



1
00:01:17,090 --> 00:01:15,260
okay go ahead Brad you like to confirm

2
00:01:26,670 --> 00:01:17,100
whether or not you have gotten to step

3
00:01:38,250 --> 00:01:29,310
I'm in the four minute wait right now on

4
00:01:41,070 --> 00:01:38,260
step 20 but I've closed off the dow copy

5
00:01:44,310 --> 00:01:41,080
and also Roger while you're waiting if

6
00:02:02,040 --> 00:01:44,320
possible we'd like you to square up the

7
00:02:04,290 --> 00:02:02,050
TVC one it got bumped up just want to

8
00:02:05,910 --> 00:02:04,300
verify that is argon and helium

9
00:02:09,359 --> 00:02:05,920
regulators are still in a good position

10
00:02:13,530 --> 00:02:09,369
before I move on to do the GC

11
00:02:28,199 --> 00:02:13,540
calibration affirmative they still look

12
00:02:30,870 --> 00:02:28,209
good hey submental for Greg a farm med

13
00:02:33,660 --> 00:02:30,880

this is the first test point of the

14

00:02:40,500 --> 00:02:33,670

group and you will select calibrate as

15

00:03:01,940 --> 00:02:40,510

well I stand by one please get it to

16

00:03:06,030 --> 00:03:03,930

okay I'm ready to go here I'm going to

17

00:03:09,059 --> 00:03:06,040

just repeat that i'm going to do be sure

18

00:03:10,559 --> 00:03:09,069

we got this clear but i claim within the

19

00:03:12,600 --> 00:03:10,569

field of view of the image I'm going to

20

00:03:15,300 --> 00:03:12,610

prevent it from lifting off if it does

21

00:03:17,790 --> 00:03:15,310

we'll reattach it I'll go slowly and try

22

00:03:24,449 --> 00:03:17,800

and find the smoke point at about six

23

00:04:49,450 --> 00:03:24,459

klicks in either direction that's a good

24

00:04:54,430 --> 00:04:52,749

okay do we go ahead press I think

25

00:04:56,529 --> 00:04:54,440

that'll occur in the middle of the the

26

00:04:58,270 --> 00:04:56,539

videotape of Susan's ifl why don't we go

27

00:05:00,700 --> 00:04:58,280

ahead and start then you'll tell us to

28

00:05:05,260 --> 00:05:00,710

to hold off to pause here at the

29

00:05:07,870 --> 00:05:05,270

appropriate time nope okay we're working

30

00:05:08,950 --> 00:05:07,880

on droplet combustion experiment and one

31

00:05:11,170 --> 00:05:08,960

of the things we have to do on this

32

00:05:14,110 --> 00:05:11,180

experiment is introduced the proper

33

00:05:16,659 --> 00:05:14,120

atmosphere into the test chamber so I've

34

00:05:18,640 --> 00:05:16,669

understood a new bottle and and

35

00:05:22,210 --> 00:05:18,650

installing it into the test chamber here

36

00:05:24,879 --> 00:05:22,220

this we do well several times per day

37

00:05:27,310 --> 00:05:24,889

perhaps and then we get many burns many

38

00:05:28,779 --> 00:05:27,320

droplet burns out of each atmosphere so

39

00:05:32,110 --> 00:05:28,789

that we can test the burning over a

40

00:05:33,820 --> 00:05:32,120

range of conditions here i'm working on

41

00:05:36,310 --> 00:05:33,830

the glovebox experiment this one's

42

00:05:38,890 --> 00:05:36,320

called the CHT which is capillary driven

43

00:05:41,290 --> 00:05:38,900

heat transfer this is an experiment that

44

00:05:43,390 --> 00:05:41,300

comes out of the University of Dayton in

45

00:05:45,240 --> 00:05:43,400

my home state of Ohio and here I'm

46

00:05:48,520 --> 00:05:45,250

taking out a test cell with a

47

00:05:50,110 --> 00:05:48,530

live-action capillary pump loop and what

48

00:05:53,350 --> 00:05:50,120

this is is a closed loop system for

49

00:05:55,149 --> 00:05:53,360

transferring heat and we heat a fluid at

50

00:05:57,460 --> 00:05:55,159

one end of this loop and it transfers

51
00:05:59,560 --> 00:05:57,470
terms of vapor transfers to a cold and

52
00:06:01,330 --> 00:05:59,570
condenses and it's a great way to

53
00:06:02,649 --> 00:06:01,340
transfer heat in space and this is the

54
00:06:04,210 --> 00:06:02,659
kind of technology we need if we're

55
00:06:06,010 --> 00:06:04,220
going to go to Mars because it's

56
00:06:08,110 --> 00:06:06,020
wonderful it has no moving parts to it

57
00:06:09,760 --> 00:06:08,120
and it's got a long life you're

58
00:06:11,800 --> 00:06:09,770
assisting some of the fluid around we

59
00:06:14,649 --> 00:06:11,810
don't have gravity to help get bubbles

60
00:06:16,899 --> 00:06:14,659
out so when above us form we just put a

61
00:06:18,969 --> 00:06:16,909
little centrifugal force on it and move

62
00:06:20,830 --> 00:06:18,979
the bubble that way and here I'm a

63
00:06:23,379 --> 00:06:20,840

marine stalling it in the glove box and

64

00:06:24,700 --> 00:06:23,389

these heat pipes have great application

65

00:06:26,950 --> 00:06:24,710

on the ground its potential for the

66

00:06:28,719 --> 00:06:26,960

future for say getting so the geothermal

67

00:06:30,909 --> 00:06:28,729

heat from the ground and transferring up

68

00:06:33,040 --> 00:06:30,919

to the sidewalks to melt snow for

69

00:06:34,300 --> 00:06:33,050

example in the wintertime or having a

70

00:06:37,379 --> 00:06:34,310

month bridges so that we never have to

71

00:06:40,300 --> 00:06:37,389

worry about ice in the winter time also

72

00:06:42,700 --> 00:06:40,310

this is a procedure called an in-flight

73

00:06:45,370 --> 00:06:42,710

maintenance procedure this is something

74

00:06:47,529 --> 00:06:45,380

that you don't expect to have to do but

75

00:06:50,260 --> 00:06:47,539

if you do the ground will send up a

76

00:06:52,600 --> 00:06:50,270

procedure and in this particular case I

77

00:06:55,870 --> 00:06:52,610

am removing one of the dip lockers from

78

00:06:59,110 --> 00:06:55,880

the mid deck and I'm going to go back to

79

00:07:01,030 --> 00:06:59,120

find the wall and inspect a boat but we

80

00:07:02,620 --> 00:07:01,040

think may have been damaged

81

00:07:03,730 --> 00:07:02,630

then we're not sure and we want to check

82

00:07:06,580 --> 00:07:03,740

it out so we can have the right

83

00:07:09,250 --> 00:07:06,590

configuration on entry so now we have to

84

00:07:11,890 --> 00:07:09,260

work in some tight places here you can

85

00:07:14,920 --> 00:07:11,900

see two bolts side-by-side one from the

86

00:07:17,950 --> 00:07:14,930

locker I just removed and one from the

87

00:07:20,080 --> 00:07:17,960

locker with the problem but he said I'll

88

00:07:23,830 --> 00:07:20,090

get it all in focus and point to the one

89

00:07:26,410 --> 00:07:23,840

that has should have the problem the

90

00:07:28,870 --> 00:07:26,420

lose one is the locker that's out they

91

00:07:32,050 --> 00:07:28,880

not lose what is the locker that's in

92

00:07:41,860 --> 00:07:32,060

and it has been I did loosen the bolt a

93

00:07:43,480 --> 00:07:41,870

couple of turns focus in on the front

94

00:07:45,910 --> 00:07:43,490

part of the vault so you can get a

95

00:07:48,720 --> 00:07:45,920

better look at that there's the front

96

00:07:51,310 --> 00:07:48,730

end of the ball it is very secure in

97

00:07:53,890 --> 00:07:51,320

going man I think all this here are

98

00:07:55,990 --> 00:07:53,900

confident that that boat will work just

99

00:07:58,390 --> 00:07:56,000

fine for entry and hold the locker in

100

00:08:02,410 --> 00:07:58,400

place or after PG bof that's where we

101
00:08:03,790 --> 00:08:02,420
decide to place that experiment okay

102
00:08:05,290 --> 00:08:03,800
well that's today's screw choice down

103
00:08:07,990 --> 00:08:05,300
link once again we'd like to say thanks

104
00:08:09,700 --> 00:08:08,000
to Mission Control we know I said it was

105
00:08:11,290 --> 00:08:09,710
halfway through for the flight crew it's

106
00:08:12,970 --> 00:08:11,300
also halfway through permission control

107
00:08:15,220 --> 00:08:12,980
and haven't been a cat comer understand

108
00:08:18,100 --> 00:08:15,230
how hard y'all have to work for four

109
00:08:19,450 --> 00:08:18,110
long unending hours to make a look this

110
00:08:22,960 --> 00:08:19,460
easy to us so we certainly appreciate

111
00:08:30,250 --> 00:08:22,970
your work we will do it again tomorrow

112
00:08:41,740 --> 00:08:30,260
thanks a lot and Janice I you would try

113
00:08:44,290 --> 00:08:41,750

to give them a call hey your microphone

114

00:08:46,630 --> 00:08:44,300

on PlayStation where would they right

115

00:08:49,450 --> 00:08:46,640

now is I'm enjoying the first cup of tea

116

00:08:51,430 --> 00:08:49,460

I've had in about two months because we

117

00:08:53,900 --> 00:08:51,440

just don't pack the protocol know all of

118

00:08:56,990 --> 00:08:53,910

it but just type of it and we just

119

00:09:07,550 --> 00:08:57,000

screwing baggage and PDA pieces and food

120

00:09:09,980 --> 00:09:07,560

and water all over the place here so

121

00:09:12,710 --> 00:09:09,990

we're professionals right here you got

122

00:09:14,600 --> 00:09:12,720

something well I guess we shall we have

123

00:09:17,900 --> 00:09:14,610

go fresh food when we open up the hatch

124

00:09:21,010 --> 00:09:17,910

that is wonderful fresh air we added

125

00:09:23,960 --> 00:09:21,020

smell like apples but as we've been on

126

00:09:30,110 --> 00:09:23,970

the freakiest babies in a very potter

127

00:09:31,580 --> 00:09:30,120

driver have suffered our boy here Mike

128

00:09:33,050 --> 00:09:31,590

they've added some of the Russian food

129

00:09:35,630 --> 00:09:33,060

for the meal total to the menu and I've

130

00:09:39,800 --> 00:09:35,640

got some corn here it's got interested

131

00:09:41,780 --> 00:09:39,810

koo koo roo sir gosh I've ID'd my cat

132

00:09:43,670 --> 00:09:41,790

new test and it even has it when they

133

00:09:45,440 --> 00:09:43,680

translated a translated 100 milliliters

134

00:09:48,320 --> 00:09:45,450

so we have two submersed here to get it

135

00:09:49,250 --> 00:09:48,330

to work on a galley over well you can

136

00:09:50,990 --> 00:09:49,260

tell they're moving into an

137

00:09:53,630 --> 00:09:51,000

international law because my TV screen

138

00:09:55,580 --> 00:09:53,640

is the pure American brand and then he

139

00:09:57,710 --> 00:09:55,590

comes in ounces and of course we only

140

00:10:04,100 --> 00:09:57,720

use my leaders here silver how many

141

00:10:06,110 --> 00:10:04,110

macias to make the sea with my kid you

142

00:10:07,670 --> 00:10:06,120

get a chance to see help off we've been

143

00:10:09,170 --> 00:10:07,680

looking for them and that you pursue

144

00:10:11,530 --> 00:10:09,180

family have been able to find it as

145

00:10:13,970 --> 00:10:11,540

you've seen in the last couple of days

146

00:10:16,160 --> 00:10:13,980

o- no we have no stealing for a while

147

00:10:19,579 --> 00:10:16,170

back to the city said it was really

148

00:10:21,530 --> 00:10:19,589

great about my months ago I just took

149

00:10:23,269 --> 00:10:21,540

time was running and I've been looking

150

00:10:25,400 --> 00:10:23,279

at the galaxy as the appearance of

151
00:10:27,889 --> 00:10:25,410
essentially guys see where the the big

152
00:10:29,629 --> 00:10:27,899
dust clouds are and super sister for it

153
00:10:31,939 --> 00:10:29,639
and I must say it's a pretty wonderful

154
00:10:33,439 --> 00:10:31,949
thing to look at the galaxy's most

155
00:10:39,110 --> 00:10:33,449
favored I hope you guys are having time

156
00:10:40,999 --> 00:10:39,120
to look out the window their latest Jill

157
00:10:43,069 --> 00:10:41,009
are selling again I had to talk to you a

158
00:10:45,319 --> 00:10:43,079
little bit yes couple of days ago when

159
00:10:48,050 --> 00:10:45,329
we had a massage the contact you have

160
00:10:50,540 --> 00:10:48,060
got some amateur astronomers no more

161
00:10:52,280 --> 00:10:50,550
they're pointing out the Venus said

162
00:10:55,429 --> 00:10:52,290
mercury along with the crescent moon

163
00:10:58,309 --> 00:10:55,439

going down right at sunset and then we

164

00:11:00,319 --> 00:10:58,319

also see Jupiter and I think we're gonna

165

00:11:04,670 --> 00:11:00,329

see all we have that an officer so uh

166

00:11:08,119 --> 00:11:04,680

we're gonna see all that stuff yeah I'm

167

00:11:09,710 --> 00:11:08,129

turning into a star guy myself hi um I'm

168

00:11:13,069 --> 00:11:09,720

hoping to find a start I in this

169

00:11:15,860 --> 00:11:13,079

progress but we go to store has been

170

00:11:17,960 --> 00:11:15,870

enjoying the letters and very special

171

00:11:20,170 --> 00:11:17,970

things with my friends at back homers

172

00:11:23,509 --> 00:11:20,180

and a bunch of other people at work and

173

00:11:25,879 --> 00:11:23,519

I'm afraid now it's too much for

174

00:11:27,010 --> 00:11:25,889

anything gym and poor is it north

175

00:11:29,980 --> 00:11:27,020

through view you know

176

00:11:31,750 --> 00:11:29,990

seen a picture from ours yet nervous on

177

00:11:38,170 --> 00:11:31,760

this spacecraft to see the picture from

178

00:11:40,420 --> 00:11:38,180

ours and i'll show you how hey Mike

179

00:11:43,960 --> 00:11:40,430

that's my girl out here are you doing

180

00:11:45,280 --> 00:11:43,970

buddy oh my vision is fine as I say

181

00:11:48,810 --> 00:11:45,290

we've been unpacking the progress of

182

00:11:54,520 --> 00:11:48,820

ever seeing these pictures from the

183

00:11:56,620 --> 00:11:54,530

animation on Mars oh damn like Mission

184

00:12:00,130 --> 00:11:56,630

Control set an excellent job or keep it

185

00:12:04,180 --> 00:12:00,140

as posted they set us up within probably

186

00:12:06,190 --> 00:12:04,190

half an hour of the landing the still

187

00:12:08,130 --> 00:12:06,200

photos black-and-white photos and then

188

00:12:12,550 --> 00:12:08,140

later that day they sent us out big

189

00:12:15,400 --> 00:12:12,560

video file in color and it showed that

190

00:12:18,700 --> 00:12:15,410

the lander with airbags and the rover

191

00:12:20,230 --> 00:12:18,710

and it's really awesome to look at the

192

00:12:22,270 --> 00:12:20,240

landscape it looks a lot like what you

193

00:12:28,150 --> 00:12:22,280

think it would from the old a Viking

194

00:12:31,720 --> 00:12:28,160

photos and thus I just came by and all

195

00:12:40,840 --> 00:12:31,730

that some special as it can and i think

196

00:12:46,690 --> 00:12:40,850

i was back to say how are you all hello

197

00:12:54,250 --> 00:12:46,700

columbia with a former our crew rig real

198

00:13:01,080 --> 00:12:54,260

space so they attack oh let me eat you

199

00:13:10,269 --> 00:13:01,090

or whatever it is over there and it's

200

00:13:15,429 --> 00:13:13,239

Mike to you and I both your comrades we

201
00:13:17,350 --> 00:13:15,439
want to we want to wish you the very

202
00:13:21,340 --> 00:13:17,360
best I mean now we've been following

203
00:13:22,720 --> 00:13:21,350
your progress and thoughts have been

204
00:13:24,069 --> 00:13:22,730
with you have you because you've dealt

205
00:13:25,929 --> 00:13:24,079
with the bulbs that you had the doubt

206
00:13:27,369 --> 00:13:25,939
you've done just an outstanding job so

207
00:13:29,590 --> 00:13:27,379
we would appreciate it you would pass on

208
00:13:31,210 --> 00:13:29,600
to your crewmates just to tell

209
00:13:35,230 --> 00:13:31,220
magnificent we think they're doing up

210
00:13:37,059 --> 00:13:35,240
there and and and we all look forward to

211
00:13:42,249 --> 00:13:37,069
your return and they'll return later on

212
00:13:44,139 --> 00:13:42,259
here those bill we certainly enjoyed the

213
00:13:45,790 --> 00:13:44,149

opportunity to talk to Mike and police

214

00:13:49,090 --> 00:13:45,800

receives a good spirits thanks for set

215

00:13:51,850 --> 00:13:49,100

that up I it was a pleasure and we sure