1
00:00:58,780 --> 00:00:55,630
discovery kick off yes Kurt sorry to

2
00:01:00,670 --> 00:00:58,790
wake up we we have a bit of a payload

3
00:01:04,390 --> 00:01:00,680
problem at this point the orbiters in

4
00:01:07,420 --> 00:01:04,400
fine shape the problem basically is that

5
00:01:12,070 --> 00:01:07,430
we've lost our command capability to the

6
00:01:16,090 --> 00:01:12,080
payloads on the taz hitchhiker and we're

7
00:01:21,070 --> 00:01:16,100
losing quite a bit of science on the Taz

8
00:01:24,880 --> 00:01:21,080
and the I eh hitchhikers and as well the

9
00:01:26,859 --> 00:01:24,890
SLA the laser that's on the test is on

10
00:01:30,190 --> 00:01:26,869
at this point and we have no way of

11
00:01:33,760 --> 00:01:30,200
turning it off and so we had some steps

12
00:01:36,460 --> 00:01:33,770
for you to perform we'd like to to try

13
00:01:39,730 --> 00:01:36,470

those out and and they'll only take a

14
00:01:42,670 --> 00:01:39,740
couple of minutes we think maybe there's

15
00:01:46,090 --> 00:01:42,680
a possibility that on the task payload

16
00:01:48,910 --> 00:01:46,100
the master control unit has locked up so

17
00:01:51,850 --> 00:01:48,920
we'd like to reset it and we have some

18
00:01:55,750 --> 00:01:51,860
switch throws and checks for you on the

19
00:02:02,350 --> 00:01:55,760
SSP the task portion of the SSP on l12

20
00:02:05,020 --> 00:02:02,360
when you're ready hey Park we have a

21
00:02:06,880 --> 00:02:05,030
buffer call our 4-pole call back copy

22
00:02:08,680 --> 00:02:06,890
Kurt now the ground is going to quickly

23
00:02:10,630 --> 00:02:08,690
look to make sure that everything is

24
00:02:13,090 --> 00:02:10,640
powered off and we're going to call you

25
00:02:18,520 --> 00:02:13,100
back in a second standby to power it

26
00:02:21,550 --> 00:02:18,530
back on discovery Houston for Kurt were

27
00:02:23,890 --> 00:02:21,560
ready to power back up the first switch

28
00:02:25,810 --> 00:02:23,900
that we would like you the first and

29
00:02:28,890 --> 00:02:25,820
only switch is we'd like you to take the

30
00:02:31,360 --> 00:02:28,900
Taz avionics power switch back to on

31
00:02:36,520 --> 00:02:31,370
hold it for about three seconds until

32
00:02:42,360 --> 00:02:36,530
you get the talk back up indication okay

33
00:02:47,080 --> 00:02:44,890
discovery Houston it looks like that

34
00:02:49,750 --> 00:02:47,090
worked occurred we really appreciate

35
00:02:51,220 --> 00:02:49,760
your getting up to help us with that and

36
00:02:56,830 --> 00:02:51,230
there's no further action at this time

37
00:02:59,050 --> 00:02:56,840
and we'll see you at wake up ok mark

38
00:03:02,440 --> 00:02:59,060

good does that mean that the looks like

39
00:03:05,440 --> 00:03:02,450
i have commanding back we have only

40
00:03:07,569 --> 00:03:05,450
checked the telemetry side and we'll

41
00:03:10,210 --> 00:03:07,579
have to check the command side it'll

42
00:03:11,530 --> 00:03:10,220
take a little bit of time and if we're

43
00:03:17,559 --> 00:03:11,540
not successful will have no further

44
00:03:19,680 --> 00:03:17,569
actions either way until tomorrow ok but

45
00:03:44,720 --> 00:03:19,690
no probably though we were up here to

46
00:03:44,730 --> 00:04:01,720
are you

47
00:04:14,180 --> 00:04:04,850
the more

48
00:04:14,190 --> 00:04:18,740
Oh

49
00:04:18,750 --> 00:04:26,800
my

50
00:04:26,810 --> 00:04:32,629
Oh

51
00:04:32,639 --> 00:04:48,350
you

52
00:04:48,360 --> 00:04:55,970
only one for me

53
00:04:55,980 --> 00:05:08,860
Oh

54
00:05:13,850 --> 00:05:12,170
and goodmorning discovery chances are

55
00:05:18,470 --> 00:05:13,860
Beamer knows where we got that song from

56
00:06:05,080 --> 00:05:18,480
a good morning Houston thanks for the

57
00:06:09,410 --> 00:06:07,730
and we're getting you loud and clear I

58
00:06:13,490 --> 00:06:09,420
assume at this point we're talking to

59
00:06:15,290 --> 00:06:13,500
mission specialists of Bob Curbeam yes

60
00:06:17,150 --> 00:06:15,300
I'm speaking to you from the mid deck of

61
00:06:19,580 --> 00:06:17,160
the space shuttle Discovery we just

62
00:06:21,080 --> 00:06:19,590
passed over Sri Lanka and going towards

63
00:06:22,910 --> 00:06:21,090

the western coast of Australia

64
00:06:25,490 --> 00:06:22,920
lieutenant commander Bob curbing we

65
00:06:27,650 --> 00:06:25,500
welcome you to kmox this morning you are

66
00:06:32,060 --> 00:06:27,660
how far into the mission so far on board

67
00:06:35,690 --> 00:06:32,070
discovery we're probably five days into

68
00:06:37,700 --> 00:06:35,700
an 11-day mission Bob how are the other

69
00:06:39,920 --> 00:06:37,710
experiments going you're you're working

70
00:06:41,540 --> 00:06:39,930
with with the space armed with robotic

71
00:06:45,950 --> 00:06:41,550
arm on board the shuttle how are those

72
00:06:49,430 --> 00:06:45,960
experiments going mostly experiments are

73
00:06:50,960 --> 00:06:49,440
going quite well I believe we have like

74
00:06:52,820 --> 00:06:50,970
you said quite a few experiments the

75
00:06:54,680 --> 00:06:52,830
robotic arm we did some work on that

76
00:06:56,660 --> 00:06:54,690
this morning Stephen Jan were quite

77
00:06:59,090 --> 00:06:56,670
pleased with all out wet and we also

78
00:07:01,880 --> 00:06:59,100
have a bunch of other experiments look

79
00:07:04,160 --> 00:07:01,890
at hale bob but comment and various

80
00:07:05,720 --> 00:07:04,170
solar system you know a celestial

81
00:07:07,910 --> 00:07:05,730
objects at odds with in the solar system

82
00:07:09,680 --> 00:07:07,920
and all those are going well as well Bob

83
00:07:11,660 --> 00:07:09,690
this is this mission the 11-day mission

84
00:07:13,520 --> 00:07:11,670
of the discovery has international

85
00:07:14,780 --> 00:07:13,530
significance from the standpoint of some

86
00:07:16,640 --> 00:07:14,790
of the things you're doing let's talk

87
00:07:18,260 --> 00:07:16,650
about the role other countries are

88
00:07:22,970 --> 00:07:18,270

playing at what you're doing in space

89
00:07:25,120 --> 00:07:22,980
right now actually you're right a fairly

90
00:07:27,740 --> 00:07:25,130
international mission we have

91
00:07:29,330 --> 00:07:27,750
experiments all over the world we have

92
00:07:32,270 --> 00:07:29,340
an experiment from the University of

93
00:07:34,610 --> 00:07:32,280
trans in Italy we have soul Khan from

94
00:07:36,650 --> 00:07:34,620
the University of Belgium we have very

95
00:07:39,350 --> 00:07:36,660
various universities the United States

96
00:07:41,480 --> 00:07:39,360
contributing their experiments here as

97
00:07:44,450 --> 00:07:41,490
well university of southern california

98
00:07:49,190 --> 00:07:44,460
university of colorado and several of

99
00:07:51,260 --> 00:07:49,200
the nasa centers like aims and also

100
00:07:52,970 --> 00:07:51,270
goddard and of course Johnson and

101
00:07:54,950 --> 00:07:52,980
Kennedy participating so this is a

102
00:07:57,020 --> 00:07:54,960
worldwide event and we're just happy to

103
00:07:59,930 --> 00:07:57,030
be a part of it and the satellite that

104
00:08:02,210 --> 00:07:59,940
is gathering the ozone data is built in

105
00:08:03,980 --> 00:08:02,220
Germany tell me about your hope you and

106
00:08:06,170 --> 00:08:03,990
your fellow astronauts for what you are

107
00:08:08,180 --> 00:08:06,180
going to learn on this mission about the

108
00:08:12,790 --> 00:08:08,190
ozone layer and what we might be able to

109
00:08:17,239 --> 00:08:15,200
relatively unique in that not only can

110
00:08:19,519 --> 00:08:17,249
it look at the ozone

111
00:08:21,949 --> 00:08:19,529
layer and look at where we're depleting

112
00:08:23,419 --> 00:08:21,959
it and where we're not where it seems to

113
00:08:24,769 --> 00:08:23,429

be holding up but it can look at all the

114
00:08:27,499 --> 00:08:24,779
constituents of the middle atmosphere

115
00:08:29,869 --> 00:08:27,509
all the significant form and by doing

116
00:08:31,579 --> 00:08:29,879
that and tracking where we see the

117
00:08:34,069 --> 00:08:31,589
different constituents we can tell more

118
00:08:38,029 --> 00:08:34,079
about the upper wind patterns of weather

119
00:08:40,909 --> 00:08:38,039
and basically we can hopefully predict

120
00:08:43,819 --> 00:08:40,919
how that upper atmosphere change and how

121
00:08:45,740 --> 00:08:43,829
long the ozone hold out in different

122
00:08:48,139 --> 00:08:45,750
areas and hopefully it'll hold out for a

123
00:08:49,999 --> 00:08:48,149
very long time Bob you bear the title of

124
00:08:51,439 --> 00:08:50,009
mission specialist with that title what

125
00:08:55,730 --> 00:08:51,449
is your role what are you responsible

126
00:08:58,249 --> 00:08:55,740
for actually I'm mission specialist to

127
00:09:00,259 --> 00:08:58,259
I'm a flight engineer so I fly do both

128
00:09:02,509 --> 00:09:00,269
asset an entry up on a flight tank so it

129
00:09:04,009 --> 00:09:02,519
involves a lot of helping the commander

130
00:09:07,249 --> 00:09:04,019
and the pilot power of the shuttle and

131
00:09:10,809 --> 00:09:07,259
making sure those phases of flight go

132
00:09:13,579 --> 00:09:10,819
well but also I do a lot of the

133
00:09:15,799 --> 00:09:13,589
environmental jobs around the shuttle

134
00:09:19,040 --> 00:09:15,809
making sure the air scrubbers work fine

135
00:09:21,110 --> 00:09:19,050
to take up carbon dioxide I also do i'm

136
00:09:23,389 --> 00:09:21,120
in charge of several the experiments

137
00:09:25,369 --> 00:09:23,399
that are going on like the bioreactor

138
00:09:27,079 --> 00:09:25,379

experiment where I'm growing a colon

139
00:09:29,329 --> 00:09:27,089
cancer cells to learn more about how

140
00:09:31,879 --> 00:09:29,339
they grow and hopefully how to stop them

141
00:09:33,710 --> 00:09:31,889
from growing and a lot of the

142
00:09:36,110 --> 00:09:33,720
experiments in the payload Bay that are

143
00:09:37,970 --> 00:09:36,120
looking at Jupiter that's on the Earth's

144
00:09:40,129 --> 00:09:37,980
atmosphere and also doing some laser

145
00:09:42,049 --> 00:09:40,139
mapping of the earth Bob you mentioned a

146
00:09:44,569 --> 00:09:42,059
little bit ago about an experiment to

147
00:09:47,030 --> 00:09:44,579
observe the hale-bopp comet that so many

148
00:09:48,949 --> 00:09:47,040
of us saw from afar when it passed by

149
00:09:50,600 --> 00:09:48,959
the earth a couple of months ago what

150
00:09:54,559 --> 00:09:50,610
are you hoping to see and to learn about

151
00:09:56,360 --> 00:09:54,569
hale-bopp well the big advantage of

152
00:09:58,400 --> 00:09:56,370
being up here in two phases if you don't

153
00:10:00,799 --> 00:09:58,410
have the atmosphere attenuating a lot of

154
00:10:02,540 --> 00:10:00,809
the light then hale-bopp is getting off

155
00:10:04,460 --> 00:10:02,550
so it's a little bit clearer in

156
00:10:06,379 --> 00:10:04,470
different frequencies as far as

157
00:10:08,480 --> 00:10:06,389
especially frequency that we can't see

158
00:10:10,850 --> 00:10:08,490
with the naked eye so by being up here

159
00:10:13,699 --> 00:10:10,860
we can look at the difference what we

160
00:10:15,920 --> 00:10:13,709
call spectral lines of the comet is

161
00:10:17,480 --> 00:10:15,930
giving off and tell more about what it

162
00:10:19,040 --> 00:10:17,490
consists of what kind of training

163
00:10:20,809 --> 00:10:19,050

elements are in it and hopefully learn

164
00:10:23,059 --> 00:10:20,819
more about the formation of our own

165
00:10:25,819 --> 00:10:23,069
solar system because comets are

166
00:10:28,519 --> 00:10:25,829
considered some of the remnants of the

167
00:10:30,230 --> 00:10:28,529
original formation oh is it Bob you have

168
00:10:31,180 --> 00:10:30,240
you're married you have a couple of

169
00:10:32,890 --> 00:10:31,190
children

170
00:10:35,800 --> 00:10:32,900
since this is your first mission how do

171
00:10:40,270 --> 00:10:35,810
you prepare them for 11 days away in

172
00:10:42,400 --> 00:10:40,280
space on board the discovery well I'm

173
00:10:44,620 --> 00:10:42,410
being in the Navy my wife i think is

174
00:10:47,200 --> 00:10:44,630
because I'm in the Navy my wife

175
00:10:48,820 --> 00:10:47,210
understands that at certain times I have

176
00:10:50,080 --> 00:10:48,830
to be separated for my family but it's

177
00:10:52,420 --> 00:10:50,090
of course it's a little more difficult

178
00:10:54,430 --> 00:10:52,430
for kids especially since tomorrow's my

179
00:10:56,050 --> 00:10:54,440
daughter's birthday and I won't be able

180
00:10:59,890 --> 00:10:56,060
to say happy birthday to her tomorrow

181
00:11:01,780 --> 00:10:59,900
I'll said now happy birthday and so it's

182
00:11:03,370 --> 00:11:01,790
a little more difficult for them and

183
00:11:06,220 --> 00:11:03,380
they don't understand why dad has to

184
00:11:08,980 --> 00:11:06,230
leave for two weeks all the time but I

185
00:11:11,560 --> 00:11:08,990
think that by preparing them for talking

186
00:11:13,510 --> 00:11:11,570
to him a lot beforehand and explain to

187
00:11:15,850 --> 00:11:13,520
them just how important the missions

188
00:11:17,950 --> 00:11:15,860

that we go on our they're much more

189
00:11:19,840 --> 00:11:17,960
accepting of it and they know that what

190
00:11:21,310 --> 00:11:19,850
a fun before the mission me I think they

191
00:11:24,940 --> 00:11:21,320
enjoyed the launch and we have a whole

192
00:11:27,760 --> 00:11:24,950
lot of thought after it to my name is

193
00:11:31,000 --> 00:11:27,770
Amanda go Brent I am in grade 12 at

194
00:11:32,740 --> 00:11:31,010
Walter Murray in Saskatoon be Arnie we

195
00:11:35,110 --> 00:11:32,750
know that one of the programs you have

196
00:11:37,060 --> 00:11:35,120
been working on for a long time is

197
00:11:42,450 --> 00:11:37,070
aboard the space shuttle with you is

198
00:11:47,200 --> 00:11:44,890
never see it here at the lower part of

199
00:11:50,350 --> 00:11:47,210
the view here is right beside me to buy

200
00:11:52,330 --> 00:11:50,360
to my left ear and then it's working

201
00:11:53,800 --> 00:11:52,340
very fine we've turned about the first

202
00:11:56,320 --> 00:11:53,810
day of the flight that's been operating

203
00:11:58,630 --> 00:11:56,330
well in the last four days and if I do

204
00:11:59,590 --> 00:11:58,640
it now it's doing some analysis I don't

205
00:12:01,450 --> 00:11:59,600
know whether you can see the middle

206
00:12:04,470 --> 00:12:01,460
screen beside me here they're looking

207
00:12:07,330 --> 00:12:04,480
very well we've got good good isolation

208
00:12:09,370 --> 00:12:07,340
somebody says we've tried on and haven't

209
00:12:10,900 --> 00:12:09,380
worked as well as we'd like but as part

210
00:12:14,610 --> 00:12:10,910
of the experiment that we're doing with

211
00:12:20,440 --> 00:12:17,590
my name is Heather pond I am in grade 11

212
00:12:25,780 --> 00:12:20,450
backwards in Saskatoon what and how much

213
00:12:27,520 --> 00:12:25,790

of Canada can you see from space I've

214
00:12:29,350 --> 00:12:27,530
been pretty lucky at this mission is a

215
00:12:30,970 --> 00:12:29,360
high inflation orbit so we're going up

216
00:12:32,740 --> 00:12:30,980
to fifty seven and a half degrees which

217
00:12:35,320 --> 00:12:32,750
takes as well north of edmonton and

218
00:12:37,180 --> 00:12:35,330
saskatchewan we have to do that i've had

219
00:12:39,520 --> 00:12:37,190
a beautiful look at that Cooper Calgary

220
00:12:41,230 --> 00:12:39,530
Edmonton Montreal good look at their

221
00:12:43,030 --> 00:12:41,240
maritime so some of the great lasers

222
00:12:44,680 --> 00:12:43,040
been that fabulous to see cabin from up

223
00:12:46,660 --> 00:12:44,690
there

224
00:12:48,700 --> 00:12:46,670
my name is bone and Brooks I'm in grade

225
00:12:57,290 --> 00:12:48,710
nine at Holy Cross High School describe

226
00:13:01,220 --> 00:12:59,990
yeah the number of shuttle launches or

227
00:13:02,720 --> 00:13:01,230
the past few years they're pretty

228
00:13:04,940 --> 00:13:02,730
spectacular when you look at them from

229
00:13:07,790 --> 00:13:04,950
the ground but being inside is a very

230
00:13:09,259 --> 00:13:07,800
unique unique experience you know you

231
00:13:10,940 --> 00:13:09,269
wait their anticipation on the launch

232
00:13:13,490 --> 00:13:10,950
pad as you come to the last few minutes

233
00:13:15,740 --> 00:13:13,500
of Lawrence and then you finally feel

234
00:13:17,870 --> 00:13:15,750
the kick of the main engines coming on

235
00:13:19,699 --> 00:13:17,880
and the shuttle sort of pictures board a

236
00:13:21,889 --> 00:13:19,709
bit and sprays back and then you get

237
00:13:23,720 --> 00:13:21,899
this those kicking your back when the

238
00:13:26,150 --> 00:13:23,730

solids come on and actually just stays

239
00:13:28,759 --> 00:13:26,160
and propels you upwards as credit

240
00:13:30,290 --> 00:13:28,769
sensation is a lot of vibration they

241
00:13:32,000 --> 00:13:30,300
last for a couple of minutes and then

242
00:13:34,610 --> 00:13:32,010
those followers are off and then you get

243
00:13:37,040 --> 00:13:34,620
a steady clean push it just keeps

244
00:13:39,230 --> 00:13:37,050
pushing your armors into space and it

245
00:13:41,240 --> 00:13:39,240
builds up to about 3 g's after about six

246
00:13:42,530 --> 00:13:41,250
minutes and by then there be this a

247
00:13:44,269 --> 00:13:42,540
little bit labor because you've been

248
00:13:47,420 --> 00:13:44,279
under this G load for a long time but

249
00:13:50,690 --> 00:13:47,430
it's it's quite an exciting ride it went

250
00:13:52,310 --> 00:13:50,700
a lot faster than I expected and and it

251
00:13:54,530 --> 00:13:52,320
was a little smoother than I expected as

252
00:13:57,980 --> 00:13:54,540
well was that just an incredible ride up

253
00:14:00,470 --> 00:13:57,990
in this space and go so fast my name is

254
00:14:03,319 --> 00:14:00,480
Nicola Skinner I'm grade 9 a toy Cross

255
00:14:06,590 --> 00:14:03,329
High School in Saskatoon beyond my

256
00:14:09,139 --> 00:14:06,600
question for you is this have you or any

257
00:14:12,440 --> 00:14:09,149
members of the crew experienced space

258
00:14:14,930 --> 00:14:12,450
motion sickness or back pain and if so

259
00:14:20,600 --> 00:14:14,940
how is this affected what you have been

260
00:14:23,300 --> 00:14:20,610
able to accomplish well back pay and

261
00:14:25,130 --> 00:14:23,310
invoices sigmas are pretty common up

262
00:14:27,319 --> 00:14:25,140
here monsters crew has been pretty good

263
00:14:29,240 --> 00:14:27,329

I was green and the second day of the

264
00:14:32,510 --> 00:14:29,250
flight but I managed to do all of my

265
00:14:35,120 --> 00:14:32,520
work and and after a couple of days

266
00:14:36,740 --> 00:14:35,130
everybody's just fine I back pain is

267
00:14:39,019 --> 00:14:36,750
something that happens because you're

268
00:14:41,150 --> 00:14:39,029
spying elongates a bit because you're

269
00:14:43,310 --> 00:14:41,160
not under the compression force of

270
00:14:45,019 --> 00:14:43,320
gravity all the time up here so you get

271
00:14:46,550 --> 00:14:45,029
a little bit longer in space and I put

272
00:14:49,069 --> 00:14:46,560
some stretchers or pressure on your

273
00:14:50,780 --> 00:14:49,079
spine and so I've had a little bit of

274
00:14:53,509 --> 00:14:50,790
back pain but not very much not enough