52,119
to determine if they are made any proper

144
00:09:56,280 --> 00:09:54,819
oxygen saturation levels in the answer

145
00:09:59,069 --> 00:09:56,290
to that is that we don't do that

146
00:10:02,309 --> 00:09:59,079
routinely however on my first mission

147
00:10:04,590 --> 00:10:02,319
there was some concern from data from

148
00:10:07,859 --> 00:10:04,600
the Russians that's our hemoglobin

149
00:10:10,739 --> 00:10:07,869
oxygen saturation decreased following

150
00:10:13,049 --> 00:10:10,749
spacewalk and we did a space watch and

151
00:10:14,910 --> 00:10:13,059
we carry dispenser instruments that we

152
00:10:17,759 --> 00:10:14,920
used as soon as we came back in the

153
00:10:20,389 --> 00:10:17,769
spacecraft and we determined that we

154
00:10:23,699 --> 00:10:20,399
basically had 96 to ninety-eight percent

155
00:10:29,009 --> 00:10:23,709
hemoglobin oxygen saturation is so that

156
00:10:32,400 --> 00:10:29,019
answers that question Rogers got answers

157
00:10:34,889 --> 00:10:32,410
from Zachary S in Florida question has

158
00:10:37,679 --> 00:10:34,899
new questions how does it feel to be in

159
00:10:41,970 --> 00:10:37,689
zero g and you have a fireproof room to

160
00:10:43,590 --> 00:10:41,980
these experiments I think the answer to

161
00:10:45,600 --> 00:10:43,600
the first question van how does it feel

162
00:10:47,910 --> 00:10:45,610
to be in zero g depends on what day you

163
00:10:49,259 --> 00:10:47,920

asked me that question the first day

164
00:10:50,759 --> 00:10:49,269
it's a little bit different than being

165
00:10:53,189 --> 00:10:50,769
down on the ground but the more days

166
00:10:55,619 --> 00:10:53,199
you're up here the better it is and that

167
00:10:57,179 --> 00:10:55,629
its worst it's absolutely fantastic it's

168
00:10:59,400 --> 00:10:57,189
almost like being in a swimming pool

169
00:11:01,230 --> 00:10:59,410
with no friction you're on one side you

170
00:11:03,179 --> 00:11:01,240
push off and your glide completely to

171
00:11:05,220 --> 00:11:03,189
the other end of the pool and that was

172
00:11:07,079 --> 00:11:05,230
always a desire and the race we used to

173
00:11:08,970 --> 00:11:07,089
have when I was a child to see how far

174
00:11:11,910 --> 00:11:08,980
we took gliding up here you could glide

175
00:11:13,650 --> 00:11:11,920
on forever almost it sink the second

176
00:11:16,049 --> 00:11:13,660
question is do we have a fireproof room

177
00:11:18,359 --> 00:11:16,059
for the start of experiments and they

178
00:11:21,359 --> 00:11:18,369
answer it it's not really a rim it's a

179
00:11:23,069 --> 00:11:21,369
small chamber it's about it eight inches

180
00:11:26,840 --> 00:11:23,079
on a side or something in that dimension

181
00:11:30,360 --> 00:11:26,850
about a 8-inch cylinder and it's

182
00:11:32,220 --> 00:11:30,370
surrounded by another layer of Steel

183
00:11:34,680 --> 00:11:32,230
there's no danger of an explosion at

184
00:11:36,630 --> 00:11:34,690
worst and so it's absolutely safe and

185
00:11:38,340 --> 00:11:36,640
the spiders are really small in any case

186
00:11:51,780 --> 00:11:38,350
so there's not any real danger to these

187
00:11:53,640 --> 00:11:51,790
things at all and Roger if you could if

188
00:11:54,990 --> 00:11:53,650

we are getting some reflection and it's