



1  
00:00:49,520 --> 00:00:53,270  
so

2  
00:02:19,880 --> 00:01:35,740  
[Music]

3  
00:02:26,130 --> 00:02:21,970  
[Applause]

4  
00:02:31,080 --> 00:02:26,140  
[Music]

5  
00:02:50,560 --> 00:02:31,090  
[Applause]

6  
00:03:59,110 --> 00:03:13,220  
[Music]

7  
00:03:59,120 --> 00:04:04,700  
we discovery our footsteps

8  
00:04:15,509 --> 00:04:13,990  
[Music]

9  
00:04:17,590 --> 00:04:15,519  
good afternoon thank you for joining us

10  
00:04:19,909 --> 00:04:17,600  
here at the johnson space center for the

11  
00:04:22,310 --> 00:04:19,919  
demo 2 post splashdown crew news

12  
00:04:23,990 --> 00:04:22,320  
conference just two days ago demo 2

13  
00:04:26,310 --> 00:04:24,000

spacecraft commander doug hurley and

14

00:04:28,230 --> 00:04:26,320

joint operations commander bob bankin

15

00:04:30,790 --> 00:04:28,240

splashed down in the gulf of mexico

16

00:04:33,030 --> 00:04:30,800

after 64 days in space completing the

17

00:04:35,110 --> 00:04:33,040

first crude flight of the spacex crew

18

00:04:37,030 --> 00:04:35,120

dragon their mission was to test the

19

00:04:39,030 --> 00:04:37,040

capabilities of the new commercial space

20

00:04:41,270 --> 00:04:39,040

vehicle for regular crew transportation

21

00:04:43,110 --> 00:04:41,280

to the international space station but

22

00:04:45,189 --> 00:04:43,120

they contributed a whole lot more than

23

00:04:46,870 --> 00:04:45,199

that on their mission during their 62

24

00:04:48,629 --> 00:04:46,880

days aboard station they dedicated more

25

00:04:50,710 --> 00:04:48,639

than 100 hours to scientific

26

00:04:53,670 --> 00:04:50,720

investigation and worked with the

27

00:04:55,830 --> 00:04:53,680

expedition 63 crew on four spacewalks to

28

00:04:58,469 --> 00:04:55,840

upgrade the station's power system among

29

00:05:00,469 --> 00:04:58,479

a number of other items today's crew

30

00:05:02,790 --> 00:05:00,479

news conference is the first opportunity

31

00:05:04,550 --> 00:05:02,800

after splashdown to ask questions to bob

32

00:05:06,230 --> 00:05:04,560

and doug we'll be taking questions on

33

00:05:07,909 --> 00:05:06,240

our phone bridge as well as on our

34

00:05:10,070 --> 00:05:07,919

social media platforms if you're on the

35

00:05:12,390 --> 00:05:10,080

phone please press star one to add your

36

00:05:13,590 --> 00:05:12,400

name to our queue and ask a question and

37

00:05:16,310 --> 00:05:13,600

if you're on social media use the

38

00:05:18,070 --> 00:05:16,320

hashtag ask nasa before we get to

39

00:05:19,670 --> 00:05:18,080

opening comments from the crew we'd like

40

00:05:22,310 --> 00:05:19,680

to share some of the messages from

41

00:05:25,029 --> 00:05:22,320

around the world welcoming bob and doug

42

00:05:26,790 --> 00:05:25,039

back to planet earth

43

00:05:28,550 --> 00:05:26,800

splashdown

44

00:05:30,640 --> 00:05:28,560

welcome back to planet earth and thanks

45

00:05:36,830 --> 00:05:30,650

for flying spacex

46

00:05:48,870 --> 00:05:45,150

[Music]

47

00:05:58,390 --> 00:05:50,560

america

48

00:06:12,150 --> 00:06:02,380

one two three four

49

00:06:16,550 --> 00:06:13,510

thanks to all who submitted these

50

00:06:18,469 --> 00:06:16,560

messages using the hashtag launchamerica

51  
00:06:20,629 --> 00:06:18,479  
we'll now pass it to the demo 2 crew for

52  
00:06:22,309 --> 00:06:20,639  
some opening comments starting with doug

53  
00:06:25,110 --> 00:06:22,319  
hurley

54  
00:06:27,189 --> 00:06:25,120  
well it's great to talk to you today

55  
00:06:30,070 --> 00:06:27,199  
we're just a couple days removed from

56  
00:06:31,590 --> 00:06:30,080  
splashdown off the coast of florida near

57  
00:06:33,590 --> 00:06:31,600  
pensacola

58  
00:06:35,590 --> 00:06:33,600  
excited to be back we're already working

59  
00:06:37,909 --> 00:06:35,600  
through our

60  
00:06:40,230 --> 00:06:37,919  
exercise rehabilitation program to kind

61  
00:06:42,230 --> 00:06:40,240  
of get our earth legs back

62  
00:06:43,749 --> 00:06:42,240  
we were lucky that we

63  
00:06:45,590 --> 00:06:43,759

we worked out pretty hard on space

64

00:06:47,590 --> 00:06:45,600

station and i think we've both done

65

00:06:49,589 --> 00:06:47,600

pretty well up to this point

66

00:06:51,270 --> 00:06:49,599

we're also lucky in the fact that we

67

00:06:53,270 --> 00:06:51,280

landed in some pretty smooth waters

68

00:06:56,150 --> 00:06:53,280

thanks to the weather folks

69

00:06:57,589 --> 00:06:56,160

and so i think that helped a lot just

70

00:07:02,469 --> 00:06:57,599

incredibly

71

00:07:05,189 --> 00:07:02,479

excited to share the uh

72

00:07:06,469 --> 00:07:05,199

mission with all of you in another way

73

00:07:09,270 --> 00:07:06,479

and uh

74

00:07:11,830 --> 00:07:09,280

just so proud of the uh spacex and nasa

75

00:07:13,830 --> 00:07:11,840

teams to uh get dragon through its first

76

00:07:15,909 --> 00:07:13,840

crude flight uh

77

00:07:18,790 --> 00:07:15,919

flawlessly uh just

78

00:07:21,189 --> 00:07:18,800

we're almost kind of speechless as

79

00:07:23,589 --> 00:07:21,199

as far as how well the vehicle did and

80

00:07:25,350 --> 00:07:23,599

how how well the mission went

81

00:07:28,230 --> 00:07:25,360

uh and all the things we did on board

82

00:07:31,830 --> 00:07:28,240

iss with chris cassidy and anatoly and

83

00:07:34,390 --> 00:07:31,840

yvonne so just glad to be back and uh

84

00:07:37,589 --> 00:07:34,400

it's great to see how excited everybody

85

00:07:39,830 --> 00:07:37,599

was uh for our mission and followed

86

00:07:42,830 --> 00:07:39,840

along and and we hope it brings a little

87

00:07:45,189 --> 00:07:42,840

bit of brightness to a pretty tough

88

00:07:46,790 --> 00:07:45,199

2020. you doug we'll now hand it over to

89

00:07:49,110 --> 00:07:46,800

bob benkin

90

00:07:50,790 --> 00:07:49,120

i think doug pretty much covered most of

91

00:07:53,110 --> 00:07:50,800

the things that either one of us would

92

00:07:54,950 --> 00:07:53,120

say about the the mission itself um i

93

00:07:57,430 --> 00:07:54,960

would just add that you know it's a it's

94

00:07:59,189 --> 00:07:57,440

a humbling experience to be a part of

95

00:08:01,270 --> 00:07:59,199

what was accomplished with the spacex

96

00:08:03,830 --> 00:08:01,280

vehicle just a wonderful team on the

97

00:08:06,150 --> 00:08:03,840

nasa side and the spacex side

98

00:08:08,150 --> 00:08:06,160

to pull it all off it took years in the

99

00:08:09,909 --> 00:08:08,160

making i think doug and i have been

100

00:08:12,309 --> 00:08:09,919

working at it for a good solid five

101

00:08:14,710 --> 00:08:12,319

years to to get to this point and it's

102

00:08:17,110 --> 00:08:14,720

just uh awesome to kind of see it to

103

00:08:19,189 --> 00:08:17,120

fruition i know that one of the things

104

00:08:21,510 --> 00:08:19,199

that we're most proud of is is bringing

105

00:08:24,070 --> 00:08:21,520

launch capability back to the florida

106

00:08:25,909 --> 00:08:24,080

coast back to america and of course uh

107

00:08:28,950 --> 00:08:25,919

landing safely at the end of all of that

108

00:08:31,830 --> 00:08:28,960

and so uh just uh again humbled to be a

109

00:08:34,469 --> 00:08:31,840

part of such an awesome team and uh awed

110

00:08:35,990 --> 00:08:34,479

by what they accomplished

111

00:08:37,509 --> 00:08:36,000

thanks to you both for those initial

112

00:08:39,589 --> 00:08:37,519

remarks we'll now open it up for

113

00:08:41,670 --> 00:08:39,599

questions again if you're on our phone

114

00:08:43,670 --> 00:08:41,680

bridge please press star one to submit a

115

00:08:45,269 --> 00:08:43,680

question to ensure we get to everyone's

116

00:08:47,430 --> 00:08:45,279

questions please refrain from asking

117

00:08:48,790 --> 00:08:47,440

more than one at a time we'll have a lot

118

00:08:50,550 --> 00:08:48,800

of questions so if you find that yours

119

00:08:52,310 --> 00:08:50,560

has already been answered press star two

120

00:08:53,590 --> 00:08:52,320

to withdraw it and if you're on social

121

00:08:56,389 --> 00:08:53,600

media please use the

122

00:09:01,350 --> 00:08:56,399

ask nasa let's start on our phone bridge

123

00:09:06,870 --> 00:09:03,430

hi bob and doug good to talk to you and

124

00:09:09,750 --> 00:09:06,880

congratulations on such a great launch

125

00:09:12,310 --> 00:09:09,760

leading up to this mission the date of

126

00:09:14,389 --> 00:09:12,320

the launch was always so uncertain and

127

00:09:17,110 --> 00:09:14,399

you mentioned you would plan your life

128

00:09:19,190 --> 00:09:17,120

in increments of weeks or months at a

129

00:09:21,110 --> 00:09:19,200

time so i'm wondering how does it feel

130

00:09:23,030 --> 00:09:21,120

now after all that build up now that

131

00:09:26,790 --> 00:09:23,040

it's over and you have a little more

132

00:09:28,310 --> 00:09:26,800

certainty in your schedule again thanks

133

00:09:29,750 --> 00:09:28,320

that's a good question that i don't know

134

00:09:32,070 --> 00:09:29,760

if certainty is the right word at this

135

00:09:34,310 --> 00:09:32,080

point you know

136

00:09:35,670 --> 00:09:34,320

i think for both of us it still feels uh

137

00:09:37,190 --> 00:09:35,680

pretty surreal and i know that's a

138

00:09:38,870 --> 00:09:37,200

little bit overused but i don't know how

139

00:09:40,389 --> 00:09:38,880

else to describe it you know one minute

140

00:09:42,550 --> 00:09:40,399

you're bobbing in the

141

00:09:44,389 --> 00:09:42,560

gulf of mexico and you know less than

142

00:09:46,790 --> 00:09:44,399

two days later you're

143

00:09:47,990 --> 00:09:46,800

in a news conference so

144

00:09:50,310 --> 00:09:48,000

um

145

00:09:52,470 --> 00:09:50,320

you know it's been a time to reflect and

146

00:09:53,829 --> 00:09:52,480

and and think about a lot of a lot of

147

00:09:55,509 --> 00:09:53,839

the things that went on and the lead up

148

00:09:57,590 --> 00:09:55,519

to the mission the mission itself you

149

00:09:59,910 --> 00:09:57,600

know the launch the on-orbit time the

150

00:10:03,030 --> 00:09:59,920

entry the landing

151

00:10:04,949 --> 00:10:03,040

uh but yeah at least we know

152

00:10:06,949 --> 00:10:04,959

we're done with the mission which you

153

00:10:08,630 --> 00:10:06,959

know we didn't even really know launch

154

00:10:10,150 --> 00:10:08,640

dates until just a few months before we

155

00:10:11,990 --> 00:10:10,160

launched we didn't know the duration of

156

00:10:14,630 --> 00:10:12,000

the mission until

157

00:10:16,550 --> 00:10:14,640

a few weeks before we came home and

158

00:10:19,030 --> 00:10:16,560

so i guess it's nice

159

00:10:20,310 --> 00:10:19,040

in that in that respect to to be back

160

00:10:21,350 --> 00:10:20,320

with our family and our friends here at

161

00:10:23,590 --> 00:10:21,360

nasa

162

00:10:25,190 --> 00:10:23,600

and and working through uh the post

163

00:10:26,630 --> 00:10:25,200

flight activities that we have and

164

00:10:28,389 --> 00:10:26,640

they're pretty

165

00:10:30,470 --> 00:10:28,399

pretty well scheduled for the next few

166

00:10:33,509 --> 00:10:30,480

weeks for sure in fact there's a lot of

167

00:10:35,670 --> 00:10:33,519

stuff to do over the next few weeks so

168

00:10:38,389 --> 00:10:35,680

we're hoping at some point just to take

169

00:10:40,069 --> 00:10:38,399

some time off and and share a little

170

00:10:41,269 --> 00:10:40,079

more time with our families since the

171

00:10:43,430 --> 00:10:41,279

they were the ones that really had the

172

00:10:45,350 --> 00:10:43,440

sacrifice over the as bob said over the

173

00:10:47,350 --> 00:10:45,360

last five years

174

00:10:49,509 --> 00:10:47,360

because we were we were mostly in

175

00:10:53,110 --> 00:10:49,519

california and we were mostly obviously

176

00:10:59,190 --> 00:10:55,269

next we'll go to andrea leinfelder from

177

00:11:02,870 --> 00:11:00,630

welcome home

178

00:11:04,389 --> 00:11:02,880

bob you gave a really great description

179

00:11:05,990 --> 00:11:04,399

of what it was like to launch in the

180

00:11:07,910 --> 00:11:06,000

crew dragon i was hoping you could give

181

00:11:10,310 --> 00:11:07,920

us a similarly vivid account of what it

182

00:11:12,470 --> 00:11:10,320

was like to land thank you

183

00:11:13,670 --> 00:11:12,480

well thank you andrea you know the the

184

00:11:15,269 --> 00:11:13,680

landing was

185

00:11:17,430 --> 00:11:15,279

i would say it was more than what uh

186

00:11:19,590 --> 00:11:17,440

doug and i expected um

187

00:11:21,190 --> 00:11:19,600

things are always a pretty smooth as you

188

00:11:22,870 --> 00:11:21,200

work through a deorbit burn because of

189

00:11:24,710 --> 00:11:22,880

course you're you're still in low earth

190

00:11:26,470 --> 00:11:24,720

orbit uh while you take that little bit

191

00:11:28,630 --> 00:11:26,480

of energy out that it takes to lower you

192

00:11:29,910 --> 00:11:28,640

into the atmosphere and start the trip

193

00:11:31,590 --> 00:11:29,920

home

194

00:11:35,269 --> 00:11:31,600

as we kind of descended through the

195

00:11:37,590 --> 00:11:35,279

atmosphere i personally was surprised at

196

00:11:39,110 --> 00:11:37,600

just how quickly at all the events all

197

00:11:41,110 --> 00:11:39,120

transpired

198

00:11:42,710 --> 00:11:41,120

it seemed like just a couple minutes

199

00:11:44,310 --> 00:11:42,720

later after the burn was complete we

200

00:11:47,350 --> 00:11:44,320

could look out the windows and see the

201  
00:11:48,550 --> 00:11:47,360  
clouds rushing by at a much accelerated

202  
00:11:50,629 --> 00:11:48,560  
rate you know one of the things we

203  
00:11:52,470 --> 00:11:50,639  
didn't have a lot of time to do during

204  
00:11:55,190 --> 00:11:52,480  
our time dock to station with how busy

205  
00:11:56,949 --> 00:11:55,200  
we were was to really focus on the earth

206  
00:11:58,470 --> 00:11:56,959  
for an extended period of time and

207  
00:12:00,230 --> 00:11:58,480  
during free flight and dragon we were

208  
00:12:02,069 --> 00:12:00,240  
able to do that and probably had a

209  
00:12:03,670 --> 00:12:02,079  
pretty good feel for the the rate that

210  
00:12:05,030 --> 00:12:03,680  
the earth was moving below us and we

211  
00:12:06,949 --> 00:12:05,040  
could definitely tell things were

212  
00:12:07,829 --> 00:12:06,959  
picking up quick after we started that

213  
00:12:09,829 --> 00:12:07,839

burn

214

00:12:12,550 --> 00:12:09,839

um once we descended a little bit into

215

00:12:15,750 --> 00:12:12,560

the atmosphere you know dragon really it

216

00:12:17,750 --> 00:12:15,760

came alive it uh started to to fire

217

00:12:20,550 --> 00:12:17,760

thrusters and and keep us pointed in the

218

00:12:22,230 --> 00:12:20,560

appropriate direction um the atmosphere

219

00:12:25,430 --> 00:12:22,240

starts to make noise you can you can

220

00:12:27,350 --> 00:12:25,440

hear that uh rumble outside the vehicle

221

00:12:29,030 --> 00:12:27,360

and as the vehicle tries to control you

222

00:12:30,550 --> 00:12:29,040

feel a little bit of that that shimmy in

223

00:12:33,590 --> 00:12:30,560

your body and our bodies were much

224

00:12:35,670 --> 00:12:33,600

better attuned to the environment so we

225

00:12:37,990 --> 00:12:35,680

could feel those small rolls and pitches

226

00:12:40,069 --> 00:12:38,000

and yaws and all those little motions

227

00:12:41,190 --> 00:12:40,079

were things that we picked up on inside

228

00:12:42,870 --> 00:12:41,200

the vehicle

229

00:12:44,870 --> 00:12:42,880

as we descended through the atmosphere

230

00:12:47,269 --> 00:12:44,880

the uh the thrusters were firing almost

231

00:12:49,430 --> 00:12:47,279

continuously and i think uh this the

232

00:12:51,910 --> 00:12:49,440

sound that that makes i did record some

233

00:12:54,230 --> 00:12:51,920

audio of it but it doesn't sound like a

234

00:12:56,470 --> 00:12:54,240

machine it sounds like an animal coming

235

00:12:58,150 --> 00:12:56,480

through the atmosphere with all that uh

236

00:12:59,990 --> 00:12:58,160

all the the puffs that are happening

237

00:13:02,870 --> 00:13:00,000

from the uh the thrusters and and the

238

00:13:03,829 --> 00:13:02,880

atmospheric noise it just continues to

239

00:13:06,150 --> 00:13:03,839

uh

240

00:13:07,430 --> 00:13:06,160

gain magnitude as you as you descend

241

00:13:09,110 --> 00:13:07,440

down through the atmosphere and i think

242

00:13:11,269 --> 00:13:09,120

we both really really noticed that

243

00:13:13,509 --> 00:13:11,279

aspect of things

244

00:13:16,230 --> 00:13:13,519

all the separation events from the trunk

245

00:13:18,230 --> 00:13:16,240

separation through the parachute firings

246

00:13:20,230 --> 00:13:18,240

were very much like getting a hit in the

247

00:13:21,670 --> 00:13:20,240

back of the chair with a baseball bat

248

00:13:23,990 --> 00:13:21,680

you know just a crack

249

00:13:25,590 --> 00:13:24,000

and then you get a some sort of a motion

250

00:13:27,750 --> 00:13:25,600

associated with that usually pretty

251  
00:13:29,430 --> 00:13:27,760  
light for the trunk separation but with

252  
00:13:31,269 --> 00:13:29,440  
the parachutes it was a pretty

253  
00:13:32,870 --> 00:13:31,279  
significant jolt

254  
00:13:34,790 --> 00:13:32,880  
and a couple of jolts as you go through

255  
00:13:36,550 --> 00:13:34,800  
the this reefing of the parachutes as

256  
00:13:38,550 --> 00:13:36,560  
well and so

257  
00:13:40,949 --> 00:13:38,560  
all the way down uh we were talking

258  
00:13:42,550 --> 00:13:40,959  
about it i think uh i took a line from a

259  
00:13:44,389 --> 00:13:42,560  
old movie that doug and i were both

260  
00:13:48,470 --> 00:13:44,399  
familiar with at one point because uh

261  
00:13:50,069 --> 00:13:48,480  
under the g load of about 4.2 g's i said

262  
00:13:52,230 --> 00:13:50,079  
want to get some coffee you know much

263  
00:13:53,829 --> 00:13:52,240

like we had seen in an old movie that we

264

00:13:55,350 --> 00:13:53,839

had watched because that was really the

265

00:13:56,870 --> 00:13:55,360

the feeling that we had had and that's

266

00:13:57,670 --> 00:13:56,880

the best way to describe it if you've

267

00:13:59,189 --> 00:13:57,680

seen

268

00:14:00,629 --> 00:13:59,199

an old movie that happened to have some

269

00:14:02,870 --> 00:14:00,639

guys uh uh who had been in the

270

00:14:04,550 --> 00:14:02,880

centrifuge that's what we felt like

271

00:14:06,310 --> 00:14:04,560

when the time came to splash down i

272

00:14:08,470 --> 00:14:06,320

think we were watching the altimeter

273

00:14:10,949 --> 00:14:08,480

which is a gps altimeter so it's not

274

00:14:13,189 --> 00:14:10,959

super accurate everywhere that you're

275

00:14:15,189 --> 00:14:13,199

located and so we got to uh

276  
00:14:16,949 --> 00:14:15,199  
below zero for our altitude on that

277  
00:14:18,470 --> 00:14:16,959  
indicator which was a little bit

278  
00:14:20,470 --> 00:14:18,480  
surprising and then we we felt the

279  
00:14:22,710 --> 00:14:20,480  
splash and we saw it splash up over the

280  
00:14:25,110 --> 00:14:22,720  
windows it was just a

281  
00:14:27,269 --> 00:14:25,120  
a great relief i think for both of us at

282  
00:14:29,430 --> 00:14:27,279  
that point and uh i can't say enough

283  
00:14:31,590 --> 00:14:29,440  
about how well the spacex team trained

284  
00:14:33,670 --> 00:14:31,600  
us you know they provided us some audio

285  
00:14:35,509 --> 00:14:33,680  
clips of what what it was like inside

286  
00:14:38,629 --> 00:14:35,519  
the demo one vehicle so that we were

287  
00:14:40,870 --> 00:14:38,639  
familiar with all those sounds and uh

288  
00:14:42,870 --> 00:14:40,880

reassuring is not quite the right word

289

00:14:44,870 --> 00:14:42,880

because we think of it more in technical

290

00:14:46,870 --> 00:14:44,880

technical terms as you know pilots and

291

00:14:49,189 --> 00:14:46,880

engineers riding along with that vehicle

292

00:14:51,350 --> 00:14:49,199

but uh when it performed as expected and

293

00:14:53,430 --> 00:14:51,360

we could check off those events uh we

294

00:14:55,350 --> 00:14:53,440

were really really comfortable uh coming

295

00:14:57,189 --> 00:14:55,360

through the atmosphere even though you

296

00:14:59,269 --> 00:14:57,199

know it felt like we were inside of an

297

00:15:01,509 --> 00:14:59,279

animal

298

00:15:05,189 --> 00:15:01,519

let's go to david curley from the

299

00:15:09,750 --> 00:15:07,509

oh bob what a description welcome back

300

00:15:11,430 --> 00:15:09,760

to both of you uh i have a lot of

301  
00:15:12,389 --> 00:15:11,440  
technical questions but let's do the fun

302  
00:15:17,509 --> 00:15:12,399  
question

303  
00:15:19,430 --> 00:15:17,519  
did you leave something for megan you

304  
00:15:21,509 --> 00:15:19,440  
don't have to tell me what it is will

305  
00:15:23,910 --> 00:15:21,519  
spacex leave it there

306  
00:15:26,949 --> 00:15:23,920  
and doug you said you would talk about

307  
00:15:29,189 --> 00:15:26,959  
the historical meanings uh afterwards

308  
00:15:33,110 --> 00:15:29,199  
here we are big picture what does this

309  
00:15:38,150 --> 00:15:35,110  
well uh inside the vehicle you know it's

310  
00:15:39,990 --> 00:15:38,160  
it's not uh something we don't do uh is

311  
00:15:41,509 --> 00:15:40,000  
leave things behind we do our best to

312  
00:15:43,110 --> 00:15:41,519  
you know keep it in ship shape we did

313  
00:15:45,110 --> 00:15:43,120

leave a a patch

314

00:15:47,189 --> 00:15:45,120

uh inside the vehicle there's a demo one

315

00:15:49,590 --> 00:15:47,199

sticker that that we added and we did

316

00:15:51,350 --> 00:15:49,600

give the ship a name uh endeavor and i'm

317

00:15:52,949 --> 00:15:51,360

hopeful that they'll be able to keep

318

00:15:54,710 --> 00:15:52,959

both of those things as they go forward

319

00:15:59,189 --> 00:15:54,720

and add their their

320

00:16:03,030 --> 00:16:01,749

i guess for me from the historical

321

00:16:04,150 --> 00:16:03,040

aspect that

322

00:16:05,350 --> 00:16:04,160

i think

323

00:16:08,069 --> 00:16:05,360

is certainly

324

00:16:10,790 --> 00:16:08,079

the the first u.s crude vehicle since

325

00:16:13,829 --> 00:16:10,800

the shuttle so nine years ago

326

00:16:16,230 --> 00:16:13,839

uh certainly uh personally

327

00:16:17,430 --> 00:16:16,240

it's it's significant because i was the

328

00:16:19,110 --> 00:16:17,440

last shuttle pilot and then the first

329

00:16:20,949 --> 00:16:19,120

commander dragon

330

00:16:22,870 --> 00:16:20,959

and so that that's

331

00:16:24,550 --> 00:16:22,880

it's it's neat to think about now you

332

00:16:26,550 --> 00:16:24,560

know i uh

333

00:16:28,550 --> 00:16:26,560

and i certainly maybe a year from now

334

00:16:30,389 --> 00:16:28,560

we'll we'll think a lot more about it uh

335

00:16:31,430 --> 00:16:30,399

but i i'm

336

00:16:32,230 --> 00:16:31,440

i'm

337

00:16:33,269 --> 00:16:32,240

more

338

00:16:34,949 --> 00:16:33,279

uh

339

00:16:37,590 --> 00:16:34,959

i think what's more important to me is

340

00:16:40,230 --> 00:16:37,600

that is the historical aspect for

341

00:16:42,389 --> 00:16:40,240

nasa and and certainly for spacex it's

342

00:16:44,790 --> 00:16:42,399

just for a company that's

343

00:16:47,269 --> 00:16:44,800

only been around for a decade or a

344

00:16:49,910 --> 00:16:47,279

little more than that to build a

345

00:16:53,269 --> 00:16:49,920

spaceship that takes crew

346

00:16:55,110 --> 00:16:53,279

into uh orbit and returns them safely is

347

00:16:56,389 --> 00:16:55,120

that that that part of the historical

348

00:16:58,629 --> 00:16:56,399

aspect uh

349

00:17:00,310 --> 00:16:58,639

for me is is probably most significant

350

00:17:02,150 --> 00:17:00,320

that just it's

351  
00:17:04,549 --> 00:17:02,160  
and to be part of that

352  
00:17:07,029 --> 00:17:04,559  
for me is is also

353  
00:17:08,630 --> 00:17:07,039  
by far the most important and one of the

354  
00:17:10,870 --> 00:17:08,640  
most incredible highlights that i'll

355  
00:17:14,390 --> 00:17:10,880  
have from a professional career

356  
00:17:16,789 --> 00:17:14,400  
uh just to just share in that uh that

357  
00:17:20,230 --> 00:17:16,799  
journey that odyssey that uh

358  
00:17:22,309 --> 00:17:20,240  
endeavor as we as we named our ship um

359  
00:17:25,990 --> 00:17:22,319  
was just uh one of the

360  
00:17:29,430 --> 00:17:26,000  
true honors of of my my entire life but

361  
00:17:33,510 --> 00:17:31,190  
will now go to marcia dunn from

362  
00:17:36,390 --> 00:17:33,520  
associated press

363  
00:17:38,070 --> 00:17:36,400

hi i'm i'm wondering did either of you

364

00:17:39,990 --> 00:17:38,080

realize real time that you were

365

00:17:43,029 --> 00:17:40,000

surrounded by pleasure boats filled with

366

00:17:45,430 --> 00:17:43,039

gawkers uh though soon after splashdown

367

00:17:46,950 --> 00:17:45,440

and if so were you concerned and if if

368

00:17:49,430 --> 00:17:46,960

you were unaware of them were you

369

00:17:51,110 --> 00:17:49,440

surprised to find that out afterward and

370

00:17:52,310 --> 00:17:51,120

bob a real quick question when's the

371

00:17:54,630 --> 00:17:52,320

puppy arriving

372

00:17:57,510 --> 00:17:54,640

[Laughter]

373

00:17:59,190 --> 00:17:57,520

well i guess since uh bob's got a really

374

00:18:01,510 --> 00:17:59,200

important question to answer i'll talk

375

00:18:03,430 --> 00:18:01,520

about the boaters um

376

00:18:06,870 --> 00:18:03,440

you know this is something that we we

377

00:18:09,909 --> 00:18:06,880

discussed uh as a nasa spacex group

378

00:18:12,310 --> 00:18:09,919

prior to demo one actually

379

00:18:14,630 --> 00:18:12,320

and uh you know we certainly appreciate

380

00:18:15,590 --> 00:18:14,640

the folks wanting to participate in the

381

00:18:17,669 --> 00:18:15,600

event

382

00:18:19,510 --> 00:18:17,679

but uh you know there's some safety

383

00:18:20,950 --> 00:18:19,520

aspects that i think you know as the

384

00:18:23,190 --> 00:18:20,960

administrator said we'll have to take a

385

00:18:25,110 --> 00:18:23,200

look at it because it just can't can't

386

00:18:27,350 --> 00:18:25,120

happen like it did before

387

00:18:30,789 --> 00:18:27,360

but certainly we

388

00:18:33,669 --> 00:18:30,799

we were not uh and it's mostly due to

389

00:18:35,430 --> 00:18:33,679

kind of the way the windows looked after

390

00:18:36,230 --> 00:18:35,440

after splashdown so

391

00:18:38,070 --> 00:18:36,240

you know

392

00:18:40,870 --> 00:18:38,080

the the re-entry

393

00:18:42,870 --> 00:18:40,880

is is a fairly dynamic event and you can

394

00:18:44,710 --> 00:18:42,880

see from you know just an overall view

395

00:18:47,350 --> 00:18:44,720

of the capsule that uh

396

00:18:49,270 --> 00:18:47,360

re-entry is a pretty demanding

397

00:18:50,150 --> 00:18:49,280

environment you know with the different

398

00:18:52,150 --> 00:18:50,160

uh

399

00:18:56,310 --> 00:18:52,160

scorches on the vehicle and the windows

400

00:18:58,310 --> 00:18:56,320

were were not spared any of that uh

401  
00:19:00,230 --> 00:18:58,320  
you to look out the windows you could

402  
00:19:02,070 --> 00:19:00,240  
basically tell that it was daylight but

403  
00:19:04,310 --> 00:19:02,080  
very little out so we didn't really see

404  
00:19:05,110 --> 00:19:04,320  
anything clearly out the windows until

405  
00:19:07,750 --> 00:19:05,120  
the

406  
00:19:09,350 --> 00:19:07,760  
spacex recovery crews got uh

407  
00:19:11,590 --> 00:19:09,360  
near us with the fast boats and then we

408  
00:19:13,750 --> 00:19:11,600  
could see a head or two out the window

409  
00:19:15,909 --> 00:19:13,760  
yeah i had absolutely no awareness of

410  
00:19:19,750 --> 00:19:15,919  
the the other flotilla that was out

411  
00:19:23,669 --> 00:19:19,760  
there until we were back on board uh

412  
00:19:25,350 --> 00:19:23,679  
go searcher and in the medical facility

413  
00:19:27,350 --> 00:19:25,360

yeah i just would add a little bit to

414

00:19:29,270 --> 00:19:27,360

that which is you know folks uh need to

415

00:19:31,350 --> 00:19:29,280

realize we were delayed with actually

416

00:19:33,750 --> 00:19:31,360

opening the hatch for an extended period

417

00:19:35,430 --> 00:19:33,760

while the teams really made sure that

418

00:19:38,070 --> 00:19:35,440

everything was clear and the the vehicle

419

00:19:39,590 --> 00:19:38,080

was safe for us to exit and for them to

420

00:19:41,590 --> 00:19:39,600

get as many people

421

00:19:44,710 --> 00:19:41,600

as required to you know perform that

422

00:19:47,110 --> 00:19:44,720

extraction for us and so just a a word

423

00:19:48,870 --> 00:19:47,120

to the wise for folks who have ideas of

424

00:19:50,230 --> 00:19:48,880

coming that close again in the future

425

00:19:53,510 --> 00:19:50,240

that you know we take extreme

426  
00:19:55,270 --> 00:19:53,520  
precautions to make sure it is safe and

427  
00:19:56,870 --> 00:19:55,280  
we do that for a reason and hopefully

428  
00:19:58,630 --> 00:19:56,880  
they'll appreciate that you know that's

429  
00:19:59,990 --> 00:19:58,640  
required really with uh spacecraft

430  
00:20:02,149 --> 00:20:00,000  
operations

431  
00:20:04,070 --> 00:20:02,159  
as far as the puppy goes we're on about

432  
00:20:05,750 --> 00:20:04,080  
a two-week time frame where we'll we

433  
00:20:07,830 --> 00:20:05,760  
need to teach my son a little bit about

434  
00:20:09,669 --> 00:20:07,840  
the things that are required to you know

435  
00:20:11,190 --> 00:20:09,679  
have a dog in the house and make sure

436  
00:20:13,270 --> 00:20:11,200  
he's comfortable with picking up his

437  
00:20:14,950 --> 00:20:13,280  
responsibilities associated with the dog

438  
00:20:17,110 --> 00:20:14,960

you know i've done a lot of that with

439

00:20:19,750 --> 00:20:17,120

the ip phone from the space station over

440

00:20:22,470 --> 00:20:19,760

the last couple months but now he's got

441

00:20:24,549 --> 00:20:22,480

to put his uh put his work in to get the

442

00:20:26,149 --> 00:20:24,559

dog bed in the right location and and

443

00:20:28,230 --> 00:20:26,159

and show me that he's ready to take on

444

00:20:29,990 --> 00:20:28,240

that responsibility and you know he's

445

00:20:32,070 --> 00:20:30,000

gonna he's gonna love that that puppy

446

00:20:33,830 --> 00:20:32,080

and he's gonna he needs to bring him up

447

00:20:36,789 --> 00:20:33,840

right and so we're gonna set him up for

448

00:20:39,909 --> 00:20:36,799

success uh otherwise uh it'll be my dog

449

00:20:45,590 --> 00:20:42,149

let's go to robert perlman from collect

450

00:20:50,549 --> 00:20:47,270

hi bob and doug great to see you back on

451  
00:20:52,870 --> 00:20:50,559  
earth um up until now after a historic

452  
00:20:54,470 --> 00:20:52,880  
nasa first flight like yours it would

453  
00:20:57,350 --> 00:20:54,480  
almost be a given that something from

454  
00:20:59,669 --> 00:20:57,360  
the mission the spacecraft or the space

455  
00:21:01,190 --> 00:20:59,679  
dudes would be headed to the smithsonian

456  
00:21:02,630 --> 00:21:01,200  
but given the commercial nature of your

457  
00:21:04,549 --> 00:21:02,640  
flight very little of your mission's

458  
00:21:06,789 --> 00:21:04,559  
equipment belongs to nasa and your

459  
00:21:07,669 --> 00:21:06,799  
spacecraft is already slated to fly

460  
00:21:09,350 --> 00:21:07,679  
again

461  
00:21:11,909 --> 00:21:09,360  
so we're up to you

462  
00:21:14,230 --> 00:21:11,919  
what would you like to see spacex donate

463  
00:21:16,390 --> 00:21:14,240

to the national air and space museum or

464

00:21:18,230 --> 00:21:16,400

otherwise put on public display and

465

00:21:22,470 --> 00:21:18,240

might we see your sons agree to donate

466

00:21:25,990 --> 00:21:23,750

well they uh

467

00:21:27,909 --> 00:21:26,000

they might make that agreement i'm sure

468

00:21:29,990 --> 00:21:27,919

they would request something in trade i

469

00:21:31,909 --> 00:21:30,000

don't know at least a opportunity to go

470

00:21:33,909 --> 00:21:31,919

see where tremor's a new home would

471

00:21:36,149 --> 00:21:33,919

actually be i think there's a lot of

472

00:21:37,590 --> 00:21:36,159

tremors out there as well at this point

473

00:21:38,710 --> 00:21:37,600

and so uh

474

00:21:40,390 --> 00:21:38,720

i think that

475

00:21:42,870 --> 00:21:40,400

it could be that the marketplace is

476

00:21:44,789 --> 00:21:42,880

saturated with tremors

477

00:21:46,070 --> 00:21:44,799

as far as what i'd like to see donated

478

00:21:47,990 --> 00:21:46,080

you know i still think there's an

479

00:21:50,149 --> 00:21:48,000

opportunity for the history to play out

480

00:21:52,630 --> 00:21:50,159

and this capsule to still end up in the

481

00:21:55,110 --> 00:21:52,640

smithsonian you know it can be used and

482

00:21:57,750 --> 00:21:55,120

and reused and then find that permanent

483

00:21:59,750 --> 00:21:57,760

home spacex has done a wonderful job if

484

00:22:01,750 --> 00:21:59,760

you if you've ever visited or seen

485

00:22:04,470 --> 00:22:01,760

pictures inside the facility there in

486

00:22:05,909 --> 00:22:04,480

hawthorne they do have a hardware that

487

00:22:07,990 --> 00:22:05,919

they've flown or hardware that they've

488

00:22:09,270 --> 00:22:08,000

tested and managed to put on public

489

00:22:12,230 --> 00:22:09,280

display

490

00:22:14,310 --> 00:22:12,240

right here we do have a here in houston

491

00:22:17,190 --> 00:22:14,320

at the space center houston they do have

492

00:22:18,950 --> 00:22:17,200

a first stage now that uh was used and

493

00:22:21,830 --> 00:22:18,960

it's it's nice to have that in full

494

00:22:23,750 --> 00:22:21,840

public view and i'm sure and and

495

00:22:25,590 --> 00:22:23,760

confident that they're going to share

496

00:22:27,270 --> 00:22:25,600

pieces of the hardware with the public

497

00:22:29,510 --> 00:22:27,280

at large you know if you if you go out

498

00:22:31,750 --> 00:22:29,520

to hawthorne there's a first stage uh

499

00:22:34,070 --> 00:22:31,760

sitting right there on the corner of the

500

00:22:35,669 --> 00:22:34,080

the the property line there and it's

501  
00:22:37,590 --> 00:22:35,679  
just awesome for people to see that

502  
00:22:39,430 --> 00:22:37,600  
hardware and be able to you know

503  
00:22:41,669 --> 00:22:39,440  
recognize it as as hardware that was

504  
00:22:43,270 --> 00:22:41,679  
used for for space missions and uh you

505  
00:22:45,430 --> 00:22:43,280  
know take a picture next to it and and

506  
00:22:47,510 --> 00:22:45,440  
be a part of it and so i know they'll do

507  
00:22:49,990 --> 00:22:47,520  
it and if it was up to me i think all

508  
00:22:51,990 --> 00:22:50,000  
this uh this hardware has a home

509  
00:22:55,029 --> 00:22:52,000  
someplace in the future when it's used

510  
00:22:56,310 --> 00:22:55,039  
up it's just not used up yet

511  
00:22:58,549 --> 00:22:56,320  
thank you we're not going to switch to

512  
00:23:00,149 --> 00:22:58,559  
social media for just a second first of

513  
00:23:01,909 --> 00:23:00,159

all you have folks from all over the

514

00:23:04,710 --> 00:23:01,919

world on twitter and facebook saying

515

00:23:06,950 --> 00:23:04,720

hello and congratulations brazil england

516

00:23:08,710 --> 00:23:06,960

canada argentina the netherlands all

517

00:23:10,630 --> 00:23:08,720

over the u.s just to name a few but this

518

00:23:12,549 --> 00:23:10,640

seems to be a common theme this one's

519

00:23:16,149 --> 00:23:12,559

from shanika

520

00:23:21,590 --> 00:23:17,990

well i think i think we're probably

521

00:23:24,870 --> 00:23:21,600

gonna go along the lines of

522

00:23:27,350 --> 00:23:24,880

i believe it's the nhl um where the team

523

00:23:29,430 --> 00:23:27,360

that wins the stanley cup if you're

524

00:23:32,149 --> 00:23:29,440

familiar with that um

525

00:23:34,390 --> 00:23:32,159

each member of the team gets to gets to

526  
00:23:36,070 --> 00:23:34,400  
have the stanley cup for a day or two

527  
00:23:37,830 --> 00:23:36,080  
and i think we'll probably work out

528  
00:23:39,350 --> 00:23:37,840  
something along those lines where we

529  
00:23:41,990 --> 00:23:39,360  
just have a

530  
00:23:43,990 --> 00:23:42,000  
you know he spends some time at bob's

531  
00:23:45,669 --> 00:23:44,000  
place and then he spends some time at

532  
00:23:47,510 --> 00:23:45,679  
our place and you know i think that's

533  
00:23:49,590 --> 00:23:47,520  
fair and then i think

534  
00:23:51,350 --> 00:23:49,600  
at some point obviously the boys will

535  
00:23:53,510 --> 00:23:51,360  
you know they're going to grow up and

536  
00:23:56,070 --> 00:23:53,520  
potentially outgrow tremor and you know

537  
00:23:58,310 --> 00:23:56,080  
we'll figure out a good a good place for

538  
00:24:00,390 --> 00:23:58,320

for tremor as well just like hopefully

539

00:24:01,909 --> 00:24:00,400

with the endeavor and our suits and

540

00:24:03,909 --> 00:24:01,919

anything else that was associated with

541

00:24:06,630 --> 00:24:03,919

this mission it's just it's just a neat

542

00:24:08,870 --> 00:24:06,640

memory for bob and i as fathers uh you

543

00:24:11,669 --> 00:24:08,880

know to share uh this type of thing with

544

00:24:13,669 --> 00:24:11,679

our sons and and uh we're just thankful

545

00:24:15,269 --> 00:24:13,679

that we were allowed to to take tremor

546

00:24:16,149 --> 00:24:15,279

with us and uh

547

00:24:18,789 --> 00:24:16,159

and it's

548

00:24:21,510 --> 00:24:18,799

frankly just amazing to see the

549

00:24:23,110 --> 00:24:21,520

the response to tremor and and how how

550

00:24:24,789 --> 00:24:23,120

much people enjoyed that part of the

551  
00:24:26,710 --> 00:24:24,799  
mission uh along with some of the other

552  
00:24:28,470 --> 00:24:26,720  
things so we really appreciate i

553  
00:24:30,470 --> 00:24:28,480  
appreciate that and thank and thank

554  
00:24:32,549 --> 00:24:30,480  
folks for understanding you know that it

555  
00:24:34,549 --> 00:24:32,559  
was important to us

556  
00:24:36,950 --> 00:24:34,559  
we'll take one more ask nasa question

557  
00:24:38,789 --> 00:24:36,960  
this one from leanne on facebook asking

558  
00:24:40,710 --> 00:24:38,799  
what's the first thing you ate after

559  
00:24:42,149 --> 00:24:40,720  
returning to earth

560  
00:24:44,070 --> 00:24:42,159  
i think for both of us the first thing

561  
00:24:46,149 --> 00:24:44,080  
we ate was the pizza that they had

562  
00:24:49,029 --> 00:24:46,159  
available on the jet that brought us

563  
00:24:50,950 --> 00:24:49,039

back into houston so we had a good pizza

564

00:24:52,549 --> 00:24:50,960

we you know we've done a lot of travel

565

00:24:54,470 --> 00:24:52,559

on the

566

00:24:56,630 --> 00:24:54,480

aircraft operation

567

00:24:59,110 --> 00:24:56,640

folks here at johnson space center's

568

00:25:01,990 --> 00:24:59,120

aircraft over the last 20 years frankly

569

00:25:05,350 --> 00:25:02,000

whether it was t-38s or as we responded

570

00:25:06,950 --> 00:25:05,360

to covid and use the larger airplanes to

571

00:25:08,470 --> 00:25:06,960

help us get from place to place from a

572

00:25:10,390 --> 00:25:08,480

training perspective and they always

573

00:25:12,470 --> 00:25:10,400

have a good plan for taking care of the

574

00:25:14,470 --> 00:25:12,480

crews that are on board and

575

00:25:16,710 --> 00:25:14,480

our landing day was no different than

576

00:25:19,190 --> 00:25:16,720

the other days they had us all hooked up

577

00:25:22,310 --> 00:25:19,200

and set up and uh the pizza was waiting

578

00:25:24,070 --> 00:25:22,320

when we made it on board

579

00:25:26,870 --> 00:25:24,080

thank you we'll now return to the phone

580

00:25:29,590 --> 00:25:26,880

bridge starting with eric berger from rs

581

00:25:31,350 --> 00:25:29,600

technica

582

00:25:33,510 --> 00:25:31,360

hi guys i want to congratulate you on

583

00:25:35,190 --> 00:25:33,520

your your excellent timing houston in

584

00:25:38,950 --> 00:25:35,200

august is lovely

585

00:25:40,470 --> 00:25:38,960

um if i may ask a non-tremor question uh

586

00:25:42,470 --> 00:25:40,480

were there any surprises during the

587

00:25:44,470 --> 00:25:42,480

mission it all looked so smooth from the

588

00:25:46,070 --> 00:25:44,480

launch the landing you know to us

589

00:25:49,029 --> 00:25:46,080

watching on the ground

590

00:25:51,110 --> 00:25:49,039

and it was it really that perfect like

591

00:25:52,710 --> 00:25:51,120

did the vehicle perform that well or was

592

00:25:54,549 --> 00:25:52,720

there anything that happened

593

00:25:57,110 --> 00:25:54,559

like maybe you went in the capsule on

594

00:25:58,549 --> 00:25:57,120

orbit there was a funny odor or

595

00:26:00,149 --> 00:25:58,559

you know something that alarmed you

596

00:26:03,669 --> 00:26:00,159

during the two months you're up there or

597

00:26:06,710 --> 00:26:03,679

or was it all just that smooth thank you

598

00:26:08,390 --> 00:26:06,720

yeah frankly the the dm2 mission part of

599

00:26:11,590 --> 00:26:08,400

it uh

600

00:26:14,390 --> 00:26:11,600

as well as the uh docked iss mission

601  
00:26:17,590 --> 00:26:14,400  
that we participated in expedition 63

602  
00:26:18,549 --> 00:26:17,600  
but certainly the dm2 mission um

603  
00:26:21,909 --> 00:26:18,559  
i

604  
00:26:23,510 --> 00:26:21,919  
personally expected there to be more

605  
00:26:25,510 --> 00:26:23,520  
you know certainly not

606  
00:26:27,350 --> 00:26:25,520  
issues with the vehicle but some

607  
00:26:29,430 --> 00:26:27,360  
challenges or some things that were

608  
00:26:30,870 --> 00:26:29,440  
maybe not quite what we expected i mean

609  
00:26:33,190 --> 00:26:30,880  
even on our shuttle flights we had

610  
00:26:34,950 --> 00:26:33,200  
things that happened on both of mine and

611  
00:26:36,710 --> 00:26:34,960  
i know you know bob and i have talked a

612  
00:26:38,870 --> 00:26:36,720  
lot about his missions as well there

613  
00:26:42,470 --> 00:26:38,880

were things that happened that that

614

00:26:44,710 --> 00:26:42,480

were right out of a simulator uh

615

00:26:46,149 --> 00:26:44,720

event and and something that you

616

00:26:48,390 --> 00:26:46,159

certainly wouldn't have expected in a

617

00:26:51,190 --> 00:26:48,400

real flight but but i my credit once

618

00:26:52,710 --> 00:26:51,200

again is to the the folks at spacex the

619

00:26:54,149 --> 00:26:52,720

production folks the people that put

620

00:26:55,510 --> 00:26:54,159

endeavor together

621

00:26:57,750 --> 00:26:55,520

and then

622

00:26:59,669 --> 00:26:57,760

certainly our training folks

623

00:27:01,350 --> 00:26:59,679

the mission went just like the

624

00:27:02,870 --> 00:27:01,360

simulators and

625

00:27:04,950 --> 00:27:02,880

and i

626  
00:27:07,190 --> 00:27:04,960  
honestly from start to finish all the

627  
00:27:08,470 --> 00:27:07,200  
way there was really no surprises and i

628  
00:27:11,830 --> 00:27:08,480  
think for me

629  
00:27:14,149 --> 00:27:11,840  
personally i expected the entry to

630  
00:27:16,310 --> 00:27:14,159  
diverge somewhat by what we saw in the

631  
00:27:19,430 --> 00:27:16,320  
simulator and what i mean by that is

632  
00:27:21,350 --> 00:27:19,440  
as as a capsule gets in the thicker air

633  
00:27:23,430 --> 00:27:21,360  
the atmosphere so somewhere around 20k

634  
00:27:25,750 --> 00:27:23,440  
down to maybe 10k

635  
00:27:28,389 --> 00:27:25,760  
just prior to the drogues with the

636  
00:27:30,389 --> 00:27:28,399  
with dragon i expected there to be some

637  
00:27:32,630 --> 00:27:30,399  
divergence in attitude control because

638  
00:27:35,029 --> 00:27:32,640

it's it's a real tough problem for

639

00:27:38,230 --> 00:27:35,039

the ship as it gets into the thicker air

640

00:27:41,110 --> 00:27:38,240

to maintain perfect attitude and control

641

00:27:43,029 --> 00:27:41,120

and at some point and the design of this

642

00:27:44,549 --> 00:27:43,039

vehicle is for the drugs to come out

643

00:27:47,269 --> 00:27:44,559

potentially a little bit earlier than

644

00:27:48,950 --> 00:27:47,279

they normally would come out to kind of

645

00:27:52,149 --> 00:27:48,960

right the vehicle

646

00:27:54,549 --> 00:27:52,159

i i fully expected that to happen and it

647

00:27:57,269 --> 00:27:54,559

did not the vehicle was rock solid right

648

00:28:00,870 --> 00:27:57,279

up until the nominal drogue deploy

649

00:28:02,870 --> 00:28:00,880

uh altitude and and as bob described you

650

00:28:04,549 --> 00:28:02,880

could feel it you knew exactly you felt

651  
00:28:05,510 --> 00:28:04,559  
the d cell you knew the drugs both

652  
00:28:07,110 --> 00:28:05,520  
worked

653  
00:28:08,789 --> 00:28:07,120  
and then it was the same with the mains

654  
00:28:10,310 --> 00:28:08,799  
we felt the different stages of this

655  
00:28:11,750 --> 00:28:10,320  
reef and

656  
00:28:13,590 --> 00:28:11,760  
right to the

657  
00:28:15,029 --> 00:28:13,600  
impact in the water it was

658  
00:28:17,830 --> 00:28:15,039  
you know we kind of had a feeling it

659  
00:28:20,870 --> 00:28:17,840  
would be not as much as a soyuz

660  
00:28:23,510 --> 00:28:20,880  
landing as it was described to us but

661  
00:28:25,510 --> 00:28:23,520  
was going to be a pretty firm splashdown

662  
00:28:26,870 --> 00:28:25,520  
and then you know how we bobbed even how

663  
00:28:28,310 --> 00:28:26,880

we bobbed in the water and how the

664

00:28:31,269 --> 00:28:28,320

vehicle

665

00:28:33,750 --> 00:28:31,279

sat in the water so

666

00:28:35,669 --> 00:28:33,760

my compliments to spacex and the

667

00:28:37,990 --> 00:28:35,679

commercial crew program the vehicle

668

00:28:39,269 --> 00:28:38,000

performed exactly how it was supposed to

669

00:28:41,190 --> 00:28:39,279

and uh

670

00:28:43,430 --> 00:28:41,200

you feel really good about

671

00:28:45,190 --> 00:28:43,440

crew one and and and what they should

672

00:28:48,070 --> 00:28:45,200

expect and what they should see when

673

00:28:50,070 --> 00:28:48,080

they fly their mission

674

00:28:52,630 --> 00:28:50,080

next is chris davenport from the

675

00:28:54,870 --> 00:28:52,640

washington post

676

00:28:57,990 --> 00:28:54,880

oh hey guys welcome back uh good to see

677

00:28:59,909 --> 00:28:58,000

you um two quick ones uh just looking

678

00:29:02,710 --> 00:28:59,919

for maybe bob a description of what it

679

00:29:05,190 --> 00:29:02,720

was like inside dragon when the heat was

680

00:29:07,669 --> 00:29:05,200

building that plasma was building uh

681

00:29:09,430 --> 00:29:07,679

which were cool what the view was like

682

00:29:11,510 --> 00:29:09,440

and then maybe uh doug if you could talk

683

00:29:15,110 --> 00:29:11,520

about how many calls you made on the sat

684

00:29:16,710 --> 00:29:15,120

phone and who you called thanks

685

00:29:18,710 --> 00:29:16,720

you know as as we came through the

686

00:29:21,350 --> 00:29:18,720

atmosphere i think we had a pretty good

687

00:29:23,350 --> 00:29:21,360

view out the window until the g started

688

00:29:25,430 --> 00:29:23,360

building at least for me my focus kind

689

00:29:27,430 --> 00:29:25,440

of shifted towards the display content

690

00:29:29,510 --> 00:29:27,440

and that the windows are down by our

691

00:29:32,149 --> 00:29:29,520

feet and so being able to look at those

692

00:29:34,389 --> 00:29:32,159

requires kind of head motion and and and

693

00:29:35,990 --> 00:29:34,399

pushing your body around and so just

694

00:29:37,430 --> 00:29:36,000

didn't seem like the smartest thing to

695

00:29:39,350 --> 00:29:37,440

do you know as the vehicle was

696

00:29:41,190 --> 00:29:39,360

maneuvering and starting to put g's on

697

00:29:42,950 --> 00:29:41,200

to be uh turning our heads and trying to

698

00:29:44,549 --> 00:29:42,960

move around in the seats uh at that

699

00:29:47,110 --> 00:29:44,559

point we were trying to make sure that

700

00:29:49,110 --> 00:29:47,120

we were good and strapped in i do feel

701  
00:29:50,070 --> 00:29:49,120  
like i i felt some warming of the

702  
00:29:52,630 --> 00:29:50,080  
capsule

703  
00:29:54,070 --> 00:29:52,640  
on the inside and so the real notice was

704  
00:29:55,750 --> 00:29:54,080  
that when i did get a chance once the

705  
00:29:57,029 --> 00:29:55,760  
g's had come down to look out those

706  
00:29:59,110 --> 00:29:57,039  
windows again you know they were

707  
00:30:01,430 --> 00:29:59,120  
obscured as doug described earlier and

708  
00:30:03,510 --> 00:30:01,440  
so we kind of saw the clouds racing by

709  
00:30:05,590 --> 00:30:03,520  
and then the g-load started to build up

710  
00:30:07,269 --> 00:30:05,600  
and we focused on you know monitoring

711  
00:30:08,870 --> 00:30:07,279  
the vehicle and

712  
00:30:10,950 --> 00:30:08,880  
paying attention to those small bobbles

713  
00:30:12,630 --> 00:30:10,960

that we could feel as it uh controlled

714

00:30:13,990 --> 00:30:12,640

the attitude and then

715

00:30:15,590 --> 00:30:14,000

there was not much to see out the

716

00:30:17,990 --> 00:30:15,600

windows by the time we had another

717

00:30:20,149 --> 00:30:18,000

chance to do it so

718

00:30:22,230 --> 00:30:20,159

yeah i think i'll just add i had an

719

00:30:24,710 --> 00:30:22,240

entry that was a night entry and then a

720

00:30:26,950 --> 00:30:24,720

day entry and it's it's tough with

721

00:30:28,950 --> 00:30:26,960

shuttle even to see the plasma in the

722

00:30:31,750 --> 00:30:28,960

daytime it's almost just this really

723

00:30:33,190 --> 00:30:31,760

thin pinkish hue that you could in the

724

00:30:35,990 --> 00:30:33,200

in the front seats of the shuttle you

725

00:30:37,990 --> 00:30:36,000

could pick up just very it was it was

726

00:30:39,750 --> 00:30:38,000

very difficult to see so

727

00:30:41,750 --> 00:30:39,760

i certainly didn't expect with a full

728

00:30:43,350 --> 00:30:41,760

daytime entry like we had with dragon

729

00:30:45,269 --> 00:30:43,360

and then as bob described that the

730

00:30:46,710 --> 00:30:45,279

position of the windows relative to

731

00:30:49,669 --> 00:30:46,720

where we sit

732

00:30:51,190 --> 00:30:49,679

until the seats adjust for the uh

733

00:30:53,590 --> 00:30:51,200

the uh

734

00:30:55,269 --> 00:30:53,600

basically to get our heads more vertical

735

00:30:57,190 --> 00:30:55,279

than our feet

736

00:30:59,029 --> 00:30:57,200

after we're under parachutes uh you

737

00:31:00,789 --> 00:30:59,039

really have to work pretty hard to just

738

00:31:02,149 --> 00:31:00,799

see out the windows and as far as the

739

00:31:03,029 --> 00:31:02,159

sapphire

740

00:31:05,669 --> 00:31:03,039

um

741

00:31:07,269 --> 00:31:05,679

yeah that that probably was a

742

00:31:09,509 --> 00:31:07,279

pretty funny to hear that you have

743

00:31:13,430 --> 00:31:09,519

astronauts colin whoever we can call but

744

00:31:15,350 --> 00:31:13,440

uh there there was a a real reason for

745

00:31:17,830 --> 00:31:15,360

it um you know

746

00:31:20,549 --> 00:31:17,840

nick when he had his uh

747

00:31:22,470 --> 00:31:20,559

abort on board soyuz they they also have

748

00:31:24,070 --> 00:31:22,480

a a phone where they're able to call

749

00:31:25,909 --> 00:31:24,080

folks but some of the numbers either

750

00:31:28,230 --> 00:31:25,919

weren't correct or weren't loaded

751  
00:31:30,630 --> 00:31:28,240  
and as i think most people know in this

752  
00:31:32,310 --> 00:31:30,640  
day and age we know very few phone

753  
00:31:34,310 --> 00:31:32,320  
numbers by heart like we used to know

754  
00:31:36,549 --> 00:31:34,320  
many years ago and so

755  
00:31:38,950 --> 00:31:36,559  
we wanted to

756  
00:31:40,789 --> 00:31:38,960  
get a test objective uh out of the way

757  
00:31:43,430 --> 00:31:40,799  
which was to call the uh

758  
00:31:46,149 --> 00:31:43,440  
the core uh station

759  
00:31:47,909 --> 00:31:46,159  
at hawthorne and when we called to say

760  
00:31:50,389 --> 00:31:47,919  
hey we would like to do that they said

761  
00:31:52,470 --> 00:31:50,399  
stand by and so we decided we would

762  
00:31:54,230 --> 00:31:52,480  
exercise our uh

763  
00:31:55,990 --> 00:31:54,240

judgment and use the phone to call some

764

00:31:58,470 --> 00:31:56,000

other folks so we called anthony i think

765

00:32:01,190 --> 00:31:58,480

at the at the capcom console here at the

766

00:32:02,710 --> 00:32:01,200

flight director console here and uh you

767

00:32:03,990 --> 00:32:02,720

know hi this is bob and doug we're in

768

00:32:07,029 --> 00:32:04,000

the ocean

769

00:32:08,470 --> 00:32:07,039

and then uh we also called our uh our

770

00:32:11,029 --> 00:32:08,480

wives who happened to be together i

771

00:32:13,110 --> 00:32:11,039

think they were here at mission control

772

00:32:14,789 --> 00:32:13,120

and of course they were excited and and

773

00:32:16,470 --> 00:32:14,799

as all folks know

774

00:32:18,630 --> 00:32:16,480

um that have gone through this as a

775

00:32:21,029 --> 00:32:18,640

family member you're kind of helpless

776

00:32:23,430 --> 00:32:21,039

uh until you hear the voice of your of

777

00:32:25,430 --> 00:32:23,440

your loved one on the other end and this

778

00:32:27,750 --> 00:32:25,440

was a great chance to reassure them that

779

00:32:29,990 --> 00:32:27,760

we were in the water we were okay

780

00:32:31,509 --> 00:32:30,000

we were feeling good and then and then

781

00:32:34,070 --> 00:32:31,519

at that point we were still waiting on

782

00:32:35,909 --> 00:32:34,080

spacex and so we just decided to call a

783

00:32:37,669 --> 00:32:35,919

few other people that we knew their

784

00:32:40,149 --> 00:32:37,679

phone numbers too we got a hold of a few

785

00:32:41,750 --> 00:32:40,159

but if anybody's ever used a sap phone

786

00:32:43,909 --> 00:32:41,760

sometimes they work and sometimes they

787

00:32:45,909 --> 00:32:43,919

don't connect so it was but it was a

788

00:32:47,990 --> 00:32:45,919

very successful test and we're confident

789

00:32:51,990 --> 00:32:48,000

that future crews if they need it it's a

790

00:32:54,389 --> 00:32:52,000

good uh a good option for communication

791

00:32:58,230 --> 00:32:54,399

next is stephen clark from space flight

792

00:33:02,549 --> 00:33:00,710

hi guys congratulations on a

793

00:33:04,549 --> 00:33:02,559

successful mission and welcome back to

794

00:33:07,029 --> 00:33:04,559

earth thanks for taking my question

795

00:33:08,789 --> 00:33:07,039

um just wanted to you know this

796

00:33:10,870 --> 00:33:08,799

by all accounts was a very successful

797

00:33:12,950 --> 00:33:10,880

test flight um

798

00:33:14,630 --> 00:33:12,960

just based on your experiences can i get

799

00:33:16,870 --> 00:33:14,640

one of you to comment on if you think

800

00:33:18,950 --> 00:33:16,880

crew dragon is ready to go for

801

00:33:21,669 --> 00:33:18,960

rotation missions to the iss

802

00:33:23,190 --> 00:33:21,679

with your successful return thanks

803

00:33:25,430 --> 00:33:23,200

you know i think both of us are in

804

00:33:26,950 --> 00:33:25,440

agreement uh no questions that the crew

805

00:33:28,630 --> 00:33:26,960

dragon once they finish the

806

00:33:31,190 --> 00:33:28,640

certification process you know they do

807

00:33:33,590 --> 00:33:31,200

need to look at the data from our entry

808

00:33:36,230 --> 00:33:33,600

you know it's not just the the end users

809

00:33:38,310 --> 00:33:36,240

anecdotes of uh how well it performed

810

00:33:40,549 --> 00:33:38,320

they will do a very thorough review both

811

00:33:42,230 --> 00:33:40,559

on the spacex side of the nasa side to

812

00:33:44,310 --> 00:33:42,240

make sure that they're comfortable but

813

00:33:46,149 --> 00:33:44,320

from a crew perspective

814

00:33:47,750 --> 00:33:46,159

i think that it's a definitely ready to

815

00:33:50,310 --> 00:33:47,760

go there are things that can be improved

816

00:33:51,750 --> 00:33:50,320

just like even with the final flight of

817

00:33:52,789 --> 00:33:51,760

the space shuttle i know doug will tell

818

00:33:54,070 --> 00:33:52,799

you that there are things that could

819

00:33:57,110 --> 00:33:54,080

have been improved or would have been

820

00:33:58,470 --> 00:33:57,120

improved if we flew 136 and so there'll

821

00:34:00,549 --> 00:33:58,480

be some things that we'll have some

822

00:34:01,909 --> 00:34:00,559

ideas about how we could make better to

823

00:34:03,830 --> 00:34:01,919

make things a little bit more

824

00:34:05,669 --> 00:34:03,840

comfortable or a little bit more

825

00:34:07,909 --> 00:34:05,679

efficient inside the vehicle for those

826

00:34:09,990 --> 00:34:07,919

crews but from a crew perspective i

827

00:34:12,069 --> 00:34:10,000

think we're we're perfectly comfortable

828

00:34:14,230 --> 00:34:12,079

saying that uh crew one is ready when

829

00:34:15,589 --> 00:34:14,240

they finish the uh the engineering and

830

00:34:17,829 --> 00:34:15,599

uh analysis associated with

831

00:34:19,430 --> 00:34:17,839

certification one thing i would just

832

00:34:20,389 --> 00:34:19,440

like to add about that you know bob and

833

00:34:22,389 --> 00:34:20,399

i talked

834

00:34:25,190 --> 00:34:22,399

many times over the last couple years

835

00:34:27,669 --> 00:34:25,200

about the duration of the flight and for

836

00:34:29,510 --> 00:34:27,679

a long part of that until just

837

00:34:30,790 --> 00:34:29,520

you know these essentially the beginning

838

00:34:33,030 --> 00:34:30,800

of this year

839

00:34:35,190 --> 00:34:33,040

you know it was going to be

840

00:34:38,149 --> 00:34:35,200

the same length as the dm1 flight so

841

00:34:40,230 --> 00:34:38,159

just a few days in space and i think

842

00:34:41,909 --> 00:34:40,240

i personally feel a lot better even

843

00:34:43,750 --> 00:34:41,919

though there were some challenges

844

00:34:45,750 --> 00:34:43,760

dealing with the you know the duration

845

00:34:47,349 --> 00:34:45,760

of the flight and when when all that

846

00:34:50,550 --> 00:34:47,359

would come together

847

00:34:52,389 --> 00:34:50,560

i certainly feel much better from from

848

00:34:55,030 --> 00:34:52,399

the crew one perspective and and

849

00:34:57,829 --> 00:34:55,040

subsequent flights of having dragon

850

00:34:59,589 --> 00:34:57,839

docked to station for two months

851

00:35:00,630 --> 00:34:59,599

is a much better

852

00:35:02,630 --> 00:35:00,640

outcome

853

00:35:04,870 --> 00:35:02,640

for me then if we'd just been up there a

854

00:35:07,190 --> 00:35:04,880

few days if you're asking the crew one

855

00:35:09,910 --> 00:35:07,200

folks to be up there for a full up

856

00:35:12,150 --> 00:35:09,920

six month ish type duration

857

00:35:15,750 --> 00:35:12,160

i think they should have a lot more

858

00:35:18,150 --> 00:35:15,760

confidence that the vehicle does fine

859

00:35:20,069 --> 00:35:18,160

in the quiescent mode doctor station and

860

00:35:21,990 --> 00:35:20,079

there and there wasn't anything that

861

00:35:23,510 --> 00:35:22,000

maybe wouldn't have been uncovered had

862

00:35:25,829 --> 00:35:23,520

we just been up there for just a few

863

00:35:28,150 --> 00:35:25,839

days so i thought that was a much better

864

00:35:32,230 --> 00:35:28,160

outcome

865

00:35:34,150 --> 00:35:32,240

we have gina cinceri from abc news

866

00:35:38,230 --> 00:35:34,160

what mission would be on the books for

867

00:35:42,230 --> 00:35:39,670

at least for me i think in the short

868

00:35:44,630 --> 00:35:42,240

term is i transition to a support role

869

00:35:46,710 --> 00:35:44,640

as you know my wife is assigned to a a

870

00:35:49,270 --> 00:35:46,720

spacex mission and we have a young son

871

00:35:50,870 --> 00:35:49,280

and so i'll uh definitely be focused on

872

00:35:53,190 --> 00:35:50,880

making sure that her missions as

873

00:35:55,510 --> 00:35:53,200

successful as possible and supporting

874

00:35:57,510 --> 00:35:55,520

her just as she did for me over the last

875

00:35:59,190 --> 00:35:57,520

five years with the uncertainty in our

876

00:36:00,630 --> 00:35:59,200

launch dates and uncertainty in our

877

00:36:02,950 --> 00:36:00,640

return dates

878

00:36:04,390 --> 00:36:02,960

it's it's definitely her turn to to

879

00:36:06,470 --> 00:36:04,400

focus on getting her mission

880

00:36:07,910 --> 00:36:06,480

accomplished while i take care of

881

00:36:11,750 --> 00:36:07,920

the things that need to be taken care of

882

00:36:11,760 --> 00:36:16,150

next is elizabeth howell from space.com

883

00:36:19,510 --> 00:36:18,069

welcome home and i wanted to know what

884

00:36:21,109 --> 00:36:19,520

kind of lessons learned or kind of

885

00:36:23,829 --> 00:36:21,119

advice that you would be giving to the

886

00:36:25,430 --> 00:36:23,839

crew one when they get ready to go

887

00:36:28,069 --> 00:36:25,440

that's a great question and you know we

888

00:36:30,069 --> 00:36:28,079

have a tag up with those guys i believe

889

00:36:31,990 --> 00:36:30,079

early next week and i think we've

890

00:36:33,030 --> 00:36:32,000

mentioned before that we we talked to

891

00:36:35,030 --> 00:36:33,040

them

892

00:36:37,109 --> 00:36:35,040

shortly after launch and once we were

893

00:36:40,710 --> 00:36:37,119

docked just to kind of while it was all

894

00:36:42,710 --> 00:36:40,720

fresh in our memories a a data

895

00:36:45,910 --> 00:36:42,720

relay to all the things that we we

896

00:36:48,390 --> 00:36:45,920

noticed or saw sounds and things that

897

00:36:50,870 --> 00:36:48,400

really can't be emulated very well in a

898

00:36:52,950 --> 00:36:50,880

simulator and things that would

899

00:36:55,910 --> 00:36:52,960

that would trigger you know any of the

900

00:36:57,349 --> 00:36:55,920

other uh training objectives that

901  
00:36:59,670 --> 00:36:57,359  
they're going through right now as they

902  
00:37:00,550 --> 00:36:59,680  
wrap up their training and so

903  
00:37:02,230 --> 00:37:00,560  
i think

904  
00:37:04,470 --> 00:37:02,240  
lessons learned you know there are

905  
00:37:06,790 --> 00:37:04,480  
always lessons learned um you know

906  
00:37:08,470 --> 00:37:06,800  
things that that we did that maybe we

907  
00:37:10,069 --> 00:37:08,480  
could be more efficient about or that we

908  
00:37:11,589 --> 00:37:10,079  
learned or that we thought maybe would

909  
00:37:14,150 --> 00:37:11,599  
work one way or

910  
00:37:16,470 --> 00:37:14,160  
that maybe would work better for another

911  
00:37:18,550 --> 00:37:16,480  
um but generally speaking i think it's

912  
00:37:20,790 --> 00:37:18,560  
more just relating the experience and

913  
00:37:24,870 --> 00:37:20,800

and and what we did in those particular

914

00:37:26,230 --> 00:37:24,880

situations and and and also trying to

915

00:37:27,990 --> 00:37:26,240

at least imagine what it would have been

916

00:37:29,910 --> 00:37:28,000

like to have four people in the vehicle

917

00:37:31,030 --> 00:37:29,920

rather than two we did some docked

918

00:37:33,349 --> 00:37:31,040

operation

919

00:37:35,510 --> 00:37:33,359

evaluations with four people and you

920

00:37:37,589 --> 00:37:35,520

know we had anatoly and chris act as the

921

00:37:40,390 --> 00:37:37,599

other two crew members and in their vast

922

00:37:42,310 --> 00:37:40,400

experience in in flying soyuz and space

923

00:37:44,069 --> 00:37:42,320

flight in general they had some great

924

00:37:46,790 --> 00:37:44,079

suggestions and we

925

00:37:48,630 --> 00:37:46,800

we at the time passed those things on uh

926  
00:37:50,950 --> 00:37:48,640  
in the debrief and we'll definitely talk

927  
00:37:51,910 --> 00:37:50,960  
to the crew one folks about that as well

928  
00:37:53,589 --> 00:37:51,920  
but

929  
00:37:55,190 --> 00:37:53,599  
yeah there's a very formal process and

930  
00:37:56,470 --> 00:37:55,200  
then an informal process and we'll just

931  
00:37:58,630 --> 00:37:56,480  
try to pass on everything that we

932  
00:38:02,390 --> 00:37:58,640  
learned and and what we think might work

933  
00:38:07,990 --> 00:38:06,230  
we have joey roulette from reuters

934  
00:38:10,150 --> 00:38:08,000  
yeah thanks for doing this and bob i

935  
00:38:11,829 --> 00:38:10,160  
really appreciated that um description

936  
00:38:13,589 --> 00:38:11,839  
of descending in crew dragon you gave

937  
00:38:15,829 --> 00:38:13,599  
earlier in the call and i was wondering

938  
00:38:17,670 --> 00:38:15,839

do you think there's anything spacex can

939

00:38:19,829 --> 00:38:17,680

or should do to make

940

00:38:21,349 --> 00:38:19,839

crew dragon's descent calmer or is that

941

00:38:23,510 --> 00:38:21,359

the way it should be and is that what

942

00:38:25,750 --> 00:38:23,520

you expected thanks

943

00:38:27,270 --> 00:38:25,760

i think from a crew perspective you know

944

00:38:29,030 --> 00:38:27,280

really what's important is that you

945

00:38:30,950 --> 00:38:29,040

understand the events that the vehicle

946

00:38:32,710 --> 00:38:30,960

is going to go through and know what to

947

00:38:34,390 --> 00:38:32,720

expect and so

948

00:38:36,710 --> 00:38:34,400

the thing that i found most valuable

949

00:38:38,390 --> 00:38:36,720

having gone through that uh experience

950

00:38:40,870 --> 00:38:38,400

was uh something that the actually the

951  
00:38:43,349 --> 00:38:40,880  
launch team put together for us uh

952  
00:38:44,150 --> 00:38:43,359  
pulled together some asset video from

953  
00:38:47,190 --> 00:38:44,160  
both

954  
00:38:49,270 --> 00:38:47,200  
demo one and the uh abort test that they

955  
00:38:51,829 --> 00:38:49,280  
performed to show what the sounds and

956  
00:38:53,750 --> 00:38:51,839  
dragon were synced up with the video

957  
00:38:56,069 --> 00:38:53,760  
feed and so being able to watch that and

958  
00:38:57,510 --> 00:38:56,079  
hear the sounds and see what they

959  
00:38:59,910 --> 00:38:57,520  
corresponded to

960  
00:39:01,910 --> 00:38:59,920  
on the video from you know the outside

961  
00:39:04,230 --> 00:39:01,920  
tracking cameras that were in place was

962  
00:39:05,670 --> 00:39:04,240  
just invaluable from my perspective and

963  
00:39:07,589 --> 00:39:05,680

really understanding what the vehicle

964

00:39:09,750 --> 00:39:07,599

was going to be going through and be

965

00:39:12,069 --> 00:39:09,760

comfortable as as we went through it and

966

00:39:14,310 --> 00:39:12,079

monitor it appropriately and so you know

967

00:39:16,150 --> 00:39:14,320

both doug and i had confidence uh like

968

00:39:18,790 --> 00:39:16,160

we described earlier that you know the

969

00:39:20,870 --> 00:39:18,800

drugs had come out and that the briefing

970

00:39:22,710 --> 00:39:20,880

had uh happened according to schedule

971

00:39:24,790 --> 00:39:22,720

just based on being able to watch that

972

00:39:26,230 --> 00:39:24,800

video and hear the sounds and have it

973

00:39:27,750 --> 00:39:26,240

all synced up we just knew what to

974

00:39:29,670 --> 00:39:27,760

expect you know

975

00:39:31,510 --> 00:39:29,680

this maybe sounds a little bit boring

976  
00:39:33,589 --> 00:39:31,520  
and i'm going to get probably some flack

977  
00:39:35,030 --> 00:39:33,599  
from talking about a movie cliches again

978  
00:39:36,470 --> 00:39:35,040  
but uh you know there's a there's a

979  
00:39:37,829 --> 00:39:36,480  
movie groundhog day where they're

980  
00:39:40,790 --> 00:39:37,839  
sequencing through and everything is

981  
00:39:43,910 --> 00:39:40,800  
predictable and and for dynamic events

982  
00:39:46,630 --> 00:39:43,920  
like a a space flight for ascent and for

983  
00:39:48,950 --> 00:39:46,640  
entry it really is invaluable as you try

984  
00:39:51,109 --> 00:39:48,960  
to control your body and and come

985  
00:39:53,829 --> 00:39:51,119  
through that environment whether it's a

986  
00:39:55,829 --> 00:39:53,839  
g-loading or it's the dynamics of a

987  
00:39:57,990 --> 00:39:55,839  
pitch yawn roll moving you around inside

988  
00:40:00,310 --> 00:39:58,000

the vehicle knowing what to expect

989

00:40:02,069 --> 00:40:00,320

really sets you up for success to work

990

00:40:04,390 --> 00:40:02,079

your way through it and do anything that

991

00:40:06,470 --> 00:40:04,400

you might need to do in those dynamic

992

00:40:08,150 --> 00:40:06,480

situations and i think that that video

993

00:40:10,390 --> 00:40:08,160

that the spacex team put together was

994

00:40:12,470 --> 00:40:10,400

just wonderful and uh i watched it again

995

00:40:13,589 --> 00:40:12,480

on orbit and before we came home and and

996

00:40:15,190 --> 00:40:13,599

i know

997

00:40:17,829 --> 00:40:15,200

that'll be in our list of things that we

998

00:40:19,349 --> 00:40:17,839

recommend to the crew one guys

999

00:40:20,550 --> 00:40:19,359

if they haven't already watched it that

1000

00:40:22,790 --> 00:40:20,560

that's something that they should uh

1001

00:40:26,470 --> 00:40:22,800

kind of commit to memory and consider

1002

00:40:32,470 --> 00:40:28,870

next is morgan mcfaul from business

1003

00:40:35,910 --> 00:40:34,069

hi bob and doug welcome home and thanks

1004

00:40:37,349 --> 00:40:35,920

so much for taking my question i'm

1005

00:40:39,109 --> 00:40:37,359

wondering what you would most like to

1006

00:40:41,030 --> 00:40:39,119

see for the partnership between nasa and

1007

00:40:42,790 --> 00:40:41,040

spacex going forward and what are you

1008

00:40:45,510 --> 00:40:42,800

most excited about in this new era of

1009

00:40:48,790 --> 00:40:45,520

human space flight thank you

1010

00:40:51,030 --> 00:40:48,800

well it's it's neat to see spacex is

1011

00:40:53,670 --> 00:40:51,040

in the competition to build the lunar

1012

00:40:56,630 --> 00:40:53,680

lander with two other companies

1013

00:40:58,550 --> 00:40:56,640

and uh we we've had as an agency we've

1014

00:40:59,910 --> 00:40:58,560

had a wonderful partnership with spacex

1015

00:41:01,589 --> 00:40:59,920

you know from commercial cargo to

1016

00:41:02,470 --> 00:41:01,599

commercial crew and they just continue

1017

00:41:09,109 --> 00:41:02,480

to

1018

00:41:10,870 --> 00:41:09,119

and it it's it's been a great

1019

00:41:13,510 --> 00:41:10,880

relationship it's been very beneficial

1020

00:41:16,309 --> 00:41:13,520

for both spacex and for nasa

1021

00:41:17,589 --> 00:41:16,319

and and this once again the success of

1022

00:41:19,349 --> 00:41:17,599

dm2

1023

00:41:21,990 --> 00:41:19,359

proves that it should be something that

1024

00:41:25,349 --> 00:41:22,000

we should continue and i'm excited

1025

00:41:29,030 --> 00:41:25,359

uh to see that happen it was it was a it

1026

00:41:31,510 --> 00:41:29,040

was a lot of work to to get from where

1027

00:41:33,510 --> 00:41:31,520

we started five years ago to now but

1028

00:41:36,230 --> 00:41:33,520

it's just they're wonderful company to

1029

00:41:37,829 --> 00:41:36,240

work with and they have some incredibly

1030

00:41:38,790 --> 00:41:37,839

talented people

1031

00:41:41,430 --> 00:41:38,800

um

1032

00:41:43,750 --> 00:41:41,440

and and i think there there's plenty to

1033

00:41:45,829 --> 00:41:43,760

come from from the relationship that

1034

00:41:48,069 --> 00:41:45,839

nasa and spacex have

1035

00:41:49,829 --> 00:41:48,079

yeah from my perspective it really is

1036

00:41:51,589 --> 00:41:49,839

critical that we continue to try to

1037

00:41:53,829 --> 00:41:51,599

build on that relationship that doug's

1038

00:41:55,430 --> 00:41:53,839

referred to you know it won't be

1039

00:41:57,430 --> 00:41:55,440

appropriate if we take the next step

1040

00:42:00,069 --> 00:41:57,440

which is to restart with a different

1041

00:42:01,349 --> 00:42:00,079

nasa team and a different spacex team we

1042

00:42:03,910 --> 00:42:01,359

really need to leverage those

1043

00:42:05,430 --> 00:42:03,920

relationships and continue with all the

1044

00:42:07,510 --> 00:42:05,440

you know the five years of experience

1045

00:42:09,829 --> 00:42:07,520

that we have of figuring out the things

1046

00:42:12,470 --> 00:42:09,839

that nasa can best share with spacex to

1047

00:42:14,069 --> 00:42:12,480

make them as successful as quickly as

1048

00:42:16,630 --> 00:42:14,079

possible and you know that applies to

1049

00:42:18,470 --> 00:42:16,640

all the partnerships that nasa sets up

1050

00:42:20,550 --> 00:42:18,480

is figuring out the best way to

1051

00:42:22,230 --> 00:42:20,560

communicate and share information is how

1052

00:42:25,430 --> 00:42:22,240

we're going to all cooperate to get to

1053

00:42:27,750 --> 00:42:25,440

our end objective and so i just uh i'm

1054

00:42:29,750 --> 00:42:27,760

really excited as we go forward that the

1055

00:42:31,270 --> 00:42:29,760

relationships and the work that's uh the

1056

00:42:33,349 --> 00:42:31,280

groundwork that's in place is going to

1057

00:42:35,990 --> 00:42:33,359

be leveraged to accomplish even more

1058

00:42:38,150 --> 00:42:36,000

great things in the future

1059

00:42:41,190 --> 00:42:38,160

we'll take one from mark caro from

1060

00:42:45,109 --> 00:42:43,589

wondering what the primary question

1061

00:42:46,390 --> 00:42:45,119

you're getting from your astronaut

1062

00:42:48,069 --> 00:42:46,400

colleagues

1063

00:42:50,309 --> 00:42:48,079

isn't what you're telling them about the

1064

00:42:51,990 --> 00:42:50,319

experience

1065

00:42:55,430 --> 00:42:52,000

actually we we haven't had a ton of

1066

00:42:56,870 --> 00:42:55,440

interaction with anybody given that

1067

00:42:59,190 --> 00:42:56,880

you know when you get back from space

1068

00:43:01,190 --> 00:42:59,200

you have a pretty

1069

00:43:03,670 --> 00:43:01,200

compromised immune system to some degree

1070

00:43:06,630 --> 00:43:03,680

so we're taking every precaution that we

1071

00:43:09,670 --> 00:43:06,640

can to try to stay away from

1072

00:43:11,270 --> 00:43:09,680

most folks although there is a a lot of

1073

00:43:12,870 --> 00:43:11,280

medical testing and

1074

00:43:14,710 --> 00:43:12,880

rehabilitation that's going on but

1075

00:43:16,630 --> 00:43:14,720

there'll be time to do

1076  
00:43:17,589 --> 00:43:16,640  
uh debriefs and i think as i mentioned

1077  
00:43:19,829 --> 00:43:17,599  
before

1078  
00:43:22,550 --> 00:43:19,839  
certainly with the crew one folks

1079  
00:43:24,630 --> 00:43:22,560  
uh coming up here pretty shortly uh

1080  
00:43:26,550 --> 00:43:24,640  
but yeah we haven't seen a lot of them

1081  
00:43:28,870 --> 00:43:26,560  
because you know we're just in in the

1082  
00:43:31,670 --> 00:43:28,880  
stage of the pandemic where we're we're

1083  
00:43:33,430 --> 00:43:31,680  
still i think even the folks that are

1084  
00:43:35,750 --> 00:43:33,440  
haven't gone to space are

1085  
00:43:37,190 --> 00:43:35,760  
are trying to distance and we're masking

1086  
00:43:38,950 --> 00:43:37,200  
those kinds of things but we we

1087  
00:43:40,309 --> 00:43:38,960  
definitely know that there are a lot of

1088  
00:43:43,030 --> 00:43:40,319

questions we've certainly gotten a lot

1089

00:43:43,910 --> 00:43:43,040

of texts and emails and uh hopefully we

1090

00:43:46,630 --> 00:43:43,920

can

1091

00:43:48,710 --> 00:43:46,640

describe everything uh from memory uh

1092

00:43:51,589 --> 00:43:48,720

that that is pertinent and as bob said

1093

00:43:55,190 --> 00:43:51,599

you know spacex will certainly have a

1094

00:43:57,030 --> 00:43:55,200

a synced up video with audio for our

1095

00:43:59,750 --> 00:43:57,040

ascent as well as our entry that that

1096

00:44:01,349 --> 00:43:59,760

will be passed on for multiple crews for

1097

00:44:02,870 --> 00:44:01,359

them to to use

1098

00:44:04,470 --> 00:44:02,880

yeah i would say we're still in the

1099

00:44:05,910 --> 00:44:04,480

phase where all of our astronaut

1100

00:44:07,349 --> 00:44:05,920

colleagues aren't asking us for

1101

00:44:08,870 --> 00:44:07,359

information

1102

00:44:10,470 --> 00:44:08,880

they know now is not the time for that

1103

00:44:12,710 --> 00:44:10,480

they're they're asking us do we need

1104

00:44:15,109 --> 00:44:12,720

anything or are families well taken care

1105

00:44:16,950 --> 00:44:15,119

of are we in good shape and so that's

1106

00:44:18,870 --> 00:44:16,960

their primary focus right now is you

1107

00:44:21,030 --> 00:44:18,880

know taking care of the team which is

1108

00:44:22,710 --> 00:44:21,040

the astronaut office and so i i all the

1109

00:44:24,630 --> 00:44:22,720

well wishes that come in

1110

00:44:26,390 --> 00:44:24,640

are do you need anything is there don't

1111

00:44:28,150 --> 00:44:26,400

climb a ladder i'll change the light at

1112

00:44:29,990 --> 00:44:28,160

your house all those sorts of things and

1113

00:44:32,069 --> 00:44:30,000

it's just been wonderful how many folks

1114

00:44:34,069 --> 00:44:32,079

have reached out to try to you know make

1115

00:44:36,069 --> 00:44:34,079

sure that we're well taken care of uh

1116

00:44:37,670 --> 00:44:36,079

after the the mission that we uh we just

1117

00:44:41,190 --> 00:44:37,680

went through and it's like that for

1118

00:44:42,790 --> 00:44:41,200

every mission when crews come back

1119

00:44:44,710 --> 00:44:42,800

we'll now go to social media for a few

1120

00:44:47,030 --> 00:44:44,720

more questions there using

1121

00:44:49,109 --> 00:44:47,040

ask nasa this one comes from natalie on

1122

00:44:51,190 --> 00:44:49,119

twitter what is the reconditioning

1123

00:44:53,430 --> 00:44:51,200

process like to get reacquainted with

1124

00:44:55,349 --> 00:44:53,440

gravity

1125

00:44:57,270 --> 00:44:55,359

well we'll spend two hours every day

1126  
00:44:59,750 --> 00:44:57,280  
with our

1127  
00:45:02,309 --> 00:44:59,760  
strength and conditioning uh specialists

1128  
00:45:04,710 --> 00:45:02,319  
and and it's essentially just a walk

1129  
00:45:06,950 --> 00:45:04,720  
before you run literally

1130  
00:45:09,750 --> 00:45:06,960  
tight process we do some stretching we

1131  
00:45:10,870 --> 00:45:09,760  
do some uh aerobic exercise we do some

1132  
00:45:13,990 --> 00:45:10,880  
lifting

1133  
00:45:15,750 --> 00:45:14,000  
and some agility drills and it's it's uh

1134  
00:45:19,109 --> 00:45:15,760  
you're pretty tired after the two-hour

1135  
00:45:21,430 --> 00:45:19,119  
process and we've just just started it

1136  
00:45:23,349 --> 00:45:21,440  
yesterday so on day

1137  
00:45:26,550 --> 00:45:23,359  
two

1138  
00:45:27,349 --> 00:45:26,560

and it will continue for roughly 45 days

1139

00:45:30,630 --> 00:45:27,359

and

1140

00:45:31,430 --> 00:45:30,640

most most people really adjust in that

1141

00:45:33,829 --> 00:45:31,440

time

1142

00:45:35,829 --> 00:45:33,839

certainly before you get to 45 days but

1143

00:45:39,030 --> 00:45:35,839

it's a continuous process to get you

1144

00:45:40,630 --> 00:45:39,040

right back to where you were pre-flight

1145

00:45:43,190 --> 00:45:40,640

we'll take one more from social media

1146

00:45:45,109 --> 00:45:43,200

this one from leo on twitter what is the

1147

00:45:47,109 --> 00:45:45,119

greatest lesson that a young person can

1148

00:45:49,349 --> 00:45:47,119

learn from this mission especially in

1149

00:45:51,589 --> 00:45:49,359

these challenging times

1150

00:45:53,349 --> 00:45:51,599

i think the greatest lesson folks can

1151  
00:45:55,670 --> 00:45:53,359  
take from our experience is one of

1152  
00:45:58,309 --> 00:45:55,680  
perseverance you know doug and i didn't

1153  
00:46:01,109 --> 00:45:58,319  
get to this opportunity and this team

1154  
00:46:03,750 --> 00:46:01,119  
didn't get to this success without years

1155  
00:46:06,069 --> 00:46:03,760  
of hard effort you know challenges along

1156  
00:46:07,990 --> 00:46:06,079  
the way it doesn't build doing something

1157  
00:46:10,069 --> 00:46:08,000  
complicated like developing a new

1158  
00:46:11,910 --> 00:46:10,079  
spacecraft and launching it developing a

1159  
00:46:13,750 --> 00:46:11,920  
new rocket and then putting a spacecraft

1160  
00:46:15,910 --> 00:46:13,760  
on top of it and launching it to the

1161  
00:46:17,829 --> 00:46:15,920  
international space station is just a

1162  
00:46:19,589 --> 00:46:17,839  
it's a tremendous level of effort that's

1163  
00:46:21,510 --> 00:46:19,599

required to accomplish that

1164

00:46:23,750 --> 00:46:21,520

and it's uh there are setbacks you know

1165

00:46:25,430 --> 00:46:23,760

there are there are challenges where you

1166

00:46:26,870 --> 00:46:25,440

know rocket performance isn't what you

1167

00:46:29,670 --> 00:46:26,880

expected or

1168

00:46:31,510 --> 00:46:29,680

a propulsion system on board a capsule

1169

00:46:33,510 --> 00:46:31,520

isn't exactly everything that you

1170

00:46:34,870 --> 00:46:33,520

thought it was and and you have to adapt

1171

00:46:37,109 --> 00:46:34,880

to those challenges and you have to

1172

00:46:40,069 --> 00:46:37,119

overcome them and continue forward and

1173

00:46:41,510 --> 00:46:40,079

maintain both optimism and paranoia as

1174

00:46:44,230 --> 00:46:41,520

you go through that

1175

00:46:46,150 --> 00:46:44,240

perseverance and so those are all normal

1176  
00:46:48,630 --> 00:46:46,160  
things as you try to accomplish you know

1177  
00:46:51,270 --> 00:46:48,640  
challenging tasks and so i'm hopeful

1178  
00:46:53,030 --> 00:46:51,280  
that uh our experience the entire spacex

1179  
00:46:55,990 --> 00:46:53,040  
teams experience and the nasa teams

1180  
00:46:58,150 --> 00:46:56,000  
experience one of just the the focused

1181  
00:47:00,309 --> 00:46:58,160  
effort for an extended period of time

1182  
00:47:02,550 --> 00:47:00,319  
you know can lead to just awesome

1183  
00:47:04,870 --> 00:47:02,560  
results if you if you you stay focused

1184  
00:47:07,349 --> 00:47:04,880  
and so that message of perseverance is

1185  
00:47:09,109 --> 00:47:07,359  
the one that i would want to share

1186  
00:47:11,190 --> 00:47:09,119  
we'll now go back to the phone bridge

1187  
00:47:13,589 --> 00:47:11,200  
starting with marina coren from the

1188  
00:47:16,470 --> 00:47:13,599

atlantic

1189

00:47:18,309 --> 00:47:16,480

hi bob and doug welcome back what advice

1190

00:47:20,870 --> 00:47:18,319

would you give to future crew dragon

1191

00:47:23,030 --> 00:47:20,880

passengers who are not astronauts

1192

00:47:24,710 --> 00:47:23,040

and a quick second question you've been

1193

00:47:26,150 --> 00:47:24,720

close friends for years did your

1194

00:47:29,270 --> 00:47:26,160

friendship survive this historic

1195

00:47:33,270 --> 00:47:30,950

all right um

1196

00:47:34,950 --> 00:47:33,280

what advice would we give

1197

00:47:36,549 --> 00:47:34,960

the kind of the non-professional

1198

00:47:39,510 --> 00:47:36,559

astronaut when they're flying on crew

1199

00:47:42,470 --> 00:47:39,520

dragon purely that the

1200

00:47:44,630 --> 00:47:42,480

spacex and nasa collaborated to build a

1201  
00:47:46,150 --> 00:47:44,640  
tremendous vehicle that is very capable

1202  
00:47:47,990 --> 00:47:46,160  
of the mission to go to and from low

1203  
00:47:50,470 --> 00:47:48,000  
earth orbit safely

1204  
00:47:51,510 --> 00:47:50,480  
uh it's it's a it's a comfortable

1205  
00:47:53,750 --> 00:47:51,520  
vehicle

1206  
00:47:56,309 --> 00:47:53,760  
there are things that are just an

1207  
00:47:58,630 --> 00:47:56,319  
aspect of flying in space that i think

1208  
00:48:00,309 --> 00:47:58,640  
most folks don't quite realize or

1209  
00:48:01,910 --> 00:48:00,319  
understand

1210  
00:48:04,069 --> 00:48:01,920  
there are times when it's uncomfortable

1211  
00:48:05,349 --> 00:48:04,079  
there are times when

1212  
00:48:07,670 --> 00:48:05,359  
you know you of course you can't take a

1213  
00:48:09,990 --> 00:48:07,680

shower uh you know going to the bathroom

1214

00:48:10,950 --> 00:48:10,000

is a challenge and but but i think in

1215

00:48:13,750 --> 00:48:10,960

general

1216

00:48:16,069 --> 00:48:13,760

uh it's an outstanding vehicle and and

1217

00:48:18,150 --> 00:48:16,079

they should be uh excited to fly on

1218

00:48:20,630 --> 00:48:18,160

board to get that experience if they're

1219

00:48:22,069 --> 00:48:20,640

lucky enough to do it and

1220

00:48:24,150 --> 00:48:22,079

i think as far as our friendship it

1221

00:48:26,069 --> 00:48:24,160

certainly survived that if anything it

1222

00:48:28,549 --> 00:48:26,079

just got stronger you know being part of

1223

00:48:30,630 --> 00:48:28,559

a crew with chris

1224

00:48:32,470 --> 00:48:30,640

anatoly and ivan

1225

00:48:33,670 --> 00:48:32,480

it was just neat to see the team

1226  
00:48:34,390 --> 00:48:33,680  
developed

1227  
00:48:36,230 --> 00:48:34,400  
you know

1228  
00:48:37,270 --> 00:48:36,240  
as bob had mentioned before and i'm sure

1229  
00:48:39,109 --> 00:48:37,280  
i did too

1230  
00:48:40,069 --> 00:48:39,119  
we we've known chris for a long time i

1231  
00:48:42,790 --> 00:48:40,079  
flew

1232  
00:48:45,670 --> 00:48:42,800  
uh with chris uh on our first flight

1233  
00:48:46,630 --> 00:48:45,680  
together and uh

1234  
00:48:48,950 --> 00:48:46,640  
it just

1235  
00:48:52,470 --> 00:48:48,960  
was really neat to see the the

1236  
00:48:54,870 --> 00:48:52,480  
expedition 63 crew develop and work

1237  
00:48:57,109 --> 00:48:54,880  
through the last few months and um it

1238  
00:48:58,470 --> 00:48:57,119

was very very rewarding and i think for

1239

00:49:00,870 --> 00:48:58,480

me personally

1240

00:49:03,430 --> 00:49:00,880

i maybe i didn't appreciate

1241

00:49:05,270 --> 00:49:03,440

that aspect of it as much

1242

00:49:08,309 --> 00:49:05,280

you know going into the flight because i

1243

00:49:10,390 --> 00:49:08,319

think you know our huge

1244

00:49:12,630 --> 00:49:10,400

concern and challenge was

1245

00:49:15,109 --> 00:49:12,640

was making sure dm2

1246

00:49:17,589 --> 00:49:15,119

flew the way it ended up flying

1247

00:49:20,150 --> 00:49:17,599

successfully and so

1248

00:49:22,150 --> 00:49:20,160

it was it was neat and and it just was

1249

00:49:23,270 --> 00:49:22,160

such a huge advantage i think for bob

1250

00:49:25,990 --> 00:49:23,280

and i

1251

00:49:27,829 --> 00:49:26,000

that we are close friends that just the

1252

00:49:30,309 --> 00:49:27,839

crew coordination part of it and flying

1253

00:49:32,150 --> 00:49:30,319

dragon was almost via telepathy

1254

00:49:33,750 --> 00:49:32,160

sometimes you know we didn't even have

1255

00:49:36,630 --> 00:49:33,760

to say anything whether we were pointing

1256

00:49:38,710 --> 00:49:36,640

at something or if we just

1257

00:49:40,549 --> 00:49:38,720

at that particular moment looking at

1258

00:49:42,309 --> 00:49:40,559

that part of a display because that's

1259

00:49:46,390 --> 00:49:42,319

what we knew would be the thing that was

1260

00:49:48,390 --> 00:49:46,400

most important and i i just think that

1261

00:49:50,390 --> 00:49:48,400

you know i know that doesn't necessarily

1262

00:49:53,270 --> 00:49:50,400

always go into the selection process but

1263

00:49:54,630 --> 00:49:53,280

i think you know in this case uh

1264

00:49:56,710 --> 00:49:54,640

when we were selected to fly this

1265

00:49:59,510 --> 00:49:56,720

mission together it certainly gave us a

1266

00:50:02,470 --> 00:49:59,520

distinct advantage over some crews

1267

00:50:04,390 --> 00:50:02,480

and and and it was certainly very much

1268

00:50:06,230 --> 00:50:04,400

appreciated by me

1269

00:50:08,710 --> 00:50:06,240

just as doug said being able to add

1270

00:50:11,430 --> 00:50:08,720

chris to our friendship and uh anatoly

1271

00:50:13,910 --> 00:50:11,440

and abond is is really how expedition 63

1272

00:50:16,150 --> 00:50:13,920

worked out you know it was us focused on

1273

00:50:18,150 --> 00:50:16,160

the mission and chris as the commander

1274

00:50:20,150 --> 00:50:18,160

of the space station being able to shift

1275

00:50:22,470 --> 00:50:20,160

into the support role when it came time

1276

00:50:24,230 --> 00:50:22,480

for us to get docked and then us to

1277

00:50:26,069 --> 00:50:24,240

shift into our support roles once we

1278

00:50:27,829 --> 00:50:26,079

were on board the space station of

1279

00:50:28,870 --> 00:50:27,839

course the space walks activities have

1280

00:50:30,069 --> 00:50:28,880

various

1281

00:50:31,589 --> 00:50:30,079

uh

1282

00:50:33,510 --> 00:50:31,599

sync points where the kind of the

1283

00:50:35,510 --> 00:50:33,520

leadership kind of moves around and we

1284

00:50:36,309 --> 00:50:35,520

were able to do that very seamlessly and

1285

00:50:38,309 --> 00:50:36,319

and

1286

00:50:40,790 --> 00:50:38,319

part of that is you know related to just

1287

00:50:42,230 --> 00:50:40,800

how close and how how strong our

1288

00:50:44,630 --> 00:50:42,240

friendships were kind of across the

1289

00:50:45,910 --> 00:50:44,640

board and so and of course when we came

1290

00:50:48,309 --> 00:50:45,920

to the end of the mission and it was

1291

00:50:50,309 --> 00:50:48,319

time to undock uh chris jumped back into

1292

00:50:51,990 --> 00:50:50,319

that support role again and helped us

1293

00:50:53,750 --> 00:50:52,000

with the cargo transfer that we needed

1294

00:50:56,309 --> 00:50:53,760

to put in place some of the powered

1295

00:50:57,910 --> 00:50:56,319

payload activities we just it was all

1296

00:50:59,670 --> 00:50:57,920

very seamless folks understood what

1297

00:51:01,670 --> 00:50:59,680

their responsibilities were and we were

1298

00:51:03,750 --> 00:51:01,680

able to you know cooperate and work

1299

00:51:05,910 --> 00:51:03,760

together to to make it all happen and

1300

00:51:07,910 --> 00:51:05,920

get the mission done and so i would say

1301  
00:51:09,670 --> 00:51:07,920  
you know our friendship is stronger and

1302  
00:51:11,670 --> 00:51:09,680  
we added some folks to our circle as

1303  
00:51:14,069 --> 00:51:11,680  
well

1304  
00:51:16,390 --> 00:51:14,079  
next is mary liz bender from cosmic

1305  
00:51:18,309 --> 00:51:16,400  
perspective

1306  
00:51:20,390 --> 00:51:18,319  
welcome home bob and doug i want to

1307  
00:51:22,710 --> 00:51:20,400  
first thank you for sharing that wisdom

1308  
00:51:25,190 --> 00:51:22,720  
on perseverance

1309  
00:51:27,589 --> 00:51:25,200  
you shared a lot of stunning images of

1310  
00:51:29,510 --> 00:51:27,599  
earth while you were on the station and

1311  
00:51:32,309 --> 00:51:29,520  
i really enjoyed the perspective you

1312  
00:51:34,950 --> 00:51:32,319  
gave with the captions that you used and

1313  
00:51:37,430 --> 00:51:34,960

i just wanted to ask what compelled you

1314

00:51:39,190 --> 00:51:37,440

to share so much and what was your

1315

00:51:40,630 --> 00:51:39,200

favorite location or feature to

1316

00:51:42,549 --> 00:51:40,640

photograph

1317

00:51:44,630 --> 00:51:42,559

well i think i think we can both answer

1318

00:51:46,549 --> 00:51:44,640

that one um

1319

00:51:48,230 --> 00:51:46,559

you know for me

1320

00:51:50,069 --> 00:51:48,240

i just

1321

00:51:53,349 --> 00:51:50,079

every time you look out the window of

1322

00:51:55,589 --> 00:51:53,359

the space station and and certainly

1323

00:51:57,030 --> 00:51:55,599

we didn't get the opportunity that i

1324

00:51:59,270 --> 00:51:57,040

thought we were going to get you know

1325

00:52:02,630 --> 00:51:59,280

based on the description of previous

1326

00:52:05,990 --> 00:52:02,640

crew members that we our our time was uh

1327

00:52:07,910 --> 00:52:06,000

used up a lot to to make up for the fact

1328

00:52:09,750 --> 00:52:07,920

that you know we were down to three crew

1329

00:52:11,829 --> 00:52:09,760

members on the space station

1330

00:52:13,030 --> 00:52:11,839

uh prior to us getting there

1331

00:52:15,190 --> 00:52:13,040

and uh

1332

00:52:16,790 --> 00:52:15,200

i think and and rightly so the

1333

00:52:18,630 --> 00:52:16,800

international space station program

1334

00:52:20,309 --> 00:52:18,640

needed needed us to get to work right

1335

00:52:21,589 --> 00:52:20,319

off the bat but the time that we did get

1336

00:52:23,430 --> 00:52:21,599

to do that

1337

00:52:26,069 --> 00:52:23,440

you know the perspective that you have

1338

00:52:27,030 --> 00:52:26,079

from low earth orbit of our planet is

1339

00:52:32,309 --> 00:52:27,040

just

1340

00:52:34,950 --> 00:52:32,319

first of all how beautiful the planet is

1341

00:52:36,950 --> 00:52:34,960

and and that there are no borders uh

1342

00:52:38,710 --> 00:52:36,960

that you can see from space that the

1343

00:52:40,790 --> 00:52:38,720

atmosphere is so thin

1344

00:52:42,309 --> 00:52:40,800

and then literally every time you look

1345

00:52:44,309 --> 00:52:42,319

out the window you see something

1346

00:52:45,990 --> 00:52:44,319

different and even more beautiful than

1347

00:52:47,670 --> 00:52:46,000

the last thing you saw the last time you

1348

00:52:49,270 --> 00:52:47,680

looked out the window and it's always

1349

00:52:52,870 --> 00:52:49,280

different and

1350

00:52:55,109 --> 00:52:52,880

and maybe more so this year than than in

1351

00:52:57,670 --> 00:52:55,119

past years that that astronauts have

1352

00:52:59,670 --> 00:52:57,680

taken photographs out the window

1353

00:53:01,829 --> 00:52:59,680

you know the country the country the

1354

00:53:05,349 --> 00:53:01,839

united states and the world has been

1355

00:53:08,950 --> 00:53:05,359

dealing with so much uh

1356

00:53:10,069 --> 00:53:08,960

chaos and drama and the pandemic and all

1357

00:53:11,910 --> 00:53:10,079

the things that have been going on in

1358

00:53:14,069 --> 00:53:11,920

the world and and you know

1359

00:53:15,750 --> 00:53:14,079

if it were me it would make me feel

1360

00:53:17,510 --> 00:53:15,760

better to see these pictures from space

1361

00:53:18,230 --> 00:53:17,520

and so i think we just felt like it was

1362

00:53:53,109 --> 00:53:18,240

a

1363

00:53:55,270 --> 00:53:53,119

you know i think for both of us we

1364

00:53:57,349 --> 00:53:55,280

didn't expect to have a longer duration

1365

00:53:59,030 --> 00:53:57,359

mission we expected to have just a few

1366

00:54:01,670 --> 00:53:59,040

short days which would have really

1367

00:54:03,990 --> 00:54:01,680

limited our opportunity to share the

1368

00:54:05,829 --> 00:54:04,000

station life aspects or the things that

1369

00:54:07,829 --> 00:54:05,839

you can see from low earth orbit or from

1370

00:54:10,390 --> 00:54:07,839

the space station with folks and when we

1371

00:54:12,150 --> 00:54:10,400

got the opportunity for a longer mission

1372

00:54:14,390 --> 00:54:12,160

i think we both wanted to take advantage

1373

00:54:16,870 --> 00:54:14,400

of that you know i think the earth below

1374

00:54:18,630 --> 00:54:16,880

us is a was a wonderful view just some

1375

00:54:21,510 --> 00:54:18,640

amazing things to see

1376

00:54:23,670 --> 00:54:21,520

i'm a little bit uh i'm a physics

1377

00:54:26,069 --> 00:54:23,680

trained engineer background sort of a

1378

00:54:29,270 --> 00:54:26,079

thing and so i was really interested in

1379

00:54:31,910 --> 00:54:29,280

the the things that were examples of

1380

00:54:34,230 --> 00:54:31,920

science or engineering or just physics

1381

00:54:35,750 --> 00:54:34,240

below us or above us that was happening

1382

00:54:37,349 --> 00:54:35,760

and so whether it was

1383

00:54:39,910 --> 00:54:37,359

light shimmering across the ocean's

1384

00:54:41,670 --> 00:54:39,920

surface or it was sunrises or sunset and

1385

00:54:43,829 --> 00:54:41,680

trying to figure out how to get a photo

1386

00:54:46,150 --> 00:54:43,839

and share that so that somebody else

1387

00:54:47,829 --> 00:54:46,160

could have the same wonder that we have

1388

00:54:50,309 --> 00:54:47,839

when we get a chance to see it ourselves

1389

00:54:52,789 --> 00:54:50,319

was what was really important to me we

1390

00:54:54,870 --> 00:54:52,799

had some interesting you know

1391

00:54:56,230 --> 00:54:54,880

um conditions uh during the fight we had

1392

00:54:58,230 --> 00:54:56,240

a period of time where we were in

1393

00:55:00,390 --> 00:54:58,240

continuous daylight uh we got to do a

1394

00:55:01,750 --> 00:55:00,400

spacewalk in continuous daylight which

1395

00:55:04,470 --> 00:55:01,760

was just a

1396

00:55:07,349 --> 00:55:04,480

crazy to imagine you know being outside

1397

00:55:09,030 --> 00:55:07,359

the entire time uh with with the sun up

1398

00:55:11,190 --> 00:55:09,040

the entire time was just a

1399

00:55:13,430 --> 00:55:11,200

strange thing to kind of get your mind

1400

00:55:15,829 --> 00:55:13,440

around and we got to got to have that

1401

00:55:17,670 --> 00:55:15,839

experience and so as a part of that i

1402

00:55:19,990 --> 00:55:17,680

think it took away the opportunities for

1403

00:55:22,549 --> 00:55:20,000

us to get as many shots of the the comet

1404

00:55:24,230 --> 00:55:22,559

uh neo-wise that was uh

1405

00:55:25,670 --> 00:55:24,240

rising it kind of came in that same

1406

00:55:27,750 --> 00:55:25,680

period so we had too much light to be

1407

00:55:29,430 --> 00:55:27,760

able to see it very much but

1408

00:55:31,030 --> 00:55:29,440

just all those things that you can see

1409

00:55:32,230 --> 00:55:31,040

whether it's lightning or the cities at

1410

00:55:34,390 --> 00:55:32,240

night or

1411

00:55:36,150 --> 00:55:34,400

or look out at the milky way and see the

1412

00:55:38,470 --> 00:55:36,160

stars in the in the background or just

1413

00:55:40,630 --> 00:55:38,480

see the glow of the the earth and see

1414

00:55:42,710 --> 00:55:40,640

that it is not dark even at night uh

1415

00:55:44,950 --> 00:55:42,720

compared to the darkness of space this

1416

00:55:48,390 --> 00:55:44,960

uh just imagery that we wanted to share

1417

00:55:50,230 --> 00:55:48,400

and maybe uh and spark an interest of

1418

00:55:51,829 --> 00:55:50,240

the wonder that we were able to see and

1419

00:55:54,870 --> 00:55:51,839

whether it's a child or an adult that's

1420

00:55:56,870 --> 00:55:54,880

out there so that uh in this year um and

1421

00:55:59,430 --> 00:55:56,880

and years in the future folks can look

1422

00:56:01,510 --> 00:55:59,440

at that and be inspired to have the kind

1423

00:56:03,030 --> 00:56:01,520

of careers that we've had or you know

1424

00:56:05,910 --> 00:56:03,040

chase a different dream than the one

1425

00:56:12,309 --> 00:56:09,990

next is irene klotz from aviation week

1426

00:56:15,109 --> 00:56:12,319

thank you um i realize you're still

1427

00:56:17,670 --> 00:56:15,119

digesting all of this but if you if the

1428

00:56:18,789 --> 00:56:17,680

decision were up to you about when to

1429

00:56:21,270 --> 00:56:18,799

fly

1430

00:56:22,549 --> 00:56:21,280

a friend family other non-professional

1431

00:56:24,950 --> 00:56:22,559

astronauts

1432

00:56:27,750 --> 00:56:24,960

um do you think that the system is

1433

00:56:31,829 --> 00:56:27,760

mature enough after just perhaps another

1434

00:56:34,470 --> 00:56:31,839

two flights to have that kind of mission

1435

00:56:36,789 --> 00:56:34,480

that's a good question i think um

1436

00:56:38,150 --> 00:56:36,799

if if it were me and it was a family

1437

00:56:39,990 --> 00:56:38,160

member

1438

00:56:42,630 --> 00:56:40,000

certainly as bob described there's a

1439

00:56:45,109 --> 00:56:42,640

certification process that that

1440

00:56:45,990 --> 00:56:45,119

that endeavor hasn't completed yet and

1441

00:56:47,750 --> 00:56:46,000

it'll

1442

00:56:50,789 --> 00:56:47,760

likely be weeks

1443

00:56:53,990 --> 00:56:50,799

and i think from my experience of flying

1444

00:56:56,230 --> 00:56:54,000

fighters and and testing fighters

1445

00:56:57,990 --> 00:56:56,240

you know a first flight

1446

00:56:58,870 --> 00:56:58,000

there's a lot of scrutiny on a first

1447

00:57:00,789 --> 00:56:58,880

flight

1448

00:57:02,150 --> 00:57:00,799

and there's a lot of work that goes into

1449

00:57:04,230 --> 00:57:02,160

a first flight

1450

00:57:06,309 --> 00:57:04,240

but you can't let your guard down and

1451  
00:57:08,630 --> 00:57:06,319  
you you got to take a look at the data

1452  
00:57:10,069 --> 00:57:08,640  
you've got to listen to the hardware and

1453  
00:57:11,589 --> 00:57:10,079  
and it's probably going to take a few

1454  
00:57:14,069 --> 00:57:11,599  
flights

1455  
00:57:16,069 --> 00:57:14,079  
because you know we certainly did our

1456  
00:57:18,630 --> 00:57:16,079  
best and i think the teams did their

1457  
00:57:20,630 --> 00:57:18,640  
best to script this flight to be a a

1458  
00:57:21,750 --> 00:57:20,640  
full-up test flight but there are

1459  
00:57:24,390 --> 00:57:21,760  
certainly

1460  
00:57:25,430 --> 00:57:24,400  
things on dragon that could be tested

1461  
00:57:26,390 --> 00:57:25,440  
more

1462  
00:57:28,950 --> 00:57:26,400  
and

1463  
00:57:30,470 --> 00:57:28,960

there just for an example you know we

1464

00:57:32,470 --> 00:57:30,480

docked to the forward part of the space

1465

00:57:34,150 --> 00:57:32,480

station there's certainly the likelihood

1466

00:57:36,230 --> 00:57:34,160

that a dragon is going to have to dock

1467

00:57:39,510 --> 00:57:36,240

to a different docking port either the

1468

00:57:41,109 --> 00:57:39,520

zenith i think it's the zenith port that

1469

00:57:43,190 --> 00:57:41,119

is likely to be next for a commercial

1470

00:57:45,349 --> 00:57:43,200

vehicle and that may sound somewhat

1471

00:57:46,710 --> 00:57:45,359

insignificant but it but it but it isn't

1472

00:57:48,549 --> 00:57:46,720

and so

1473

00:57:51,750 --> 00:57:48,559

all the software that needs to go in to

1474

00:57:53,030 --> 00:57:51,760

the the vehicle uh trajectory analysis

1475

00:57:54,549 --> 00:57:53,040

and the things that they need to do in

1476

00:57:56,710 --> 00:57:54,559

order to make that

1477

00:57:58,230 --> 00:57:56,720

that possible and and for our flight

1478

00:57:59,990 --> 00:57:58,240

that was not possible though the

1479

00:58:03,109 --> 00:58:00,000

software hadn't been written yet to do

1480

00:58:04,309 --> 00:58:03,119

those uh to do that docking port so just

1481

00:58:05,990 --> 00:58:04,319

things like that so i think it's going

1482

00:58:09,430 --> 00:58:06,000

to take a few flights

1483

00:58:11,030 --> 00:58:09,440

before uh and i think that's prudent a

1484

00:58:12,710 --> 00:58:11,040

few flights before

1485

00:58:15,190 --> 00:58:12,720

you know we can consider this vehicle

1486

00:58:16,309 --> 00:58:15,200

completely tested and then as we all

1487

00:58:21,270 --> 00:58:16,319

know

1488

00:58:22,470 --> 00:58:21,280

of those uh technically challenging

1489

00:58:25,670 --> 00:58:22,480

businesses

1490

00:58:27,510 --> 00:58:25,680

is not forgiving so you the the bigger

1491

00:58:29,510 --> 00:58:27,520

thing to take a look at is to just not

1492

00:58:31,109 --> 00:58:29,520

let your guard down and don't just

1493

00:58:32,470 --> 00:58:31,119

assume because the last flight went

1494

00:58:34,230 --> 00:58:32,480

perfectly that the next flight's going

1495

00:58:36,870 --> 00:58:34,240

to go perfectly you have to you have to

1496

00:58:39,270 --> 00:58:36,880

do that rigor and that analysis

1497

00:58:41,030 --> 00:58:39,280

and and that attention to detail and you

1498

00:58:43,589 --> 00:58:41,040

can't get complacent and you can never

1499

00:58:46,230 --> 00:58:43,599

get complacent with uh with a space

1500

00:58:49,510 --> 00:58:47,670

that's all the time we have four

1501  
00:58:51,349 --> 00:58:49,520  
questions today thanks to all who

1502  
00:58:53,510 --> 00:58:51,359  
submitted questions and thanks to bob

1503  
00:58:55,750 --> 00:58:53,520  
benkin and doug hurley for taking the

1504  
00:58:57,430 --> 00:58:55,760  
time to discuss this historic event the

1505  
00:58:59,190 --> 00:58:57,440  
demo 2 mission is part of nasa's

1506  
00:59:00,150 --> 00:58:59,200  
commercial crew program we have more

1507  
00:59:03,910 --> 00:59:00,160  
milestones

1508  
00:59:05,430 --> 00:59:03,920  
future so for the latest please visit

1509  
00:59:07,430 --> 00:59:05,440  
nasa.gov

1510  
00:59:09,190 --> 00:59:07,440  
commercial crew thanks again for joining

1511  
00:59:14,940 --> 00:59:09,200  
us that'll wrap up today's crew news

1512  
00:59:14,950 --> 00:59:37,270  
[Music]