



NASA's SpaceX Crew-2

Mission Overview Briefing

1
00:11:36,780 --> 00:00:42,390
[Music]

2
00:11:50,310 --> 00:11:36,790
[Applause]

3
00:11:51,750 --> 00:11:50,320
[Music]

4
00:11:53,990 --> 00:11:51,760
well good morning good afternoon and

5
00:11:55,990 --> 00:11:54,000
good evening everybody sorry for a bit

6
00:11:58,470 --> 00:11:56,000
of the delay but welcome to our mission

7
00:12:00,470 --> 00:11:58,480
overview briefing for nasa's spacecraft

8
00:12:02,710 --> 00:12:00,480
ii mission to international space

9
00:12:04,550 --> 00:12:02,720
station it's currently set to launch no

10
00:12:06,310 --> 00:12:04,560
earlier the 20th it's going to be the

11
00:12:08,870 --> 00:12:06,320
second full rotation mission to the

12
00:12:10,389 --> 00:12:08,880
station aboard a state next crew dragon

13
00:12:12,870 --> 00:12:10,399

this time we'll have astronauts from

14

00:12:14,949 --> 00:12:12,880

nasa esa and jaxa so we have represents

15

00:12:16,629 --> 00:12:14,959

from all the partner agencies and spacex

16

00:12:18,310 --> 00:12:16,639

with us here today

17

00:12:20,470 --> 00:12:18,320

running down the list of participants we

18

00:12:22,829 --> 00:12:20,480

have kathy leaders the nasa associate

19

00:12:25,269 --> 00:12:22,839

administrator for human exploration and

20

00:12:27,269 --> 00:12:25,279

operations we have steve stitch the

21

00:12:28,550 --> 00:12:27,279

program manager of nash's commercial

22

00:12:30,629 --> 00:12:28,560

crew program

23

00:12:32,870 --> 00:12:30,639

joel montelbano the nasa program manager

24

00:12:34,710 --> 00:12:32,880

for the international space station

25

00:12:37,430 --> 00:12:34,720

benji reed senior director of human

26
00:12:39,190 --> 00:12:37,440
space flight programs at spacex hiroshi

27
00:12:40,949 --> 00:12:39,200
sasaki jax the vice president and

28
00:12:43,269 --> 00:12:40,959
director general for human space flight

29
00:12:44,870 --> 00:12:43,279
technology directorate and david parker

30
00:12:47,110 --> 00:12:44,880
the director of human and robotic

31
00:12:48,470 --> 00:12:47,120
exploration at esa

32
00:12:50,069 --> 00:12:48,480
as always we'll start with opening

33
00:12:52,710 --> 00:12:50,079
remarks and then take questions from

34
00:12:54,470 --> 00:12:52,720
media over the phone and on social media

35
00:12:56,550 --> 00:12:54,480
if you're dialed into our media line and

36
00:12:58,710 --> 00:12:56,560
want to ask a question make sure to

37
00:13:00,069 --> 00:12:58,720
press star one to get into the queue and

38
00:13:01,750 --> 00:13:00,079

once you're in if your question is

39

00:13:03,590 --> 00:13:01,760

answered you can press star two to jump

40

00:13:05,190 --> 00:13:03,600

back out and since we're all virtual

41

00:13:07,829 --> 00:13:05,200

please remember state your name

42

00:13:09,269 --> 00:13:07,839

affiliation and who your question is for

43

00:13:11,030 --> 00:13:09,279

and then in the interest of time we'll

44

00:13:12,790 --> 00:13:11,040

eliminate one question each and then

45

00:13:14,230 --> 00:13:12,800

we'll come back around for follow-ups

46

00:13:15,990 --> 00:13:14,240

and if you're watching online and want

47

00:13:18,629 --> 00:13:16,000

to ask a question jump on twitter and

48

00:13:27,190 --> 00:13:18,639

use the hashtag asknasa so we'll jump

49

00:13:30,949 --> 00:13:28,710

you know when we start having press

50

00:13:33,350 --> 00:13:30,959

conferences we're getting ready to fly

51
00:13:35,030 --> 00:13:33,360
and we're getting ready to fly again

52
00:13:35,910 --> 00:13:35,040
this time we're going to fly

53
00:13:38,710 --> 00:13:35,920
shane

54
00:13:41,110 --> 00:13:38,720
megan aki and tomah

55
00:13:44,310 --> 00:13:41,120
and when you think about it a year ago

56
00:13:46,310 --> 00:13:44,320
when we were getting ready to fly demo 2

57
00:13:48,389 --> 00:13:46,320
we were just dreaming of the fact that

58
00:13:51,910 --> 00:13:48,399
we would be getting ready for our third

59
00:13:55,269 --> 00:13:51,920
crew mission in a year first year flying

60
00:13:57,750 --> 00:13:55,279
third crew mission in that year first

61
00:14:01,350 --> 00:13:57,760
our demo two mission crew one and now

62
00:14:03,189 --> 00:14:01,360
crew two i'm very very proud of our nasa

63
00:14:04,470 --> 00:14:03,199

and spacex team that have made this

64

00:14:06,230 --> 00:14:04,480

happen

65

00:14:07,509 --> 00:14:06,240

i'm also very proud of the international

66

00:14:10,389 --> 00:14:07,519

space station

67

00:14:13,509 --> 00:14:10,399

program team that is just

68

00:14:15,670 --> 00:14:13,519

very very busy these days i mean

69

00:14:17,430 --> 00:14:15,680

the space station has become the space

70

00:14:20,629 --> 00:14:17,440

port we wanted it to be

71

00:14:23,269 --> 00:14:20,639

with vehicles flying to it and returning

72

00:14:25,350 --> 00:14:23,279

science and payloads and and doing

73

00:14:26,150 --> 00:14:25,360

amazing things on orbit

74

00:14:27,990 --> 00:14:26,160

and in

75

00:14:30,629 --> 00:14:28,000

addition i'm extremely proud of the

76

00:14:34,230 --> 00:14:30,639

international partnership you know this

77

00:14:37,269 --> 00:14:34,240

flight exemplifies the partnership and

78

00:14:40,310 --> 00:14:37,279

how we are continuing to advance human

79

00:14:43,110 --> 00:14:40,320

space flight with what we do every day

80

00:14:45,269 --> 00:14:43,120

and will lead us to not only doing great

81

00:14:47,350 --> 00:14:45,279

things on the space station but doing

82

00:14:49,110 --> 00:14:47,360

even more in our space exploration

83

00:14:51,670 --> 00:14:49,120

programs going forward

84

00:14:53,590 --> 00:14:51,680

so thank you dan and thank you all for

85

00:14:56,389 --> 00:14:53,600

being here today and helping us

86

00:14:58,550 --> 00:14:56,399

celebrate what is one more milestone for

87

00:15:01,509 --> 00:14:58,560

us to fly our cruise back to the

88

00:15:03,590 --> 00:15:01,519

international space station again

89

00:15:05,750 --> 00:15:03,600

all right thank you kathy and now we

90

00:15:08,550 --> 00:15:05,760

will go to steve stitch the manager of

91

00:15:10,470 --> 00:15:08,560

nasa's commercial crew program steve

92

00:15:13,110 --> 00:15:10,480

thanks dan it's great to be here today

93

00:15:15,189 --> 00:15:13,120

it's an exciting time in commercial crew

94

00:15:17,590 --> 00:15:15,199

uh last week i was talking to benji reed

95

00:15:19,670 --> 00:15:17,600

my uh my counterpart at spacex and we

96

00:15:22,150 --> 00:15:19,680

were reminiscent about a year ago where

97

00:15:23,990 --> 00:15:22,160

we were had the one crew flight in front

98

00:15:25,829 --> 00:15:24,000

of us with bob and doug

99

00:15:26,949 --> 00:15:25,839

and and now as we sit here today we're

100

00:15:29,030 --> 00:15:26,959

talking about

101

00:15:31,509 --> 00:15:29,040

crew two our first uh

102

00:15:33,350 --> 00:15:31,519

first crude flight of this year we plan

103

00:15:34,949 --> 00:15:33,360

in our program we plan three crude

104

00:15:37,430 --> 00:15:34,959

flights we'll plant we'll have the crew

105

00:15:40,389 --> 00:15:37,440

2 mission which we'll detail today we'll

106

00:15:42,389 --> 00:15:40,399

have uh crew 3 later in the year in the

107

00:15:44,550 --> 00:15:42,399

fall time frame and we'll also have our

108

00:15:46,790 --> 00:15:44,560

first boeing crude flight right now

109

00:15:48,550 --> 00:15:46,800

nowhere in september the current flight

110

00:15:49,990 --> 00:15:48,560

test this year so we have three crude

111

00:15:51,670 --> 00:15:50,000

missions this year

112

00:15:53,269 --> 00:15:51,680

and lots of planning also into the

113

00:15:55,509 --> 00:15:53,279

flights for next year

114

00:15:57,110 --> 00:15:55,519

if i just step back we also have an

115

00:15:58,870 --> 00:15:57,120

orbital flight test for boeing this year

116

00:16:00,629 --> 00:15:58,880

in the commercial crew program

117

00:16:02,790 --> 00:16:00,639

but if i look at the vehicles we have

118

00:16:04,949 --> 00:16:02,800

today you know crew one's on orbit and

119

00:16:06,790 --> 00:16:04,959

it's doing great we just surpassed last

120

00:16:08,629 --> 00:16:06,800

week 100 days on orbit

121

00:16:10,230 --> 00:16:08,639

and that vehicle is doing wonderfully we

122

00:16:11,110 --> 00:16:10,240

check it out every week and it's doing

123

00:16:12,790 --> 00:16:11,120

fine

124

00:16:14,710 --> 00:16:12,800

you know crew 2 right now the launch

125

00:16:16,310 --> 00:16:14,720

date is nowhere than

126

00:16:18,069 --> 00:16:16,320

april the 20th

127

00:16:19,749 --> 00:16:18,079

we'll probably adjust that a little bit

128

00:16:21,910 --> 00:16:19,759

to more optimize some of the orbital

129

00:16:23,829 --> 00:16:21,920

mechanics and the launch opportunities

130

00:16:26,629 --> 00:16:23,839

as we go forward we really want to get

131

00:16:28,710 --> 00:16:26,639

that flight in between the the soyuz

132

00:16:30,870 --> 00:16:28,720

operations where we have a couple soyuz

133

00:16:33,509 --> 00:16:30,880

vehicles that i know joel will touch on

134

00:16:34,629 --> 00:16:33,519

and then the beta cut out in may and

135

00:16:35,670 --> 00:16:34,639

then we have some dark landing

136

00:16:38,150 --> 00:16:35,680

opportunities so we really want to get

137

00:16:40,550 --> 00:16:38,160

that flight flown in that time frame and

138

00:16:43,030 --> 00:16:40,560

then of course we'll we'll uh return uh

139

00:16:45,430 --> 00:16:43,040

the crew one vehicle and its crew who's

140

00:16:47,829 --> 00:16:45,440

doing a great job on orbit uh

141

00:16:50,069 --> 00:16:47,839

probably late april early may we really

142

00:16:52,150 --> 00:16:50,079

want to get that flight flown and back

143

00:16:54,870 --> 00:16:52,160

down before we have dark landing

144

00:16:56,870 --> 00:16:54,880

opportunities around may 9th

145

00:16:59,189 --> 00:16:56,880

this is an exciting flight for us it's

146

00:17:01,829 --> 00:16:59,199

the first time we have not only another

147

00:17:03,590 --> 00:17:01,839

uh jackson crew member and aki but we

148

00:17:06,150 --> 00:17:03,600

also have a european space agency crew

149

00:17:07,909 --> 00:17:06,160

member in tomah we're excited about that

150

00:17:09,990 --> 00:17:07,919

we're excited about this crew dragon

151
00:17:12,309 --> 00:17:10,000
which has uh some

152
00:17:13,750 --> 00:17:12,319
enhanced capabilities over the crew one

153
00:17:16,549 --> 00:17:13,760
vehicle and i know benji will talk about

154
00:17:18,470 --> 00:17:16,559
that we have enhanced board capability

155
00:17:21,029 --> 00:17:18,480
we have some enhanced prop capability

156
00:17:23,110 --> 00:17:21,039
making an even safer vehicle and some

157
00:17:24,390 --> 00:17:23,120
crew improvements inside the cockpit as

158
00:17:26,710 --> 00:17:24,400
well

159
00:17:30,150 --> 00:17:26,720
uh we are about to embark upon our first

160
00:17:32,470 --> 00:17:30,160
uh port relocation on orbit uh very soon

161
00:17:33,270 --> 00:17:32,480
and we're looking at uh the late march

162
00:17:35,590 --> 00:17:33,280
uh

163
00:17:37,990 --> 00:17:35,600

early april time frame we'll move the

164

00:17:39,750 --> 00:17:38,000

the crew one vehicle uh from where it is

165

00:17:41,750 --> 00:17:39,760

uh on the ford port on space station

166

00:17:44,070 --> 00:17:41,760

we'll move it up to the zenith port to

167

00:17:46,310 --> 00:17:44,080

make room for the crew to launch

168

00:17:49,029 --> 00:17:46,320

uh overall just an exciting time i can't

169

00:17:51,909 --> 00:17:49,039

thank uh our team enough you know over

170

00:17:53,669 --> 00:17:51,919

the last year or so we have worked on

171

00:17:55,750 --> 00:17:53,679

reuse of the vehicle this is our first

172

00:17:57,430 --> 00:17:55,760

flight where we'll have a reused dragon

173

00:17:59,669 --> 00:17:57,440

uh this is the vehicle that bob and doug

174

00:18:01,830 --> 00:17:59,679

flew back on demo two and we'll have our

175

00:18:03,830 --> 00:18:01,840

first reuse booster and we've worked

176

00:18:06,070 --> 00:18:03,840

through that certification effort uh

177

00:18:08,390 --> 00:18:06,080

with people both on the nasa's team and

178

00:18:09,830 --> 00:18:08,400

the spacex team and had our review last

179

00:18:11,190 --> 00:18:09,840

friday and we're in really good shape on

180

00:18:12,870 --> 00:18:11,200

reuse

181

00:18:15,750 --> 00:18:12,880

and then one final thing you know it's a

182

00:18:16,950 --> 00:18:15,760

real busy time frame uh in april on the

183

00:18:18,950 --> 00:18:16,960

iss

184

00:18:21,029 --> 00:18:18,960

and we're right now in the process of

185

00:18:23,350 --> 00:18:21,039

looking at the orbit flight test and

186

00:18:24,630 --> 00:18:23,360

what to do with that flight

187

00:18:26,870 --> 00:18:24,640

you know we've had some unfortunate

188

00:18:28,549 --> 00:18:26,880

weather here in the houston area where

189

00:18:30,870 --> 00:18:28,559

we lost about a week of time and some

190

00:18:32,549 --> 00:18:30,880

critical software testing the vehicles

191

00:18:34,470 --> 00:18:32,559

coming together nicely we recovered from

192

00:18:35,750 --> 00:18:34,480

a power up anomaly well and

193

00:18:37,750 --> 00:18:35,760

we're about two weeks down from where

194

00:18:40,470 --> 00:18:37,760

we'd like to so we're in the process of

195

00:18:42,150 --> 00:18:40,480

figuring out the next step on on oft2

196

00:18:44,070 --> 00:18:42,160

i'm certainly proud of our commercial

197

00:18:45,830 --> 00:18:44,080

crew team it's already been a busy year

198

00:18:48,789 --> 00:18:45,840

and we look forward to

199

00:18:51,190 --> 00:18:48,799

more busyness as we get onto crew 2.

200

00:18:52,950 --> 00:18:51,200

i'll turn it back over to you dan

201
00:18:54,789 --> 00:18:52,960
all right thank you steve now we'll go

202
00:18:56,549 --> 00:18:54,799
to joel montalbano now as program

203
00:18:58,630 --> 00:18:56,559
manager for the international space

204
00:19:00,870 --> 00:18:58,640
station joel

205
00:19:03,430 --> 00:19:00,880
thank you dan welcome again to today's

206
00:19:06,230 --> 00:19:03,440
press brief as you heard from both steve

207
00:19:08,390 --> 00:19:06,240
and kathy we have another busy spring on

208
00:19:10,070 --> 00:19:08,400
board the international space station

209
00:19:11,190 --> 00:19:10,080
and if you've been watching us for a

210
00:19:13,270 --> 00:19:11,200
while that's

211
00:19:15,669 --> 00:19:13,280
standard but uh the team has just been

212
00:19:17,350 --> 00:19:15,679
been awesome trying to accommodate the

213
00:19:20,150 --> 00:19:17,360

different vehicles and different crew

214

00:19:21,510 --> 00:19:20,160

and uncrewed vehicles as they come

215

00:19:23,750 --> 00:19:21,520

and as steve said you know one of our

216

00:19:24,470 --> 00:19:23,760

jobs is to continually look at flight

217

00:19:26,070 --> 00:19:24,480

plan

218

00:19:27,909 --> 00:19:26,080

to make sure what we're doing is

219

00:19:30,870 --> 00:19:27,919

maximizing the use of the international

220

00:19:32,950 --> 00:19:30,880

space station so we will adjust when

221

00:19:34,310 --> 00:19:32,960

these vehicles are ready and will fly

222

00:19:36,230 --> 00:19:34,320

accordingly

223

00:19:38,789 --> 00:19:36,240

for the crew 2 mission we've done a

224

00:19:40,870 --> 00:19:38,799

number of reviews already completed and

225

00:19:43,270 --> 00:19:40,880

while we do have a handful reviews still

226

00:19:45,430 --> 00:19:43,280

to go we are working towards the april

227

00:19:47,430 --> 00:19:45,440

date the april 20th or as steve

228

00:19:49,350 --> 00:19:47,440

mentioned earlier based on trajectory we

229

00:19:51,350 --> 00:19:49,360

may move it a couple days to the right

230

00:19:53,190 --> 00:19:51,360

but we're working in that direction and

231

00:19:55,110 --> 00:19:53,200

the teams are ready to go

232

00:19:57,590 --> 00:19:55,120

in addition to the two nasa astronauts

233

00:19:59,590 --> 00:19:57,600

we're excited to see a european space

234

00:20:01,909 --> 00:19:59,600

agency astronaut fly on this vehicle

235

00:20:03,750 --> 00:20:01,919

we're excited to see another japanese

236

00:20:05,350 --> 00:20:03,760

aerospace exploration agency

237

00:20:06,950 --> 00:20:05,360

astronautify

238

00:20:09,029 --> 00:20:06,960

um this

239

00:20:10,950 --> 00:20:09,039

as stated earlier will stay

240

00:20:11,990 --> 00:20:10,960

approximately six months so full

241

00:20:14,230 --> 00:20:12,000

increment

242

00:20:16,230 --> 00:20:14,240

in addition to delivering the crews uh

243

00:20:18,549 --> 00:20:16,240

this vehicle will deliver about 200 plus

244

00:20:20,950 --> 00:20:18,559

kilograms of pressurized cargo to the

245

00:20:23,350 --> 00:20:20,960

international space station to enhance

246

00:20:26,310 --> 00:20:23,360

our science and utilization program to

247

00:20:27,830 --> 00:20:26,320

help us in technology development and to

248

00:20:29,669 --> 00:20:27,840

help us in the low earth orbit

249

00:20:32,070 --> 00:20:29,679

commercialization activities onboard the

250

00:20:34,230 --> 00:20:32,080

international space station

251
00:20:36,230 --> 00:20:34,240
last year we celebrated 20 years of

252
00:20:38,230 --> 00:20:36,240
continuous human presence onboard the

253
00:20:40,149 --> 00:20:38,240
international space station and over

254
00:20:42,230 --> 00:20:40,159
those 20 years you've seen changes in

255
00:20:44,789 --> 00:20:42,240
how we operate the international space

256
00:20:46,950 --> 00:20:44,799
station while our recent agreements with

257
00:20:49,669 --> 00:20:46,960
the american private industry has

258
00:20:51,590 --> 00:20:49,679
allowed us to bring more people to space

259
00:20:54,390 --> 00:20:51,600
more people to the international space

260
00:20:56,390 --> 00:20:54,400
station and has allowed us to increase

261
00:20:59,029 --> 00:20:56,400
the low earth orbit commercialization

262
00:21:01,990 --> 00:20:59,039
activities that has made a priority at

263
00:21:03,669 --> 00:21:02,000

the agency so it's an exciting time

264

00:21:05,909 --> 00:21:03,679

we're very excited to be working with

265

00:21:07,669 --> 00:21:05,919

our spacex and boeing providers as well

266

00:21:09,909 --> 00:21:07,679

as our other cargo providers with

267

00:21:11,830 --> 00:21:09,919

northrop grumman as well as sierra

268

00:21:14,070 --> 00:21:11,840

nevada corporation

269

00:21:16,230 --> 00:21:14,080

so in closing i want a huge thanks to

270

00:21:18,310 --> 00:21:16,240

the commercial coup program a huge

271

00:21:20,149 --> 00:21:18,320

thanks to spacex

272

00:21:22,789 --> 00:21:20,159

from the international partnership we're

273

00:21:24,950 --> 00:21:22,799

ready for these vehicles we're excited

274

00:21:27,350 --> 00:21:24,960

with the relationship we have we look

275

00:21:29,350 --> 00:21:27,360

forward to an awesome crew 2 mission and

276

00:21:32,310 --> 00:21:29,360

an outstanding expedition

277

00:21:34,149 --> 00:21:32,320

so back over to you dan thank you

278

00:21:35,510 --> 00:21:34,159

all right thank you joel next up we're

279

00:21:37,430 --> 00:21:35,520

going to go to benji reed senior

280

00:21:39,990 --> 00:21:37,440

director for human space flight programs

281

00:21:41,909 --> 00:21:40,000

at spacex benji

282

00:21:43,909 --> 00:21:41,919

hi there happy monday

283

00:21:46,630 --> 00:21:43,919

um you know just about seven weeks we're

284

00:21:49,270 --> 00:21:46,640

going to be launching uh the crew 2

285

00:21:51,990 --> 00:21:49,280

mission as was well talked about here by

286

00:21:55,270 --> 00:21:52,000

kathy steve and joel

287

00:21:57,990 --> 00:21:55,280

on behalf of spacex all of our employees

288

00:22:00,390 --> 00:21:58,000

our vendors our families

289

00:22:03,909 --> 00:22:00,400

and everybody thank you thank you to

290

00:22:05,590 --> 00:22:03,919

nasa to issa and to jaxa and especially

291

00:22:06,549 --> 00:22:05,600

to the crew and to the families of the

292

00:22:08,870 --> 00:22:06,559

crew

293

00:22:10,950 --> 00:22:08,880

for trusting us with this honor as we've

294

00:22:13,830 --> 00:22:10,960

said before and every time it's a sacred

295

00:22:16,070 --> 00:22:13,840

honor to make sure we're going to carry

296

00:22:17,510 --> 00:22:16,080

this crew safely to the space station

297

00:22:18,789 --> 00:22:17,520

keep them up there well keep dragging

298

00:22:21,110 --> 00:22:18,799

there ready for them whenever they need

299

00:22:22,870 --> 00:22:21,120

it and bring them home safely so thank

300

00:22:24,310 --> 00:22:22,880

you very much

301

00:22:26,149 --> 00:22:24,320

it's also been fun

302

00:22:29,830 --> 00:22:26,159

a lot of fun to be preparing for this

303

00:22:31,830 --> 00:22:29,840

mission it is amazing to think about um

304

00:22:33,830 --> 00:22:31,840

i just as steve mentioned we were just

305

00:22:35,270 --> 00:22:33,840

talking the uh the other day about just

306

00:22:36,710 --> 00:22:35,280

a year ago

307

00:22:38,390 --> 00:22:36,720

we were in the same spot you know

308

00:22:41,830 --> 00:22:38,400

looking at launching our first

309

00:22:43,669 --> 00:22:41,840

astronauts bob and doug um and uh the

310

00:22:45,750 --> 00:22:43,679

first time returning uh human space

311

00:22:48,149 --> 00:22:45,760

flight commit capability to the united

312

00:22:50,070 --> 00:22:48,159

states and uh in almost 10 years and uh

313

00:22:51,990 --> 00:22:50,080

it's crazy to think here we are uh

314

00:22:54,789 --> 00:22:52,000

getting ready for our third flight

315

00:22:56,630 --> 00:22:54,799

and here at spacex we have um you know

316

00:22:58,710 --> 00:22:56,640

at least a couple of dozen astronauts in

317

00:23:01,029 --> 00:22:58,720

training uh at any given point in time

318

00:23:02,870 --> 00:23:01,039

and that's uh that's a pretty cool thing

319

00:23:04,390 --> 00:23:02,880

um and so part of that fun though is the

320

00:23:06,070 --> 00:23:04,400

crew themselves and getting to know them

321

00:23:08,549 --> 00:23:06,080

so i think we have a photo

322

00:23:11,110 --> 00:23:08,559

uh we can bring up uh that's a great

323

00:23:15,190 --> 00:23:11,120

picture of uh tomah and megan

324

00:23:18,470 --> 00:23:17,110

and uh we've got that up and it's just

325

00:23:20,390 --> 00:23:18,480

it's good to see that crew there and

326

00:23:22,630 --> 00:23:20,400

they're uh they're

327

00:23:24,549 --> 00:23:22,640

they're happy and excited and uh

328

00:23:25,669 --> 00:23:24,559

to be getting ready to go they've been

329

00:23:27,510 --> 00:23:25,679

going through all the training that they

330

00:23:29,990 --> 00:23:27,520

needed to do

331

00:23:31,909 --> 00:23:30,000

and and our crews as well our teams our

332

00:23:36,230 --> 00:23:31,919

ground teams as well being ready to

333

00:23:38,710 --> 00:23:36,240

serve them and help them along the way

334

00:23:42,070 --> 00:23:38,720

you know the the next thing coming up uh

335

00:23:45,510 --> 00:23:42,080

uh we've got a port relocation

336

00:23:47,990 --> 00:23:45,520

so as we get ready uh for you know all

337

00:23:50,549 --> 00:23:48,000

the data this this traffic that's coming

338

00:23:52,230 --> 00:23:50,559

up to the spaceport as cathy called it

339

00:23:54,390 --> 00:23:52,240

um is we need to make sure that we've

340

00:23:56,230 --> 00:23:54,400

got the the right ports ready for which

341

00:23:58,950 --> 00:23:56,240

vehicles are going to arrive

342

00:24:02,470 --> 00:23:58,960

um so as needed we'll be ready to do a

343

00:24:04,549 --> 00:24:02,480

report relocation um uh as early as uh

344

00:24:05,990 --> 00:24:04,559

the end of this month for nasa we'll

345

00:24:07,430 --> 00:24:06,000

work with of course the station program

346

00:24:08,870 --> 00:24:07,440

to understand exactly when and where

347

00:24:11,590 --> 00:24:08,880

they need that to happen

348

00:24:14,390 --> 00:24:11,600

in that case the crew one crew would uh

349

00:24:16,549 --> 00:24:14,400

enter a dragon um you know be in their

350

00:24:19,269 --> 00:24:16,559

suits get ready to go and actually

351
00:24:22,149 --> 00:24:19,279
relocate dragon from the node 2 forward

352
00:24:24,230 --> 00:24:22,159
port to the node 2 zenith port

353
00:24:26,310 --> 00:24:24,240
um and then and then that frees up the

354
00:24:28,390 --> 00:24:26,320
node 2 forward port to be ready um for

355
00:24:31,510 --> 00:24:28,400
another incoming vehicle

356
00:24:33,909 --> 00:24:31,520
after that we have the launch of crew 2

357
00:24:36,549 --> 00:24:33,919
and as talked about uh everybody is on

358
00:24:37,830 --> 00:24:36,559
track and ready for a uh april 20th

359
00:24:39,909 --> 00:24:37,840
launch uh

360
00:24:42,070 --> 00:24:39,919
rating this date and

361
00:24:43,990 --> 00:24:42,080
joel mentioned will work closely with

362
00:24:46,230 --> 00:24:44,000
the iss program the commercial crew

363
00:24:48,549 --> 00:24:46,240

program and also uh particularly looking

364

00:24:50,870 --> 00:24:48,559

at the uh the physics of it and the

365

00:24:53,029 --> 00:24:50,880

overlay uh you know oral mechanics of

366

00:24:55,269 --> 00:24:53,039

when are we going to be able to actually

367

00:24:56,870 --> 00:24:55,279

you know uh go to the space station and

368

00:24:58,870 --> 00:24:56,880

that's that kind of helps to find our

369

00:25:00,390 --> 00:24:58,880

opportunities so we'll uh we'll be

370

00:25:02,390 --> 00:25:00,400

working with that it'll be around that

371

00:25:03,430 --> 00:25:02,400

time uh there in the second half of

372

00:25:06,070 --> 00:25:03,440

april

373

00:25:07,510 --> 00:25:06,080

um finally after uh the crew tube gets

374

00:25:09,510 --> 00:25:07,520

up there um

375

00:25:12,549 --> 00:25:09,520

and uh they start to do a process of uh

376

00:25:14,470 --> 00:25:12,559

the handover uh with the crew one crew

377

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

and that lasts for a few days

378

00:25:18,470 --> 00:25:16,720

and then the crew one crew will return

379

00:25:20,390 --> 00:25:18,480

home it will bring them safely home and

380

00:25:22,870 --> 00:25:20,400

all these operations are critical and

381

00:25:25,990 --> 00:25:22,880

very important um all the focus here at

382

00:25:28,789 --> 00:25:26,000

spacex and with our partners at nasa um

383

00:25:30,470 --> 00:25:28,799

and at jackson esa are is to ensure the

384

00:25:32,230 --> 00:25:30,480

crew safety and ensure the reliability

385

00:25:34,470 --> 00:25:32,240

of the vehicles and the operations so

386

00:25:37,110 --> 00:25:34,480

we'll be focused very much on that um

387

00:25:39,350 --> 00:25:37,120

speaking of of of the vehicles that we

388

00:25:41,350 --> 00:25:39,360

need to fly reliably and safely let's

389

00:25:43,830 --> 00:25:41,360

take a look i think we've a picture

390

00:25:45,269 --> 00:25:43,840

coming up here of dragon

391

00:25:46,630 --> 00:25:45,279

this is the dragon that's going to fly

392

00:25:49,510 --> 00:25:46,640

for crew 2.

393

00:25:51,350 --> 00:25:49,520

um this uh is the same dragon that flew

394

00:25:53,029 --> 00:25:51,360

the demo 2 mission that carried bob and

395

00:25:54,390 --> 00:25:53,039

doug

396

00:25:57,190 --> 00:25:54,400

the refurbishment of this vehicle has

397

00:25:59,350 --> 00:25:57,200

been going very well um it's our our

398

00:26:02,470 --> 00:25:59,360

will be our first flight proven dragon

399

00:26:04,149 --> 00:26:02,480

um for uh for crew missions um obviously

400

00:26:07,669 --> 00:26:04,159

we've done quite a number of flight

401
00:26:09,590 --> 00:26:07,679
proven dragons um on the crs one program

402
00:26:12,310 --> 00:26:09,600
uh for all of those cargo vehicles many

403
00:26:13,909 --> 00:26:12,320
of the of those were flight proven um

404
00:26:15,750 --> 00:26:13,919
and uh and now we're getting ready to do

405
00:26:18,390 --> 00:26:15,760
our first one here with uh this uh crew

406
00:26:20,470 --> 00:26:18,400
2 mission so it's a beautiful vehicle it

407
00:26:23,350 --> 00:26:20,480
worked well for bob and doug it'll carry

408
00:26:25,110 --> 00:26:23,360
uh carry this new crew safely uh the

409
00:26:27,510 --> 00:26:25,120
station and home

410
00:26:29,110 --> 00:26:27,520
we also have another uh picture here of

411
00:26:34,070 --> 00:26:29,120
falcon 9

412
00:26:36,070 --> 00:26:34,080
history uh with the crew program this is

413
00:26:38,870 --> 00:26:36,080

the same falcon 9 booster

414

00:26:41,350 --> 00:26:38,880

that flew the crew one crew up

415

00:26:43,269 --> 00:26:41,360

um and so that that vehicle has uh

416

00:26:45,190 --> 00:26:43,279

started its refurbishment process and

417

00:26:47,350 --> 00:26:45,200

that's progressing very well and we'll

418

00:26:50,230 --> 00:26:47,360

be ready in time for our april 20th

419

00:26:52,870 --> 00:26:50,240

readiness um to again safely carry the

420

00:26:53,990 --> 00:26:52,880

crew up to orbit

421

00:26:56,710 --> 00:26:54,000

um

422

00:26:57,830 --> 00:26:56,720

other items that are coming up uh soon

423

00:26:59,510 --> 00:26:57,840

right near the end of this month we'll

424

00:27:02,390 --> 00:26:59,520

also be doing our crew equipment

425

00:27:04,870 --> 00:27:02,400

interface test or the ceit test

426

00:27:06,950 --> 00:27:04,880

um that's a that's a test uh that we're

427

00:27:08,390 --> 00:27:06,960

basically the crew goes down and checks

428

00:27:10,870 --> 00:27:08,400

out the vehicle kind of for the last

429

00:27:12,789 --> 00:27:10,880

time they gotta walk down the vehicle

430

00:27:14,230 --> 00:27:12,799

see exactly what's uh what's going on in

431

00:27:15,990 --> 00:27:14,240

there make sure that everything's set

432

00:27:17,430 --> 00:27:16,000

the way they expect it to be

433

00:27:19,430 --> 00:27:17,440

obviously they've been in the vehicle

434

00:27:20,789 --> 00:27:19,440

quite a bit both from an inspection

435

00:27:22,950 --> 00:27:20,799

viewpoint and a training viewpoint while

436

00:27:24,230 --> 00:27:22,960

it was here in hawthorne but uh now

437

00:27:26,710 --> 00:27:24,240

they'll go down at the cape and they'll

438

00:27:29,029 --> 00:27:26,720

do that final um that final inspection

439

00:27:30,470 --> 00:27:29,039

uh down there and uh that's an important

440

00:27:32,310 --> 00:27:30,480

test we'll get to that we've been

441

00:27:34,149 --> 00:27:32,320

completing a number of other tests we've

442

00:27:36,389 --> 00:27:34,159

completed a number of rounds of our

443

00:27:39,190 --> 00:27:36,399

software preparation testing our

444

00:27:41,110 --> 00:27:39,200

software is all locked down and

445

00:27:43,669 --> 00:27:41,120

and software tests are joint tests that

446

00:27:46,070 --> 00:27:43,679

we do with the station program to ensure

447

00:27:47,590 --> 00:27:46,080

that the dragon software and computers

448

00:27:49,669 --> 00:27:47,600

will talk well with the station

449

00:27:51,510 --> 00:27:49,679

computers that's all gone very well as

450

00:27:54,389 --> 00:27:51,520

we run through those we've also run

451
00:27:57,269 --> 00:27:54,399
through all of our certification efforts

452
00:27:59,669 --> 00:27:57,279
those are our closing out we completed a

453
00:28:01,830 --> 00:27:59,679
major review of station for readiness to

454
00:28:03,430 --> 00:28:01,840
be able to uh to dock to station as part

455
00:28:04,870 --> 00:28:03,440
of that certification process and we're

456
00:28:07,430 --> 00:28:04,880
continuing through the remaining

457
00:28:08,950 --> 00:28:07,440
certification items that are normal

458
00:28:11,909 --> 00:28:08,960
on this timeline as we move towards

459
00:28:14,230 --> 00:28:11,919
launch so we are excited and and ready

460
00:28:16,310 --> 00:28:14,240
to get going obviously

461
00:28:18,310 --> 00:28:16,320
we are continuing to check all the boxes

462
00:28:20,230 --> 00:28:18,320
triple check under all the for us and

463
00:28:22,870 --> 00:28:20,240

everywhere to make sure that we're ready

464

00:28:25,269 --> 00:28:22,880

to fly this crew and as we always say we

465

00:28:28,470 --> 00:28:25,279

won't fly until we're ready

466

00:28:29,669 --> 00:28:28,480

as important as it is to keep a station

467

00:28:31,510 --> 00:28:29,679

staffed

468

00:28:33,510 --> 00:28:31,520

keep the astronauts coming up and going

469

00:28:34,870 --> 00:28:33,520

up and coming home keep the science

470

00:28:36,710 --> 00:28:34,880

running and the fundamental purpose of

471

00:28:38,710 --> 00:28:36,720

station most important is the crew

472

00:28:40,710 --> 00:28:38,720

safety and ensure that we are ready to

473

00:28:42,630 --> 00:28:40,720

fly as part of that process we'll go

474

00:28:44,310 --> 00:28:42,640

through our flight readiness review we

475

00:28:45,990 --> 00:28:44,320

have uh we do internal flight readiness

476
00:28:47,830 --> 00:28:46,000
reviews here at spacex with nasa

477
00:28:49,750 --> 00:28:47,840
involved and we also do joint readiness

478
00:28:51,350 --> 00:28:49,760
reviews with the agency that are very

479
00:28:53,029 --> 00:28:51,360
important and then of course just before

480
00:28:54,470 --> 00:28:53,039
launch we do our launch readiness review

481
00:28:56,470 --> 00:28:54,480
as we move through those gates we'll

482
00:28:58,149 --> 00:28:56,480
confirm that we're ready to go

483
00:29:00,149 --> 00:28:58,159
again it's it's truly an honor to be

484
00:29:02,549 --> 00:29:00,159
here um to represent all of the many

485
00:29:04,870 --> 00:29:02,559
thousands of people who work hard on all

486
00:29:07,510 --> 00:29:04,880
of these missions um the sacrifices that

487
00:29:09,510 --> 00:29:07,520
they make um and the fun that they have

488
00:29:11,350 --> 00:29:09,520

uh to get ready to go fly this crew

489

00:29:12,470 --> 00:29:11,360

thank you

490

00:29:14,149 --> 00:29:12,480

all right

491

00:29:16,389 --> 00:29:14,159

uh thank you benji now we're going to go

492

00:29:18,230 --> 00:29:16,399

out to hiroshi sasaki the jackson vice

493

00:29:19,830 --> 00:29:18,240

president and director general human

494

00:29:23,669 --> 00:29:19,840

space flight technology director for

495

00:29:28,710 --> 00:29:25,909

thank you for the introduction i'm hugh

496

00:29:30,870 --> 00:29:28,720

saseki vice president of jackson the

497

00:29:32,789 --> 00:29:30,880

song civil for human space flight and

498

00:29:35,510 --> 00:29:32,799

specific relations

499

00:29:37,830 --> 00:29:35,520

first of all on behalf of jackson i'd

500

00:29:40,470 --> 00:29:37,840

like to sincerely thank the nazi

501
00:29:42,549 --> 00:29:40,480
leadership and all all the members who

502
00:29:45,110 --> 00:29:42,559
worked so hard for the crew to launch

503
00:29:47,510 --> 00:29:45,120
preparations and continuing iss

504
00:29:49,590 --> 00:29:47,520
operations under the top copied

505
00:29:52,149 --> 00:29:49,600
knighting situation

506
00:29:54,789 --> 00:29:52,159
i'm very pleased uh astronaut aki

507
00:29:57,510 --> 00:29:54,799
hoshide will board the crew 2

508
00:29:58,950 --> 00:29:57,520
and participate in the long-term mission

509
00:30:02,070 --> 00:29:58,960
in the iss

510
00:30:04,310 --> 00:30:02,080
following the ongoing mission pursued by

511
00:30:06,710 --> 00:30:04,320
astronaut's knowledge

512
00:30:08,950 --> 00:30:06,720
during the hosted stay a variety of

513
00:30:11,350 --> 00:30:08,960

experiments will be performed

514

00:30:13,669 --> 00:30:11,360

including the advanced eclipse

515

00:30:15,190 --> 00:30:13,679

demonstration for future space

516

00:30:16,389 --> 00:30:15,200

exploration

517

00:30:19,350 --> 00:30:16,399

cubesat

518

00:30:22,630 --> 00:30:19,360

deployment to expand the utilization of

519

00:30:26,070 --> 00:30:22,640

space by various sectors

520

00:30:28,789 --> 00:30:26,080

across today is now ready to launch

521

00:30:31,350 --> 00:30:28,799

i hope japanese astronauts contribute to

522

00:30:33,669 --> 00:30:31,360

a player and continue to play an

523

00:30:34,710 --> 00:30:33,679

important role in promoting human space

524

00:30:36,549 --> 00:30:34,720

program

525

00:30:40,230 --> 00:30:36,559

and explorations

526
00:30:42,389 --> 00:30:40,240
astronauts wakata and purukawa

527
00:30:45,269 --> 00:30:42,399
are also a sign

528
00:30:49,110 --> 00:30:45,279
for upcoming flight respectively and

529
00:30:52,310 --> 00:30:49,120
furthermore jaxa plans to recruit new

530
00:30:55,510 --> 00:30:52,320
astronauts around fall

531
00:30:57,909 --> 00:30:55,520
i'm sure that the crew 2 mission is a

532
00:30:59,350 --> 00:30:57,919
symbol of enhanced international

533
00:31:02,470 --> 00:30:59,360
partnership

534
00:31:05,350 --> 00:31:02,480
i think this is the first launch of nasa

535
00:31:07,990 --> 00:31:05,360
esa and jax notes who will fly

536
00:31:10,549 --> 00:31:08,000
to the iss together

537
00:31:13,750 --> 00:31:10,559
in addition commercial partners include

538
00:31:16,070 --> 00:31:13,760

spacex are providing them much more

539

00:31:19,669 --> 00:31:16,080

capability to the iss

540

00:31:23,190 --> 00:31:19,679

this partnership will achieve more

541

00:31:24,789 --> 00:31:23,200

fruitful results from the ideas and

542

00:31:26,149 --> 00:31:24,799

exploration

543

00:31:28,470 --> 00:31:26,159

thank you

544

00:31:30,470 --> 00:31:28,480

back to you ben

545

00:31:32,789 --> 00:31:30,480

all right thank you roshi and now we're

546

00:31:34,950 --> 00:31:32,799

going to go to david parker the director

547

00:31:37,029 --> 00:31:34,960

of human and robotic exploration for

548

00:31:39,350 --> 00:31:37,039

issa david

549

00:31:41,350 --> 00:31:39,360

thank you very much dan and good day to

550

00:31:43,190 --> 00:31:41,360

one and all uh first of all thank you

551
00:31:45,029 --> 00:31:43,200
for the chance to participate in this

552
00:31:47,830 --> 00:31:45,039
briefing um i would like to say that

553
00:31:49,029 --> 00:31:47,840
it's a particularly important day for

554
00:31:51,029 --> 00:31:49,039
isa

555
00:31:53,029 --> 00:31:51,039
uh the first of march is not only

556
00:31:55,269 --> 00:31:53,039
david's day but also the first day in

557
00:31:57,350 --> 00:31:55,279
the office for our new director general

558
00:31:59,350 --> 00:31:57,360
joseph ashbacher

559
00:32:02,470 --> 00:31:59,360
therefore i'd like to pass on a few

560
00:32:05,190 --> 00:32:02,480
words on his behalf

561
00:32:08,149 --> 00:32:05,200
we're delighted that uh toma pesque is

562
00:32:10,789 --> 00:32:08,159
the first european to fly to the iss on

563
00:32:12,630 --> 00:32:10,799

a u.s commercial crew vehicle and we

564

00:32:16,710 --> 00:32:12,640

appreciate the tremendous work that has

565

00:32:19,509 --> 00:32:16,720

been done to prepare this fight uh the

566

00:32:22,470 --> 00:32:19,519

tears now will fly to the station on a

567

00:32:25,190 --> 00:32:22,480

us vehicle later this year and so will

568

00:32:27,430 --> 00:32:25,200

uh our future european uh astronauts

569

00:32:28,630 --> 00:32:27,440

will follow him in the months and years

570

00:32:32,630 --> 00:32:28,640

to come

571

00:32:34,870 --> 00:32:32,640

so mission alpha is thomas second to the

572

00:32:38,310 --> 00:32:34,880

international space station it comes at

573

00:32:41,430 --> 00:32:38,320

a time of unparalleled growth in uh

574

00:32:43,029 --> 00:32:41,440

europe space exploration programme

575

00:32:44,630 --> 00:32:43,039

and i think we're really looking forward

576
00:32:47,350 --> 00:32:44,640
to an exciting

577
00:32:48,950 --> 00:32:47,360
decade of discovery and innovation from

578
00:32:52,470 --> 00:32:48,960
columbus

579
00:32:54,549 --> 00:32:52,480
europe science lab aboard the iss um

580
00:32:57,190 --> 00:32:54,559
indeed i think i would say that we're

581
00:32:58,710 --> 00:32:57,200
entering the golden age of iss

582
00:33:01,750 --> 00:32:58,720
utilization

583
00:33:04,470 --> 00:33:01,760
because of the fact uh thanks to the u.s

584
00:33:06,389 --> 00:33:04,480
vehicles of having seven crew aboard the

585
00:33:08,789 --> 00:33:06,399
station it's already providing a

586
00:33:11,669 --> 00:33:08,799
dramatic increase in the number of

587
00:33:14,070 --> 00:33:11,679
science hours available to us

588
00:33:18,310 --> 00:33:14,080

so thomas mission will involve human

589

00:33:19,590 --> 00:33:18,320

research biology fluid physics material

590

00:33:24,789 --> 00:33:19,600

science

591

00:33:27,269 --> 00:33:24,799

even education projects with all this

592

00:33:30,310 --> 00:33:27,279

utilization going on it's why we are in

593

00:33:33,269 --> 00:33:30,320

the middle of a major kind of midlife

594

00:33:36,389 --> 00:33:33,279

update to the columbus laboratory

595

00:33:39,350 --> 00:33:36,399

so the updates include the new columbus

596

00:33:42,710 --> 00:33:39,360

ka band data terminal giving high-speed

597

00:33:45,190 --> 00:33:42,720

data links via esa's

598

00:33:47,830 --> 00:33:45,200

data relay satellite network

599

00:33:49,990 --> 00:33:47,840

the bartolomeo commercial platform that

600

00:33:51,190 --> 00:33:50,000

will become operational mounted on

601
00:33:53,190 --> 00:33:51,200
columbus

602
00:33:57,590 --> 00:33:53,200
and upgrades to experiment racks and the

603
00:34:00,870 --> 00:33:58,470
this

604
00:34:02,950 --> 00:34:00,880
prospect of the next decade of work uh

605
00:34:04,230 --> 00:34:02,960
use it in low earth orbit is also why

606
00:34:06,710 --> 00:34:04,240
two weeks ago

607
00:34:08,710 --> 00:34:06,720
we launched a call to select the new

608
00:34:11,510 --> 00:34:08,720
european astronauts

609
00:34:13,750 --> 00:34:11,520
uh and uh perhaps in the global first

610
00:34:17,030 --> 00:34:13,760
launch the para astronaut feasibility

611
00:34:19,349 --> 00:34:17,040
project to prepare a flight opportunity

612
00:34:21,589 --> 00:34:19,359
for a physically disabled astronaut to

613
00:34:23,510 --> 00:34:21,599

carry out a full mission

614

00:34:25,270 --> 00:34:23,520

and we have many other aspects of our

615

00:34:26,550 --> 00:34:25,280

future exploration program to look

616

00:34:29,190 --> 00:34:26,560

forward to

617

00:34:31,990 --> 00:34:29,200

but maybe my my final thought beyond all

618

00:34:34,389 --> 00:34:32,000

the technology and all the science

619

00:34:36,950 --> 00:34:34,399

i do recall that we do global

620

00:34:38,790 --> 00:34:36,960

exploration as a partnership to inspire

621

00:34:40,069 --> 00:34:38,800

all humanity and especially the next

622

00:34:42,149 --> 00:34:40,079

generation

623

00:34:44,869 --> 00:34:42,159

and i think this is even more important

624

00:34:46,790 --> 00:34:44,879

in these difficult times of kobe

625

00:34:49,270 --> 00:34:46,800

so i can tell you that the passion and

626

00:34:52,069 --> 00:34:49,280

the commitment of everyone visa

627

00:34:54,310 --> 00:34:52,079

alongside all the international partners

628

00:34:56,790 --> 00:34:54,320

uh is propelling us into this new decade

629

00:35:00,230 --> 00:34:56,800

of space exploration and i know tomorrow

630

00:35:03,270 --> 00:35:00,240

pesky is eager and ready and willing to

631

00:35:05,349 --> 00:35:03,280

make his contribution so best wishes

632

00:35:08,310 --> 00:35:05,359

from the new director general from

633

00:35:10,069 --> 00:35:08,320

myself and from all the team at esa and

634

00:35:13,670 --> 00:35:10,079

let's keep exploring

635

00:35:15,510 --> 00:35:13,680

together thank you back to you again

636

00:35:18,069 --> 00:35:15,520

all right thank you very much david so

637

00:35:19,589 --> 00:35:18,079

now we're going to jump into the q a as

638

00:35:21,349 --> 00:35:19,599

a reminder if you are dialed into our

639

00:35:22,550 --> 00:35:21,359

media line press star one to get into

640

00:35:24,630 --> 00:35:22,560

the queue and if your question is

641

00:35:26,310 --> 00:35:24,640

answered press star two to jump back out

642

00:35:29,190 --> 00:35:26,320

and if you're on social media jump on

643

00:35:31,190 --> 00:35:29,200

twitter and use the hashtag assnasa all

644

00:35:33,430 --> 00:35:31,200

right so our first caller that we will

645

00:35:36,230 --> 00:35:33,440

go with today is joey roulette from the

646

00:35:38,230 --> 00:35:36,240

verge joey

647

00:35:40,710 --> 00:35:38,240

hey thanks for doing this uh question

648

00:35:41,910 --> 00:35:40,720

for benji i just wanted you to speak a

649

00:35:45,910 --> 00:35:41,920

little bit more into what you guys have

650

00:35:47,589 --> 00:35:45,920

learned um from refurbishing the crew

651
00:35:49,589 --> 00:35:47,599
dragon vehicle as opposed to the cargo

652
00:35:52,310 --> 00:35:49,599
dragon vehicles i mean what kind of

653
00:35:53,030 --> 00:35:52,320
challenges and costs does spacex avoid

654
00:35:55,510 --> 00:35:53,040
by

655
00:35:57,190 --> 00:35:55,520
doing that refurb in florida instead of

656
00:35:59,430 --> 00:35:57,200
shipping an out-of-state and then just

657
00:36:02,150 --> 00:35:59,440
one other question for joel uh when do

658
00:36:03,109 --> 00:36:02,160
you expect a deal to be reached for

659
00:36:04,310 --> 00:36:03,119
um

660
00:36:06,310 --> 00:36:04,320
with the youth company bringing that

661
00:36:13,510 --> 00:36:06,320
soyuz seat uh planned for

662
00:36:18,069 --> 00:36:15,510
before i do i just want to do a quick go

663
00:36:19,589 --> 00:36:18,079

back um it was very inspiring to hear

664

00:36:22,069 --> 00:36:19,599

both um the jaxa and the esa

665

00:36:24,230 --> 00:36:22,079

representatives um speak today just now

666

00:36:26,150 --> 00:36:24,240

and i i just i want to say how exciting

667

00:36:27,510 --> 00:36:26,160

and how cool it is for us too to have

668

00:36:30,069 --> 00:36:27,520

this international crew i don't think i

669

00:36:32,870 --> 00:36:30,079

said enough about that and i it's worth

670

00:36:34,630 --> 00:36:32,880

reiterating uh how important it is that

671

00:36:36,310 --> 00:36:34,640

we have this international partnership

672

00:36:38,550 --> 00:36:36,320

and our opportunity to be able to fly

673

00:36:40,069 --> 00:36:38,560

tomah and aki and i think those are

674

00:36:42,390 --> 00:36:40,079

great words just now about you know

675

00:36:43,990 --> 00:36:42,400

passion and and opening the new space

676

00:36:46,310 --> 00:36:44,000

age it's great to do it and it's great

677

00:36:48,150 --> 00:36:46,320

to do it for all of humanity and these

678

00:36:49,750 --> 00:36:48,160

programs like looking to build a fly a

679

00:36:52,470 --> 00:36:49,760

physically disabled astronaut these are

680

00:36:53,990 --> 00:36:52,480

really really great and um so you guys

681

00:36:56,069 --> 00:36:54,000

and thank you both and all of your teams

682

00:36:58,150 --> 00:36:56,079

and everyone there for uh

683

00:37:00,390 --> 00:36:58,160

for flying with spacex too

684

00:37:02,069 --> 00:37:00,400

now on to the question about uh

685

00:37:04,150 --> 00:37:02,079

refurbishment and uh you know flight

686

00:37:06,230 --> 00:37:04,160

proven uh dragons

687

00:37:07,910 --> 00:37:06,240

so you know um from the beginning it's

688

00:37:09,670 --> 00:37:07,920

important to hear spacex we want to make

689

00:37:12,390 --> 00:37:09,680

sure we really understood

690

00:37:14,069 --> 00:37:12,400

um how do you how do you you know re-fly

691

00:37:15,750 --> 00:37:14,079

you know we've said it before and it's

692

00:37:16,710 --> 00:37:15,760

always worth repeating you you don't

693

00:37:18,950 --> 00:37:16,720

jump

694

00:37:20,470 --> 00:37:18,960

in an airliner in an airplane you'll fly

695

00:37:21,990 --> 00:37:20,480

from you know one coast to their coast

696

00:37:23,990 --> 00:37:22,000

push it off into the engine when you're

697

00:37:26,790 --> 00:37:24,000

done with that one flight that's a very

698

00:37:28,550 --> 00:37:26,800

expensive process and and if you do that

699

00:37:31,190 --> 00:37:28,560

uh with space flight it continues to be

700

00:37:32,950 --> 00:37:31,200

you know almost prohibited expensive so

701
00:37:34,310 --> 00:37:32,960
as we started you know spacex from the

702
00:37:36,950 --> 00:37:34,320
thing we said how do we you know how do

703
00:37:39,589 --> 00:37:36,960
we refly so this kind of um

704
00:37:42,230 --> 00:37:39,599
key this golden key to to getting into

705
00:37:44,870 --> 00:37:42,240
this new space age is all about you know

706
00:37:46,230 --> 00:37:44,880
being able to refly and reuse vehicles

707
00:37:48,069 --> 00:37:46,240
um so we

708
00:37:49,670 --> 00:37:48,079
designed dragon from the beginning with

709
00:37:52,550 --> 00:37:49,680
some of that in mind the same with

710
00:37:54,870 --> 00:37:52,560
falcon we continue to evolve and learn

711
00:37:56,550 --> 00:37:54,880
um over the years and how do we how do

712
00:37:58,310 --> 00:37:56,560
we return vehicles and how do we return

713
00:38:00,069 --> 00:37:58,320

them in a way that we can safely and

714

00:38:02,550 --> 00:38:00,079

quickly refurbish them and confidently

715

00:38:04,710 --> 00:38:02,560

and reliably fly them again

716

00:38:07,510 --> 00:38:04,720

so we did a lot of that on the dragon

717

00:38:09,430 --> 00:38:07,520

program on the cargo program um and we

718

00:38:10,230 --> 00:38:09,440

took all of those lessons and fed them

719

00:38:19,510 --> 00:38:10,240

in

720

00:38:21,270 --> 00:38:19,520

cargo now and that new design of dragon

721

00:38:23,190 --> 00:38:21,280

has all those lessons for many years and

722

00:38:25,829 --> 00:38:23,200

many many flights of the original cargo

723

00:38:27,430 --> 00:38:25,839

dragons bringing that to bear as we go

724

00:38:28,550 --> 00:38:27,440

through that and one of the number one

725

00:38:30,790 --> 00:38:28,560

things that you have to worry about is

726

00:38:33,430 --> 00:38:30,800

water intrusion so salt water is very

727

00:38:35,190 --> 00:38:33,440

corrosive it's uh it's not a great thing

728

00:38:37,910 --> 00:38:35,200

when you want to like keep something you

729

00:38:40,310 --> 00:38:37,920

know keep your physical materials sound

730

00:38:42,390 --> 00:38:40,320

and especially easy to to to refurbish

731

00:38:44,870 --> 00:38:42,400

and to reuse so we we do everything we

732

00:38:46,390 --> 00:38:44,880

can to prevent water intrusion teams did

733

00:38:48,710 --> 00:38:46,400

a lot of work on that even on the

734

00:38:50,710 --> 00:38:48,720

original cargo dragon to prevent that

735

00:38:52,870 --> 00:38:50,720

and then the design again kind of from

736

00:38:54,790 --> 00:38:52,880

the ground up of the dragon 2 vehicle

737

00:38:56,150 --> 00:38:54,800

has prevented that

738

00:38:58,710 --> 00:38:56,160

as we've continued to go through the

739

00:39:00,310 --> 00:38:58,720

first refurbishment process for a crew

740

00:39:02,790 --> 00:39:00,320

vehicle you know we've been looking at

741

00:39:05,270 --> 00:39:02,800

things closely uh obviously number one

742

00:39:06,630 --> 00:39:05,280

always is crew safety um and so there

743

00:39:08,390 --> 00:39:06,640

are elements that we think about you

744

00:39:10,870 --> 00:39:08,400

know are we going to replace these are

745

00:39:12,630 --> 00:39:10,880

we ready to fully certified internally

746

00:39:14,710 --> 00:39:12,640

we're ready to qualify that this

747

00:39:16,550 --> 00:39:14,720

particular subsystem or component is

748

00:39:18,550 --> 00:39:16,560

ready to be reused and then we go

749

00:39:20,069 --> 00:39:18,560

through a process with nasa to make sure

750

00:39:21,349 --> 00:39:20,079

that they agree that we're all agreeing

751
00:39:23,030 --> 00:39:21,359
that these components and these

752
00:39:25,510 --> 00:39:23,040
subsystems are ready to reuse i can

753
00:39:26,790 --> 00:39:25,520
happily say the vast majority of the

754
00:39:30,069 --> 00:39:26,800
vehicle

755
00:39:32,069 --> 00:39:30,079
is is flight proven um in this case uh

756
00:39:34,950 --> 00:39:32,079
we are uh changing some valves for

757
00:39:37,750 --> 00:39:34,960
example um we're changing um some of the

758
00:39:40,069 --> 00:39:37,760
thermal protection system um you know uh

759
00:39:43,190 --> 00:39:40,079
on on crew on crew vehicles we will uh

760
00:39:46,390 --> 00:39:43,200
we tend to fly we we always fly the um

761
00:39:48,790 --> 00:39:46,400
uh new parachutes um and so some of

762
00:39:51,190 --> 00:39:48,800
those are new but otherwise

763
00:39:53,430 --> 00:39:51,200

it's really the same vehicle that's very

764

00:39:55,910 --> 00:39:53,440

carefully inspected carefully prepared

765

00:39:57,670 --> 00:39:55,920

refurbished as needed and ready to fly

766

00:39:59,349 --> 00:39:57,680

um and that and that's been it's been a

767

00:40:00,310 --> 00:39:59,359

great process to learn there the other

768

00:40:01,910 --> 00:40:00,320

thing that you're learning as you go

769

00:40:04,550 --> 00:40:01,920

through this is like okay well how much

770

00:40:07,589 --> 00:40:04,560

more do i need to do um for the next

771

00:40:09,270 --> 00:40:07,599

time and uh and so we're always learning

772

00:40:10,950 --> 00:40:09,280

always learning and always applying that

773

00:40:12,390 --> 00:40:10,960

back into our systems

774

00:40:13,990 --> 00:40:12,400

i think you asked a question about you

775

00:40:15,589 --> 00:40:14,000

know what what are the benefits of doing

776

00:40:17,349 --> 00:40:15,599

this down at the cape well it's the same

777

00:40:19,910 --> 00:40:17,359

idea if we go back to uh you know

778

00:40:21,829 --> 00:40:19,920

aircraft like um operations right we

779

00:40:23,750 --> 00:40:21,839

want this to be you know ultimately

780

00:40:25,829 --> 00:40:23,760

going to space needs to be like going to

781

00:40:28,309 --> 00:40:25,839

the airport and getting on an airplane

782

00:40:29,270 --> 00:40:28,319

so you don't take your airplane but you

783

00:40:30,390 --> 00:40:29,280

want to fly now you're not going to push

784

00:40:31,670 --> 00:40:30,400

it off in the ocean but you're going to

785

00:40:34,150 --> 00:40:31,680

re but now you've got to sit all the way

786

00:40:35,910 --> 00:40:34,160

back to the factory and get it ready for

787

00:40:37,349 --> 00:40:35,920

next flight that doesn't make a lot of

788

00:40:38,710 --> 00:40:37,359

sense right you don't do that it's still

789

00:40:40,550 --> 00:40:38,720

very expensive

790

00:40:42,150 --> 00:40:40,560

um so what you do of course in an

791

00:40:43,589 --> 00:40:42,160

airplane is you walk on the ground and

792

00:40:45,109 --> 00:40:43,599

you know we re

793

00:40:46,870 --> 00:40:45,119

refuel it check it out do the

794

00:40:48,309 --> 00:40:46,880

inspections whatever they need to do

795

00:40:50,550 --> 00:40:48,319

they even do some repairs right there at

796

00:40:52,950 --> 00:40:50,560

the airport and then you reply

797

00:40:55,190 --> 00:40:52,960

the same idea um ultimately for

798

00:40:58,230 --> 00:40:55,200

spacecraft you want to be able to launch

799

00:41:00,950 --> 00:40:58,240

return and and prepare for reflight

800

00:41:01,990 --> 00:41:00,960

basically in the same area that you uh

801
00:41:03,829 --> 00:41:02,000
all in the same area all those

802
00:41:05,430 --> 00:41:03,839
operations happening in the same area

803
00:41:07,990 --> 00:41:05,440
and so we've been driving for a number

804
00:41:09,990 --> 00:41:08,000
of years towards um refurbishment at the

805
00:41:12,069 --> 00:41:10,000
cape we've already been doing it this

806
00:41:13,750 --> 00:41:12,079
refurbishment is part of that flow

807
00:41:15,430 --> 00:41:13,760
in fact when new dragons come off the

808
00:41:17,190 --> 00:41:15,440
line here in hawthorne they go down to

809
00:41:19,349 --> 00:41:17,200
the cape they actually go through some

810
00:41:21,030 --> 00:41:19,359
final work in preparation for flight at

811
00:41:23,910 --> 00:41:21,040
the cape anyway so we've always had that

812
00:41:25,510 --> 00:41:23,920
capability um have an awesome team down

813
00:41:27,270 --> 00:41:25,520

there that works very hard and they've

814

00:41:28,950 --> 00:41:27,280

got multiple dragons in flow just like

815

00:41:30,790 --> 00:41:28,960

the team here that are building all the

816

00:41:32,470 --> 00:41:30,800

components and building the new dragons

817

00:41:34,470 --> 00:41:32,480

um and so

818

00:41:36,630 --> 00:41:34,480

bearing bringing all of that experience

819

00:41:38,309 --> 00:41:36,640

to bear

820

00:41:39,910 --> 00:41:38,319

makes it a great process to do down at

821

00:41:41,910 --> 00:41:39,920

the cape so we're glad to have that

822

00:41:44,069 --> 00:41:41,920

going on i think the other question was

823

00:41:46,630 --> 00:41:44,079

for joel

824

00:41:49,670 --> 00:41:46,640

thanks joey good question um you know

825

00:41:52,390 --> 00:41:49,680

our long-term goal is to continue flying

826

00:41:54,230 --> 00:41:52,400

nasa astronauts on soyuz and have

827

00:41:55,910 --> 00:41:54,240

cosmonauts flying on the u.s crude

828

00:41:57,109 --> 00:41:55,920

vehicles and we're working towards that

829

00:41:59,270 --> 00:41:57,119

goal

830

00:42:02,069 --> 00:41:59,280

for this specific procurement

831

00:42:04,309 --> 00:42:02,079

we're in a blackout period for now but

832

00:42:05,990 --> 00:42:04,319

my plan or my goal is by the end of next

833

00:42:07,589 --> 00:42:06,000

week to be able to give you a status on

834

00:42:09,750 --> 00:42:07,599

where we are with that uh that

835

00:42:11,190 --> 00:42:09,760

procurement

836

00:42:13,109 --> 00:42:11,200

all right

837

00:42:14,630 --> 00:42:13,119

thank you joel uh just a reminder for

838

00:42:16,230 --> 00:42:14,640

those on our phone line please try to

839

00:42:17,510 --> 00:42:16,240

keep it to one question for now so we

840

00:42:19,750 --> 00:42:17,520

can get through as many as we can we'll

841

00:42:21,990 --> 00:42:19,760

come back for follow-ups uh next we will

842

00:42:25,190 --> 00:42:22,000

go to stephen clark with space flight

843

00:42:30,870 --> 00:42:27,750

hi stephen clark for space flight now uh

844

00:42:33,990 --> 00:42:30,880

my question is for benji and maybe steve

845

00:42:35,750 --> 00:42:34,000

can chime in um steve hinted at some

846

00:42:37,750 --> 00:42:35,760

abort system enhancements some prop

847

00:42:39,990 --> 00:42:37,760

enhancements and some

848

00:42:41,349 --> 00:42:40,000

changes in the cockpit for this mission

849

00:42:44,950 --> 00:42:41,359

those upgrades

850

00:42:46,309 --> 00:42:44,960

the first time those are flying or is

851

00:42:47,829 --> 00:42:46,319

this sort of just an update of this

852

00:42:49,990 --> 00:42:47,839

spacecraft to get it

853

00:42:51,990 --> 00:42:50,000

uh you know you know to get it to the

854

00:42:53,910 --> 00:42:52,000

the status that the crew dragon on crew

855

00:42:55,750 --> 00:42:53,920

one flew in um

856

00:42:56,630 --> 00:42:55,760

uh just can you talk about those and

857

00:43:00,790 --> 00:42:56,640

also

858

00:43:02,710 --> 00:43:00,800

briefly if i could uh steve uh uh

859

00:43:05,349 --> 00:43:02,720

our launch dates do they look more more

860

00:43:07,430 --> 00:43:05,359

favorable before april 20th or or april

861

00:43:08,630 --> 00:43:07,440

or after april 20th just want to get a

862

00:43:12,150 --> 00:43:08,640

feel of which way the launch may be

863

00:43:16,069 --> 00:43:14,230

great i'll uh i'll i'll tell you a

864

00:43:17,030 --> 00:43:16,079

couple of my favorite ones in stitch if

865

00:43:19,270 --> 00:43:17,040

you have some that you want to talk

866

00:43:20,790 --> 00:43:19,280

about we can talk about those too um in

867

00:43:22,870 --> 00:43:20,800

terms of uh in terms of what we do with

868

00:43:25,589 --> 00:43:22,880

dragon to make sure that it's it's safer

869

00:43:27,589 --> 00:43:25,599

and even safer as we continue to learn

870

00:43:29,670 --> 00:43:27,599

and go through the process um one of the

871

00:43:31,670 --> 00:43:29,680

ones that i'll talk about is um is

872

00:43:33,829 --> 00:43:31,680

basically updating certain elements of

873

00:43:35,829 --> 00:43:33,839

the structure to ensure that when we

874

00:43:37,030 --> 00:43:35,839

come and when we splash down in the

875

00:43:39,030 --> 00:43:37,040

ocean

876

00:43:40,470 --> 00:43:39,040

basically this phenomenon that can occur

877

00:43:42,950 --> 00:43:40,480

it's called it's a secondary splash

878

00:43:44,309 --> 00:43:42,960

which the secondary impact um where the

879

00:43:46,230 --> 00:43:44,319

water you've hit the water and the water

880

00:43:48,870 --> 00:43:46,240

comes back up and it can again basically

881

00:43:50,390 --> 00:43:48,880

hit hit the hole right hit the structure

882

00:43:52,150 --> 00:43:50,400

and it's interesting the physics and the

883

00:43:53,910 --> 00:43:52,160

dynamics of it there's actually there

884

00:43:55,349 --> 00:43:53,920

are just the right combination of wave

885

00:43:57,030 --> 00:43:55,359

heights and winds and the velocity of

886

00:43:58,390 --> 00:43:57,040

the vehicle as it comes in but that

887

00:44:00,790 --> 00:43:58,400

secondary structure that secondary

888

00:44:02,390 --> 00:44:00,800

splash can hit pretty hard

889

00:44:04,069 --> 00:44:02,400

and so we've done a lot to analyze for

890

00:44:05,910 --> 00:44:04,079

that and test for that

891

00:44:07,190 --> 00:44:05,920

and what ultimately that does of course

892

00:44:09,990 --> 00:44:07,200

is number one you make the vehicle as

893

00:44:12,390 --> 00:44:10,000

strong as you can to withstand that

894

00:44:14,309 --> 00:44:12,400

but you also look at the weather right

895

00:44:15,910 --> 00:44:14,319

and so you create a lot of limits around

896

00:44:16,870 --> 00:44:15,920

the weather around wind speed wave

897

00:44:17,910 --> 00:44:16,880

height

898

00:44:19,109 --> 00:44:17,920

all these different things that are

899

00:44:20,710 --> 00:44:19,119

happening

900

00:44:21,990 --> 00:44:20,720

and as you have those limits around

901
00:44:24,069 --> 00:44:22,000
weather

902
00:44:26,470 --> 00:44:24,079
number one it keeps the crew safe and

903
00:44:28,150 --> 00:44:26,480
builds margin for your safety

904
00:44:29,670 --> 00:44:28,160
but it also tends to shrink your

905
00:44:31,750 --> 00:44:29,680
availability and in this case this would

906
00:44:33,270 --> 00:44:31,760
be for landing availability

907
00:44:34,550 --> 00:44:33,280
one things that we've done is we've

908
00:44:36,230 --> 00:44:34,560
actually beefed up parts of the

909
00:44:38,870 --> 00:44:36,240
structure

910
00:44:40,550 --> 00:44:38,880
so that so that we can expand that

911
00:44:42,630 --> 00:44:40,560
window of opportunity to be able to

912
00:44:45,109 --> 00:44:42,640
bring the crew home

913
00:44:46,870 --> 00:44:45,119

while maintaining all of that safety and

914

00:44:48,870 --> 00:44:46,880

all of that margin

915

00:44:50,230 --> 00:44:48,880

for the crew i think this is uh this is

916

00:44:51,829 --> 00:44:50,240

really important i think one of the most

917

00:44:54,630 --> 00:44:51,839

important updates that we've done

918

00:44:56,230 --> 00:44:54,640

um on this particular dragon um

919

00:44:57,510 --> 00:44:56,240

and going forward that'll always be part

920

00:44:59,589 --> 00:44:57,520

of the design

921

00:45:01,750 --> 00:44:59,599

um steve you probably have a couple

922

00:45:03,670 --> 00:45:01,760

others that you wanted to mention

923

00:45:05,829 --> 00:45:03,680

yeah thanks benji i'll talk about a few

924

00:45:07,589 --> 00:45:05,839

um you know one of the upgrades on this

925

00:45:10,390 --> 00:45:07,599

vehicle is uh

926

00:45:13,430 --> 00:45:10,400

i would say improved uh pad abort

927

00:45:14,950 --> 00:45:13,440

performance so uh as you might know that

928

00:45:17,510 --> 00:45:14,960

the dragon is designed to have

929

00:45:18,870 --> 00:45:17,520

continuous support capability from

930

00:45:20,390 --> 00:45:18,880

the launch all the way until when it

931

00:45:22,309 --> 00:45:20,400

gets in orbit

932

00:45:24,870 --> 00:45:22,319

spacex went off and

933

00:45:26,150 --> 00:45:24,880

looked at a way to optimize their propel

934

00:45:30,230 --> 00:45:26,160

system and provide a little more

935

00:45:32,630 --> 00:45:30,240

propellant for a board off the pad and

936

00:45:34,870 --> 00:45:32,640

that did uh a couple things one it

937

00:45:36,710 --> 00:45:34,880

improved crusade before uh should we get

938

00:45:38,150 --> 00:45:36,720

into that kind of unfortunate situation

939

00:45:40,309 --> 00:45:38,160

for a pad abort where the crew would

940

00:45:42,550 --> 00:45:40,319

need to leave the pad for an emergency

941

00:45:44,630 --> 00:45:42,560

and and secondly it really improved uh

942

00:45:46,950 --> 00:45:44,640

launch availability we can handle a

943

00:45:48,950 --> 00:45:46,960

little bit uh stronger onshore winds and

944

00:45:50,950 --> 00:45:48,960

improve launch availability so that's

945

00:45:52,309 --> 00:45:50,960

one of the ones that is my favorite for

946

00:45:54,309 --> 00:45:52,319

the flight

947

00:45:56,710 --> 00:45:54,319

another one in terms of crew safety you

948

00:45:58,950 --> 00:45:56,720

know we we learned a lot about

949

00:46:03,190 --> 00:45:58,960

titanium and nitrogen tetroxide the

950

00:46:05,670 --> 00:46:03,200

oxidizer compatibility we've uh enhanced

951
00:46:07,829 --> 00:46:05,680
the super draco thrusters and removed

952
00:46:08,870 --> 00:46:07,839
some titanium from that system gone to

953
00:46:10,550 --> 00:46:08,880
uh

954
00:46:12,950 --> 00:46:10,560
stainless steel kind of material in

955
00:46:14,630 --> 00:46:12,960
those and improved safety there

956
00:46:15,990 --> 00:46:14,640
so those are a couple of the ones that

957
00:46:17,990 --> 00:46:16,000
uh that we've done on this flight i

958
00:46:21,270 --> 00:46:18,000
really look at this flight as kind of a

959
00:46:23,589 --> 00:46:21,280
uh really an abort enhancement flight

960
00:46:25,190 --> 00:46:23,599
uh in terms of the question about uh

961
00:46:26,550 --> 00:46:25,200
launch dates and and launch

962
00:46:27,910 --> 00:46:26,560
opportunities

963
00:46:29,990 --> 00:46:27,920

you know right now it looks like there's

964

00:46:31,510 --> 00:46:30,000

a few more opportunities after april

965

00:46:33,910 --> 00:46:31,520

20th and so we talked about maybe

966

00:46:35,829 --> 00:46:33,920

adjusting the the launch a few days to

967

00:46:36,870 --> 00:46:35,839

the right uh

968

00:46:39,270 --> 00:46:36,880

for a

969

00:46:41,670 --> 00:46:39,280

launch around a couple days after the

970

00:46:44,230 --> 00:46:41,680

20th you should have about six launch

971

00:46:45,750 --> 00:46:44,240

dates before the soyuz cut out and would

972

00:46:47,910 --> 00:46:45,760

give us an opportunity to have about

973

00:46:49,190 --> 00:46:47,920

eight landing opportunities for the crew

974

00:46:51,030 --> 00:46:49,200

one vehicle

975

00:46:53,190 --> 00:46:51,040

so joel and

976
00:46:54,790 --> 00:46:53,200
this commercial crew program and spacex

977
00:46:57,910 --> 00:46:54,800
have been working that very closely to

978
00:46:59,670 --> 00:46:57,920
optimize that ensure we can land safely

979
00:47:01,430 --> 00:46:59,680
and then launch safely

980
00:47:03,030 --> 00:47:01,440
ahead of this beta cutout that we have

981
00:47:04,630 --> 00:47:03,040
coming in may

982
00:47:06,950 --> 00:47:04,640
all right thank you steve

983
00:47:08,950 --> 00:47:06,960
next up we have bill harwood with cbs

984
00:47:10,790 --> 00:47:08,960
news bill

985
00:47:13,030 --> 00:47:10,800
yeah thank you very much this one's for

986
00:47:13,829 --> 00:47:13,040
i'm not sure who it's for maybe kathy

987
00:47:14,790 --> 00:47:13,839
um

988
00:47:16,710 --> 00:47:14,800

you know

989

00:47:18,390 --> 00:47:16,720

with the increasing flight rate of

990

00:47:19,589 --> 00:47:18,400

spacex launching lots and lots of

991

00:47:20,870 --> 00:47:19,599

rockets which

992

00:47:23,030 --> 00:47:20,880

you can either argue that makes them

993

00:47:24,630 --> 00:47:23,040

safer and safer or it raises the odds

994

00:47:25,990 --> 00:47:24,640

that something will happen at some point

995

00:47:28,549 --> 00:47:26,000

it could cause a problem getting them

996

00:47:30,630 --> 00:47:28,559

off the ground my question is how

997

00:47:33,109 --> 00:47:30,640

important is it speaking generically

998

00:47:34,390 --> 00:47:33,119

about soyuz here on my specifics but how

999

00:47:36,390 --> 00:47:34,400

important is it

1000

00:47:39,510 --> 00:47:36,400

to get the boeing ship flying and to get

1001
00:47:41,430 --> 00:47:39,520
seats on soyuz really to protect station

1002
00:47:42,549 --> 00:47:41,440
and protect seats in the case of an

1003
00:47:44,950 --> 00:47:42,559
issue

1004
00:47:46,950 --> 00:47:44,960
that might ground spacex or vice versa

1005
00:47:49,589 --> 00:47:46,960
ground boeing to have that second

1006
00:47:51,670 --> 00:47:49,599
provider available on the u.s side

1007
00:47:53,910 --> 00:47:51,680
then obviously they have the the ability

1008
00:47:55,510 --> 00:47:53,920
to keep someone on board if the soyuz

1009
00:47:57,349 --> 00:47:55,520
had to leave or an american ship can you

1010
00:47:58,710 --> 00:47:57,359
just generically talk about how

1011
00:48:01,030 --> 00:47:58,720
important it is to get these other

1012
00:48:04,470 --> 00:48:01,040
vehicles with americans on board up and

1013
00:48:09,190 --> 00:48:07,030

oh bill i mean thank you for that

1014

00:48:10,309 --> 00:48:09,200

question because i think it's extremely

1015

00:48:11,750 --> 00:48:10,319

critical

1016

00:48:13,109 --> 00:48:11,760

you know we've talked about it and you

1017

00:48:14,470 --> 00:48:13,119

talked about just a couple of the

1018

00:48:17,030 --> 00:48:14,480

scenarios

1019

00:48:18,309 --> 00:48:17,040

that could cause a problem where we

1020

00:48:21,109 --> 00:48:18,319

don't have as

1021

00:48:23,270 --> 00:48:21,119

robust logistics capability for us to

1022

00:48:24,710 --> 00:48:23,280

keep the station going as we'd like

1023

00:48:27,190 --> 00:48:24,720

right and you know

1024

00:48:28,710 --> 00:48:27,200

after following us for a while

1025

00:48:30,710 --> 00:48:28,720

we're planners

1026
00:48:33,750 --> 00:48:30,720
and we feel like

1027
00:48:36,790 --> 00:48:33,760
us always flying a us

1028
00:48:38,470 --> 00:48:36,800
or a usos crew member up on every single

1029
00:48:40,309 --> 00:48:38,480
vehicle going up

1030
00:48:42,710 --> 00:48:40,319
and also us having

1031
00:48:43,670 --> 00:48:42,720
you know multiple providers on the us

1032
00:48:46,470 --> 00:48:43,680
side

1033
00:48:50,069 --> 00:48:46,480
is what you know protects us from all

1034
00:48:54,870 --> 00:48:52,870
you know we we really look forward to

1035
00:48:58,150 --> 00:48:54,880
bringing our second provider line it not

1036
00:49:00,230 --> 00:48:58,160
only provides flexibility it gives space

1037
00:49:02,630 --> 00:49:00,240
a chance to be able to

1038
00:49:04,790 --> 00:49:02,640

have other opportunities for them we've

1039

00:49:07,349 --> 00:49:04,800

been very grateful that spacex has been

1040

00:49:10,790 --> 00:49:07,359

here and as a provider for us and

1041

00:49:12,309 --> 00:49:10,800

stepped up for us to be able to

1042

00:49:14,630 --> 00:49:12,319

be flying to their national space

1043

00:49:16,390 --> 00:49:14,640

station while we're bringing the boeing

1044

00:49:18,309 --> 00:49:16,400

capability online

1045

00:49:20,630 --> 00:49:18,319

but spacex has other things they want to

1046

00:49:22,549 --> 00:49:20,640

do with these vehicles too right

1047

00:49:26,470 --> 00:49:22,559

and

1048

00:49:27,990 --> 00:49:26,480

what joel mentioned we would like to

1049

00:49:31,030 --> 00:49:28,000

have them have other commercial

1050

00:49:32,470 --> 00:49:31,040

opportunities out there but they've been

1051
00:49:35,109 --> 00:49:32,480
critical they've stepped up and

1052
00:49:38,549 --> 00:49:35,119
supported us and made sure that we've

1053
00:49:40,230 --> 00:49:38,559
had a consistent u.s commercial provider

1054
00:49:42,470 --> 00:49:40,240
during this period we're bringing our

1055
00:49:43,510 --> 00:49:42,480
second u.s commercial provider back

1056
00:49:46,230 --> 00:49:43,520
online

1057
00:49:48,549 --> 00:49:46,240
but you also know bill that if if

1058
00:49:50,230 --> 00:49:48,559
there's there can be a number of issues

1059
00:49:52,950 --> 00:49:50,240
that don't have anything to do with the

1060
00:49:53,990 --> 00:49:52,960
spacecraft that can cause

1061
00:49:54,710 --> 00:49:54,000
our

1062
00:49:59,510 --> 00:49:54,720
the

1063
00:50:02,549 --> 00:49:59,520

be able to come down including a medical

1064

00:50:05,030 --> 00:50:02,559

emergency on orbit or some issue with

1065

00:50:07,190 --> 00:50:05,040

one part of the segment and so

1066

00:50:10,549 --> 00:50:07,200

we love the fact that we're working

1067

00:50:12,630 --> 00:50:10,559

towards the capability and and moving to

1068

00:50:15,990 --> 00:50:12,640

have in place the international

1069

00:50:18,470 --> 00:50:16,000

agreements where we would be able to

1070

00:50:21,109 --> 00:50:18,480

fly our crew members up on a soyuz have

1071

00:50:23,510 --> 00:50:21,119

the most cosmos fly their crew members

1072

00:50:26,390 --> 00:50:23,520

up on one of our two commercial crew

1073

00:50:29,190 --> 00:50:26,400

providers and move forward into this new

1074

00:50:32,230 --> 00:50:29,200

age it gives us the most robust

1075

00:50:34,150 --> 00:50:32,240

logistics strategy

1076

00:50:38,150 --> 00:50:34,160

all right thank you kathy next up we

1077

00:50:40,870 --> 00:50:38,160

have jeff faust with space news jeff

1078

00:50:43,750 --> 00:50:40,880

hello uh for steve stitch is nasa still

1079

00:50:46,069 --> 00:50:43,760

looking at uh any implications from the

1080

00:50:47,750 --> 00:50:46,079

uh failed falcon 9 booster landing a

1081

00:50:50,230 --> 00:50:47,760

couple weeks ago and it's in

1082

00:50:52,309 --> 00:50:50,240

implications for the crew 2 launch and

1083

00:50:54,549 --> 00:50:52,319

for benji reed are there any details you

1084

00:50:57,109 --> 00:50:54,559

can share about what specs found out

1085

00:50:58,870 --> 00:50:57,119

about why that booster failed to land

1086

00:51:00,710 --> 00:50:58,880

thanks

1087

00:51:02,710 --> 00:51:00,720

yeah i'll i'll start off and then we'll

1088

00:51:05,190 --> 00:51:02,720

hand it over to benji um

1089

00:51:08,470 --> 00:51:05,200

i would say just like

1090

00:51:11,030 --> 00:51:08,480

any other anomaly on the falcon 9 spacex

1091

00:51:12,790 --> 00:51:11,040

has been a tremendous partner inviting

1092

00:51:14,790 --> 00:51:12,800

nasa to participate in that

1093

00:51:16,069 --> 00:51:14,800

investigation so we have members on that

1094

00:51:18,390 --> 00:51:16,079

team

1095

00:51:20,230 --> 00:51:18,400

we will follow along with space texas

1096

00:51:21,829 --> 00:51:20,240

investigation and we'll look at that and

1097

00:51:22,950 --> 00:51:21,839

that will be

1098

00:51:25,270 --> 00:51:22,960

something we'll bring through our

1099

00:51:27,190 --> 00:51:25,280

program control board and make sure

1100

00:51:29,670 --> 00:51:27,200

uh that we have separation from that and

1101
00:51:31,990 --> 00:51:29,680
understand that anomaly before we go fly

1102
00:51:35,270 --> 00:51:32,000
we we do that across the the falcon 9

1103
00:51:36,950 --> 00:51:35,280
fleet we um our team really follows all

1104
00:51:39,030 --> 00:51:36,960
the falcon 9 flights

1105
00:51:40,710 --> 00:51:39,040
and we we learn from each one one of the

1106
00:51:43,030 --> 00:51:40,720
things i i really like about what's

1107
00:51:44,790 --> 00:51:43,040
happening is spacex's starling flights

1108
00:51:47,270 --> 00:51:44,800
are pretty far out there in terms of the

1109
00:51:49,109 --> 00:51:47,280
number of times they've flown a booster

1110
00:51:52,230 --> 00:51:49,119
you know we're about to embark upon our

1111
00:51:54,069 --> 00:51:52,240
first reuse here for a crude vehicle

1112
00:51:55,430 --> 00:51:54,079
and so what we're doing is we're

1113
00:51:57,510 --> 00:51:55,440

learning from each of those flights and

1114

00:51:59,990 --> 00:51:57,520

we're feeding that back into

1115

00:52:01,829 --> 00:52:00,000

our certification for reuse so i think

1116

00:52:03,589 --> 00:52:01,839

it's a great it's a great partnership to

1117

00:52:04,950 --> 00:52:03,599

have those those vehicles a little

1118

00:52:07,190 --> 00:52:04,960

further out there in terms of number of

1119

00:52:08,710 --> 00:52:07,200

flights and so as we understand our crew

1120

00:52:10,470 --> 00:52:08,720

capability and how many flights we can

1121

00:52:12,549 --> 00:52:10,480

get out of a booster it just really

1122

00:52:15,430 --> 00:52:12,559

augments our certification process and

1123

00:52:17,349 --> 00:52:15,440

also benji

1124

00:52:19,589 --> 00:52:17,359

great thank you steve and that's a it's

1125

00:52:21,430 --> 00:52:19,599

a great question um it's kind of just

1126

00:52:23,750 --> 00:52:21,440

playing right off from there it's it's

1127

00:52:24,549 --> 00:52:23,760

true right the more you fly the more you

1128

00:52:26,230 --> 00:52:24,559

learn

1129

00:52:27,670 --> 00:52:26,240

so it's just like the more you test the

1130

00:52:30,230 --> 00:52:27,680

more you learn i would never be one to

1131

00:52:32,549 --> 00:52:30,240

say we should fly less or test less

1132

00:52:33,829 --> 00:52:32,559

i'd rather learn everything we can um

1133

00:52:36,390 --> 00:52:33,839

and that is a great opportunity from

1134

00:52:39,030 --> 00:52:36,400

these starling flights um we get to uh

1135

00:52:42,230 --> 00:52:39,040

you know fly our higher count

1136

00:52:44,950 --> 00:52:42,240

flight proven vehicles uh to to take the

1137

00:52:46,710 --> 00:52:44,960

starlink satellites at orbit um in fact

1138

00:52:48,150 --> 00:52:46,720

this is a good example so the the

1139

00:52:50,470 --> 00:52:48,160

anomaly that we saw on this one

1140

00:52:52,549 --> 00:52:50,480

particularly um it was it was a higher

1141

00:52:53,670 --> 00:52:52,559

count vehicle um and some of the

1142

00:52:55,670 --> 00:52:53,680

components were actually the highest

1143

00:52:57,750 --> 00:52:55,680

count they were life leaders um in this

1144

00:52:59,910 --> 00:52:57,760

case particularly there was an engine

1145

00:53:01,510 --> 00:52:59,920

uh to give you a little bit more detail

1146

00:53:03,829 --> 00:53:01,520

um basically there are covers we call

1147

00:53:05,910 --> 00:53:03,839

them boots over certain parts of the the

1148

00:53:08,390 --> 00:53:05,920

engine in this case one of these boots

1149

00:53:10,390 --> 00:53:08,400

this was the the highest count uh number

1150

00:53:12,710 --> 00:53:10,400

of flights that this particular boot

1151
00:53:14,309 --> 00:53:12,720
design had seen um and it's important we

1152
00:53:15,589 --> 00:53:14,319
do this we know that this is happening

1153
00:53:17,670 --> 00:53:15,599
we're we're studying this we want to

1154
00:53:20,950 --> 00:53:17,680
make sure we understand um the life

1155
00:53:22,790 --> 00:53:20,960
process um of these of these uh of these

1156
00:53:23,829 --> 00:53:22,800
you know flight proven components and

1157
00:53:26,150 --> 00:53:23,839
vehicles

1158
00:53:28,309 --> 00:53:26,160
this particular boot had uh had a little

1159
00:53:29,750 --> 00:53:28,319
bit of a hole basically developed a hole

1160
00:53:31,349 --> 00:53:29,760
there's hot gases of course i mean

1161
00:53:33,109 --> 00:53:31,359
that's what makes the rocket go up very

1162
00:53:34,390 --> 00:53:33,119
hot gases coming out of the engine but

1163
00:53:36,230 --> 00:53:34,400

you want those hot gases to be where

1164

00:53:38,309 --> 00:53:36,240

they're supposed to be and not go where

1165

00:53:39,829 --> 00:53:38,319

they're not supposed to be so that boot

1166

00:53:41,349 --> 00:53:39,839

a little bit of a hole developed a

1167

00:53:43,190 --> 00:53:41,359

little bit of hot gas got to where it's

1168

00:53:45,190 --> 00:53:43,200

not supposed to be and it caused that

1169

00:53:47,349 --> 00:53:45,200

engine to shut down

1170

00:53:49,750 --> 00:53:47,359

and that's a great thing about falcon 9

1171

00:53:51,510 --> 00:53:49,760

is we have engine out capability plus

1172

00:53:54,630 --> 00:53:51,520

the vehicle has all of these great

1173

00:53:56,470 --> 00:53:54,640

systems to autonomously control itself

1174

00:53:57,990 --> 00:53:56,480

shut down about what it needs to in this

1175

00:53:59,190 --> 00:53:58,000

case it did exactly what it was supposed

1176

00:54:00,710 --> 00:53:59,200

to do

1177

00:54:02,870 --> 00:54:00,720

it cut out that engine turned that

1178

00:54:04,710 --> 00:54:02,880

engine off the vehicle was safe the

1179

00:54:06,549 --> 00:54:04,720

vehicle got to orbit put the satellites

1180

00:54:08,230 --> 00:54:06,559

exactly where they want to be primary

1181

00:54:11,270 --> 00:54:08,240

mission was accomplished

1182

00:54:12,309 --> 00:54:11,280

when that visitor uh came to return home

1183

00:54:14,150 --> 00:54:12,319

because of the problem with that

1184

00:54:16,309 --> 00:54:14,160

particular engine we didn't have enough

1185

00:54:19,109 --> 00:54:16,319

thrust in order to uh to get back to

1186

00:54:21,190 --> 00:54:19,119

where we needed to be um and didn't land

1187

00:54:22,870 --> 00:54:21,200

where we wanted to be in that case um

1188

00:54:25,270 --> 00:54:22,880

but bottom line is that's a great lesson

1189

00:54:27,270 --> 00:54:25,280

that we learned from um you know from

1190

00:54:29,190 --> 00:54:27,280

doing these these multi-life you know

1191

00:54:30,710 --> 00:54:29,200

very long life leader type components

1192

00:54:33,030 --> 00:54:30,720

and and vehicles

1193

00:54:35,190 --> 00:54:33,040

um in terms of you know going from there

1194

00:54:36,789 --> 00:54:35,200

we we apply you know okay well we here's

1195

00:54:38,549 --> 00:54:36,799

where we need to do more inspections

1196

00:54:39,589 --> 00:54:38,559

here's where the components we need to

1197

00:54:41,829 --> 00:54:39,599

replace

1198

00:54:44,950 --> 00:54:41,839

and here's where we can actually upgrade

1199

00:54:47,510 --> 00:54:44,960

the the systems right the algorithms on

1200

00:54:50,630 --> 00:54:47,520

the vehicle to even further detect and

1201
00:54:51,829 --> 00:54:50,640
control uh what the vehicle needs to do

1202
00:54:53,670 --> 00:54:51,839
and that's what we're doing as we move

1203
00:54:55,430 --> 00:54:53,680
forward

1204
00:54:57,910 --> 00:54:55,440
all right thank you benji uh we're gonna

1205
00:55:00,470 --> 00:54:57,920
squeeze in a couple of hashtag ask nasa

1206
00:55:01,829 --> 00:55:00,480
questions uh this first one is for joel

1207
00:55:04,230 --> 00:55:01,839
i've been getting a lot of questions

1208
00:55:06,789 --> 00:55:04,240
about this so i'm gonna combine two uh

1209
00:55:09,670 --> 00:55:06,799
from the community at our slash spacex

1210
00:55:11,190 --> 00:55:09,680
and from jacqueline irving on twitter is

1211
00:55:13,349 --> 00:55:11,200
the seventh crew member still going to

1212
00:55:15,190 --> 00:55:13,359
be sleeping in dragon and what is the

1213
00:55:17,990 --> 00:55:15,200

plan to enable a seventh crew

1214

00:55:19,750 --> 00:55:18,000

compartment and when we do the handover

1215

00:55:21,990 --> 00:55:19,760

where are all of the astronauts going to

1216

00:55:24,870 --> 00:55:22,000

sleep

1217

00:55:27,270 --> 00:55:24,880

a good question you know so on the last

1218

00:55:29,270 --> 00:55:27,280

northrop grumman mission we flew

1219

00:55:30,950 --> 00:55:29,280

an additional sleep station that'll be

1220

00:55:32,069 --> 00:55:30,960

planned to be installed in the columbus

1221

00:55:34,630 --> 00:55:32,079

module

1222

00:55:36,789 --> 00:55:34,640

so long term we'll have five sleeping

1223

00:55:39,109 --> 00:55:36,799

stations for the different crew members

1224

00:55:41,190 --> 00:55:39,119

uh during the handovers uh the two crews

1225

00:55:43,190 --> 00:55:41,200

work together to kind of plan

1226
00:55:45,349 --> 00:55:43,200
pre-mission where everybody's gonna

1227
00:55:46,470 --> 00:55:45,359
sleep and then they'll update in real

1228
00:55:48,470 --> 00:55:46,480
time

1229
00:55:50,789 --> 00:55:48,480
options maybe we can still have someone

1230
00:55:52,950 --> 00:55:50,799
sleep in the dragon module maybe we'll

1231
00:55:55,589 --> 00:55:52,960
have someone sleep in the u.s airlock

1232
00:55:58,069 --> 00:55:55,599
maybe someone in the japanese module

1233
00:55:59,670 --> 00:55:58,079
again these are a short duration mission

1234
00:56:01,910 --> 00:55:59,680
somewhere in the order of five to seven

1235
00:56:04,789 --> 00:56:01,920
days so it's more of a think of more of

1236
00:56:06,549 --> 00:56:04,799
a of a campout type scenario

1237
00:56:07,990 --> 00:56:06,559
but again the crews will get together

1238
00:56:10,470 --> 00:56:08,000

and once they get there they'll talk to

1239

00:56:12,309 --> 00:56:10,480

each other and and adjust accordingly

1240

00:56:14,630 --> 00:56:12,319

good question

1241

00:56:16,470 --> 00:56:14,640

all right thank you joel and for benji

1242

00:56:18,789 --> 00:56:16,480

uh from scoochie on twitter wanted to

1243

00:56:20,630 --> 00:56:18,799

know can crew flights carry any cargo in

1244

00:56:24,309 --> 00:56:20,640

dragon's trunk or would it be too

1245

00:56:26,390 --> 00:56:24,319

dangerous in case of an in-flight abort

1246

00:56:28,230 --> 00:56:26,400

that's a great question uh we don't

1247

00:56:29,910 --> 00:56:28,240

normally plan to fly any cargo in the

1248

00:56:31,670 --> 00:56:29,920

trunk of dragon and it's it's not

1249

00:56:33,030 --> 00:56:31,680

particularly because it's dangerous per

1250

00:56:36,069 --> 00:56:33,040

se but it does have to do with the

1251

00:56:38,150 --> 00:56:36,079

boards we've optimized um the trunk uh

1252

00:56:41,190 --> 00:56:38,160

for aerodynamic stability in the case of

1253

00:56:43,430 --> 00:56:41,200

an abort we've also optimized the cg the

1254

00:56:44,870 --> 00:56:43,440

center of gravity and the mass of that

1255

00:56:46,390 --> 00:56:44,880

vehicle in case of an important case

1256

00:56:49,349 --> 00:56:46,400

that dragon has to get off the falcon

1257

00:56:51,109 --> 00:56:49,359

really fast um and so in that case we

1258

00:56:53,750 --> 00:56:51,119

actually don't want to have any cargo in

1259

00:56:55,270 --> 00:56:53,760

the trunk um for that specific reason

1260

00:56:56,870 --> 00:56:55,280

great question

1261

00:56:58,630 --> 00:56:56,880

all right thank you benji and now

1262

00:57:00,549 --> 00:56:58,640

jumping back over to the phones we're

1263

00:57:03,990 --> 00:57:00,559

going to go next to chris davenport with

1264

00:57:05,829 --> 00:57:04,000

the washington post chris

1265

00:57:08,230 --> 00:57:05,839

hey guys thanks a question about

1266

00:57:10,470 --> 00:57:08,240

refurbishment so i guess it's for uh

1267

00:57:12,630 --> 00:57:10,480

benji or maybe steve i just wonder how

1268

00:57:15,190 --> 00:57:12,640

long did it take to refurbish the crew 2

1269

00:57:17,270 --> 00:57:15,200

vehicle after demo 2 and how do you

1270

00:57:20,549 --> 00:57:17,280

think that timeline will improve going

1271

00:57:23,190 --> 00:57:20,559

forward say after crew 2 3 etc

1272

00:57:25,829 --> 00:57:23,200

and then i just wonder if you have a

1273

00:57:27,829 --> 00:57:25,839

sense of how many times you want to fly

1274

00:57:30,710 --> 00:57:27,839

dragon how many times you want to reuse

1275

00:57:32,069 --> 00:57:30,720

it and if you got any insight into that

1276

00:57:33,349 --> 00:57:32,079

i think it was you want to do it maybe

1277

00:57:35,270 --> 00:57:33,359

five times do you think that's

1278

00:57:40,950 --> 00:57:35,280

achievable based on what you've seen

1279

00:57:45,990 --> 00:57:44,150

great i'll i'll start um on this one so

1280

00:57:48,150 --> 00:57:46,000

uh in terms of the time frame you know

1281

00:57:50,950 --> 00:57:48,160

certainly the demo two to crew to

1282

00:57:52,789 --> 00:57:50,960

refurbishment is a process that uh that

1283

00:57:54,309 --> 00:57:52,799

we took a lot longer on because we

1284

00:57:56,390 --> 00:57:54,319

wanted to very much understand this

1285

00:57:58,390 --> 00:57:56,400

vehicle um you know because it's the

1286

00:58:00,390 --> 00:57:58,400

first time we uh

1287

00:58:02,150 --> 00:58:00,400

a crew vehicle

1288

00:58:04,390 --> 00:58:02,160

and to station back the first time we

1289

00:58:06,710 --> 00:58:04,400

were wishing it to get ready to go

1290

00:58:08,150 --> 00:58:06,720

so it was a multi-month process

1291

00:58:09,589 --> 00:58:08,160

as we went through that process as i

1292

00:58:11,589 --> 00:58:09,599

mentioned earlier we're learning about

1293

00:58:13,750 --> 00:58:11,599

what needs to be what needs to be fully

1294

00:58:15,670 --> 00:58:13,760

replaced where we should be inspecting

1295

00:58:17,510 --> 00:58:15,680

more deeply what kinds of things we need

1296

00:58:20,630 --> 00:58:17,520

to do going forward and and looking how

1297

00:58:23,190 --> 00:58:20,640

to max you know maximally optimize that

1298

00:58:24,470 --> 00:58:23,200

process uh on future vehicles and i

1299

00:58:26,230 --> 00:58:24,480

think i think you know you get it down

1300

00:58:28,230 --> 00:58:26,240

to you just a matter of you know a

1301

00:58:30,950 --> 00:58:28,240

couple of months and i think that's a

1302

00:58:32,150 --> 00:58:30,960

really good place to be but long term as

1303

00:58:34,309 --> 00:58:32,160

always you know as we look towards the

1304

00:58:36,309 --> 00:58:34,319

future you know aircraft like operations

1305

00:58:38,230 --> 00:58:36,319

are our goal in this case for dragon and

1306

00:58:39,670 --> 00:58:38,240

making sure we're safe to fly though um

1307

00:58:41,030 --> 00:58:39,680

we'll probably kind of tend to be taking

1308

00:58:42,870 --> 00:58:41,040

kind of in that couple of months range

1309

00:58:45,030 --> 00:58:42,880

but but we'll see as we go

1310

00:58:48,829 --> 00:58:45,040

um and uh i don't know any other

1311

00:58:56,710 --> 00:58:51,910

one all right uh next up we're going to

1312

00:58:59,510 --> 00:58:56,720

go to chelseago space.com chelsea

1313

00:59:02,630 --> 00:58:59,520

hi how's it going chelsea with space.com

1314

00:59:05,190 --> 00:59:02,640

uh you spoke a bit about the

1315

00:59:06,870 --> 00:59:05,200

handoff and kind of the

1316

00:59:09,829 --> 00:59:06,880

maneuver that they're going to do to

1317

00:59:11,750 --> 00:59:09,839

switch ports with the clue one vehicle

1318

00:59:13,829 --> 00:59:11,760

make room for crew two and then the the

1319

00:59:15,670 --> 00:59:13,839

few days that they're going

1320

00:59:17,510 --> 00:59:15,680

before crew one departs the space

1321

00:59:20,230 --> 00:59:17,520

station could you speak a bit more

1322

00:59:22,390 --> 00:59:20,240

about that process what that handoff

1323

00:59:24,870 --> 00:59:22,400

will look like uh as it's the first time

1324

00:59:26,549 --> 00:59:24,880

that a soul crew dragon crew will be

1325

00:59:30,789 --> 00:59:26,559

handing it off to another full crew

1326

00:59:34,150 --> 00:59:32,630

let's see steve stitch maybe i can take

1327

00:59:37,990 --> 00:59:34,160

the hand over one and then you can talk

1328

00:59:42,230 --> 00:59:39,589

sounds good

1329

00:59:43,910 --> 00:59:42,240

all right so for the handover i mean

1330

00:59:45,829 --> 00:59:43,920

handovers are something that we've done

1331

00:59:47,270 --> 00:59:45,839

multiple times onboard the international

1332

00:59:48,950 --> 00:59:47,280

space station

1333

00:59:51,910 --> 00:59:48,960

the first thing the crew members will do

1334

00:59:54,390 --> 00:59:51,920

is there'll be an emergency review of

1335

00:59:56,309 --> 00:59:54,400

the emergency processes what happens if

1336

00:59:58,230 --> 00:59:56,319

we have a

1337

01:00:00,950 --> 00:59:58,240

an event on board a fire event a

1338

01:00:02,870 --> 01:00:00,960

depressurization event or a toxic

1339

01:00:04,950 --> 01:00:02,880

atmosphere event and how do we act to

1340

01:00:06,230 --> 01:00:04,960

that how do we react to that so that's

1341

01:00:08,230 --> 01:00:06,240

going to be the number one thing that

1342

01:00:10,789 --> 01:00:08,240

the crew members are going to be doing

1343

01:00:12,870 --> 01:00:10,799

and that'll happen within the first day

1344

01:00:14,630 --> 01:00:12,880

and then the next days and i'm thinking

1345

01:00:16,789 --> 01:00:14,640

we're probably talking a five to seven

1346

01:00:18,230 --> 01:00:16,799

day handover between the two crews

1347

01:00:20,549 --> 01:00:18,240

they'll be talking about the different

1348

01:00:22,710 --> 01:00:20,559

processes what life is on board the

1349

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

international space station

1350

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

how they react to different maintenance

1351

01:00:29,270 --> 01:00:27,520

activities any science activities the

1352

01:00:32,390 --> 01:00:29,280

crew members will be talking about some

1353

01:00:35,109 --> 01:00:32,400

of the research work we do and um some

1354

01:00:36,710 --> 01:00:35,119

of the the challenges you we have and

1355

01:00:38,950 --> 01:00:36,720

working with the different facilities or

1356

01:00:40,950 --> 01:00:38,960

the operations of those facilities and

1357

01:00:43,750 --> 01:00:40,960

again it'll take about five to seven

1358

01:00:44,870 --> 01:00:43,760

days and so steve let me handle you when

1359

01:00:46,390 --> 01:00:44,880

you can talk a little bit about the

1360

01:00:47,270 --> 01:00:46,400

relocation

1361

01:00:49,030 --> 01:00:47,280

yeah

1362

01:00:51,990 --> 01:00:49,040

thanks joel so the relocation is an

1363

01:00:54,710 --> 01:00:52,000

important activity before we actually do

1364

01:00:56,549 --> 01:00:54,720

the handover we right now the the dragon

1365

01:00:58,870 --> 01:00:56,559

spacecraft is on the forward port of the

1366

01:01:00,630 --> 01:00:58,880

space station so as the space station

1367

01:01:03,670 --> 01:01:00,640

flies along it's on that forward port we

1368

01:01:05,829 --> 01:01:03,680

need to get that vehicle uh

1369

01:01:07,670 --> 01:01:05,839

moved up to the zenith port

1370

01:01:09,750 --> 01:01:07,680

in order to let the next vehicle come up

1371

01:01:11,349 --> 01:01:09,760

we really want that crew 2 vehicle on

1372

01:01:13,750 --> 01:01:11,359

that ford port

1373

01:01:15,750 --> 01:01:13,760

so what we'll do is uh the actual

1374

01:01:17,349 --> 01:01:15,760

maneuver is pretty uh straight forward

1375

01:01:19,829 --> 01:01:17,359

it's all automated

1376

01:01:22,069 --> 01:01:19,839

the crew will get into their suits and

1377

01:01:24,549 --> 01:01:22,079

they will get into into the dragon and

1378

01:01:25,829 --> 01:01:24,559

we'll do some leak checks in between the

1379

01:01:27,430 --> 01:01:25,839

two vehicles

1380

01:01:29,030 --> 01:01:27,440

when we're confident that we've got the

1381

01:01:32,470 --> 01:01:29,040

hatches all uh

1382

01:01:35,190 --> 01:01:32,480

sealed we'll uh depress that vestibule

1383

01:01:36,789 --> 01:01:35,200

and then open the hooks on that docking

1384

01:01:38,870 --> 01:01:36,799

port the international docking adapter

1385

01:01:42,309 --> 01:01:38,880

on the four part the vehicle will back

1386

01:01:43,910 --> 01:01:42,319

away uh to a certain range and then

1387

01:01:45,910 --> 01:01:43,920

really it just does a

1388

01:01:48,870 --> 01:01:45,920

translation and flies up around and

1389

01:01:51,589 --> 01:01:48,880

comes in and docks to that zenith port

1390

01:01:54,470 --> 01:01:51,599

that translation is really short it only

1391

01:01:55,829 --> 01:01:54,480

takes about 45 to 50 minutes do that

1392

01:01:57,589 --> 01:01:55,839

there's there's quite a bit of prep that

1393

01:01:59,349 --> 01:01:57,599

goes into it you know a few days ahead

1394

01:02:00,789 --> 01:01:59,359

of time the crew will get into their

1395

01:02:02,630 --> 01:02:00,799

suits and check the suits out and make

1396

01:02:03,829 --> 01:02:02,640

sure those suits are functioning and

1397

01:02:05,349 --> 01:02:03,839

working fine

1398

01:02:07,190 --> 01:02:05,359

we'll do some checkouts of the of the

1399

01:02:09,270 --> 01:02:07,200

dragon vehicle to make sure all the prop

1400

01:02:12,230 --> 01:02:09,280

systems are working before we go do that

1401
01:02:15,270 --> 01:02:12,240
maneuver and then uh on the ground we'll

1402
01:02:16,630 --> 01:02:15,280
have uh teams available and ready

1403
01:02:19,270 --> 01:02:16,640
should something happen to where we

1404
01:02:21,589 --> 01:02:19,280
can't go up and uh and dock to that

1405
01:02:23,910 --> 01:02:21,599
zenith port and we needed to uh to

1406
01:02:25,270 --> 01:02:23,920
either come back and try again 24 hours

1407
01:02:27,430 --> 01:02:25,280
later or

1408
01:02:29,589 --> 01:02:27,440
also actually land we'll have a recovery

1409
01:02:31,589 --> 01:02:29,599
ship uh spacex will have their recovery

1410
01:02:33,670 --> 01:02:31,599
ship ready to go for the atlantic sites

1411
01:02:36,069 --> 01:02:33,680
off the coast florida and then we'll

1412
01:02:36,950 --> 01:02:36,079
also have uh the detachment three ready

1413
01:02:39,109 --> 01:02:36,960

to go

1414

01:02:41,109 --> 01:02:39,119

uh the dod forces in the event that

1415

01:02:42,630 --> 01:02:41,119

something would happen so it's the first

1416

01:02:44,069 --> 01:02:42,640

time we've done this in the u.s i would

1417

01:02:45,829 --> 01:02:44,079

say

1418

01:02:47,270 --> 01:02:45,839

the spacex nasa teams are taking this

1419

01:02:49,190 --> 01:02:47,280

operation

1420

01:02:51,190 --> 01:02:49,200

very seriously and working through

1421

01:02:52,549 --> 01:02:51,200

checking all the procedures all the

1422

01:02:54,069 --> 01:02:52,559

flight software and just making sure

1423

01:02:55,990 --> 01:02:54,079

we're ready to go do this

1424

01:02:57,349 --> 01:02:56,000

it's something that we'll do quite often

1425

01:02:59,829 --> 01:02:57,359

but it's the first time we'll have done

1426

01:03:02,150 --> 01:02:59,839

it with the dragon vehicle

1427

01:03:04,150 --> 01:03:02,160

all right thank you steve uh we have

1428

01:03:06,470 --> 01:03:04,160

time for about one more depending on how

1429

01:03:09,510 --> 01:03:06,480

quick our answer is but next we'll go to

1430

01:03:12,230 --> 01:03:09,520

marcia dunn with the associated press

1431

01:03:14,390 --> 01:03:12,240

yes hi um for either steve or cathy i'd

1432

01:03:16,870 --> 01:03:14,400

like nasa's take on the risk assessment

1433

01:03:18,069 --> 01:03:16,880

using used vehicles i'm i'm just

1434

01:03:20,069 --> 01:03:18,079

wondering if

1435

01:03:21,910 --> 01:03:20,079

if you think there'll be added risk

1436

01:03:23,910 --> 01:03:21,920

because of wear and tear already on

1437

01:03:25,990 --> 01:03:23,920

these vehicles or will there be perhaps

1438

01:03:27,990 --> 01:03:26,000

less risk than a brand new vehicle

1439

01:03:31,349 --> 01:03:28,000

because it's flight proven could you

1440

01:03:33,510 --> 01:03:31,359

just give me your latest take thanks

1441

01:03:34,549 --> 01:03:33,520

yeah yeah yeah i'm happy to start out uh

1442

01:03:35,510 --> 01:03:34,559

marcia

1443

01:03:40,470 --> 01:03:35,520

uh

1444

01:03:42,710 --> 01:03:40,480

vehicle and the dragon were designed

1445

01:03:44,470 --> 01:03:42,720

with reuse and much like the space

1446

01:03:46,309 --> 01:03:44,480

shuttle was designed

1447

01:03:47,589 --> 01:03:46,319

for a certain number of flights

1448

01:03:49,190 --> 01:03:47,599

uh

1449

01:03:51,270 --> 01:03:49,200

when we go through this certification

1450

01:03:52,870 --> 01:03:51,280

process we we really look at every part

1451

01:03:54,230 --> 01:03:52,880

of the vehicle we look at the parts that

1452

01:03:55,750 --> 01:03:54,240

are going to be new as benji said there

1453

01:03:58,309 --> 01:03:55,760

are new parachutes

1454

01:04:00,630 --> 01:03:58,319

you know new heat shield new nose cone

1455

01:04:01,750 --> 01:04:00,640

new components and then

1456

01:04:03,349 --> 01:04:01,760

we look at what we're doing during the

1457

01:04:04,789 --> 01:04:03,359

refurbishment process we've had nasa

1458

01:04:07,430 --> 01:04:04,799

personnel

1459

01:04:09,670 --> 01:04:07,440

down in florida at dragonland as the

1460

01:04:11,270 --> 01:04:09,680

refurbishment happens we have

1461

01:04:13,589 --> 01:04:11,280

activities that we need to go witness

1462

01:04:15,349 --> 01:04:13,599

and watch what spacex is doing so so

1463

01:04:18,630 --> 01:04:15,359

overall i don't really see

1464

01:04:20,390 --> 01:04:18,640

any high risk uh in reuse because we've

1465

01:04:22,309 --> 01:04:20,400

gone through the methodical process and

1466

01:04:23,750 --> 01:04:22,319

we've checked as the components get

1467

01:04:25,349 --> 01:04:23,760

reinstalled

1468

01:04:26,630 --> 01:04:25,359

and then if you step back and look at

1469

01:04:28,390 --> 01:04:26,640

this flight

1470

01:04:29,670 --> 01:04:28,400

you know we are

1471

01:04:31,589 --> 01:04:29,680

improving the risk posture of the

1472

01:04:33,430 --> 01:04:31,599

vehicle by improving aborts improving

1473

01:04:35,430 --> 01:04:33,440

the pad abort capability

1474

01:04:36,470 --> 01:04:35,440

eliminating titanium in the propulsion

1475

01:04:39,190 --> 01:04:36,480

system

1476

01:04:41,270 --> 01:04:39,200

improving downrange aborts by changing

1477

01:04:44,069 --> 01:04:41,280

the software so overall i think this

1478

01:04:45,750 --> 01:04:44,079

vehicle you know is we're

1479

01:04:48,549 --> 01:04:45,760

continuing to endeavor to buy down risk

1480

01:04:51,430 --> 01:04:48,559

in the program over time

1481

01:04:53,670 --> 01:04:51,440

all right thank you steve um i think we

1482

01:04:56,470 --> 01:04:53,680

have time for just one last one irene

1483

01:05:00,069 --> 01:04:56,480

klotz with aviation week irene

1484

01:05:02,710 --> 01:05:00,079

thanks dan um for steve you mentioned uh

1485

01:05:04,390 --> 01:05:02,720

oft2 was a couple weeks down just want

1486

01:05:07,029 --> 01:05:04,400

to check that

1487

01:05:09,829 --> 01:05:07,039

delaying from the

1488

01:05:12,390 --> 01:05:09,839

announced last week of april

1489

01:05:14,750 --> 01:05:12,400

and the uh current target dates for

1490

01:05:17,029 --> 01:05:14,760

ms-18 launch

1491

01:05:19,109 --> 01:05:17,039

ms-17 landing

1492

01:05:21,910 --> 01:05:19,119

and uh for bendy just real quick when

1493

01:05:23,990 --> 01:05:21,920

when did the engine go out on the

1494

01:05:25,910 --> 01:05:24,000

february 16th launch

1495

01:05:28,630 --> 01:05:25,920

thank you

1496

01:05:30,470 --> 01:05:28,640

yeah regarding oft2 uh

1497

01:05:32,390 --> 01:05:30,480

we are going to have to move off of that

1498

01:05:34,470 --> 01:05:32,400

uh april the second date and we're

1499

01:05:36,630 --> 01:05:34,480

continuing to evaluate options

1500

01:05:38,309 --> 01:05:36,640

as i said before uh the vehicle is

1501

01:05:39,750 --> 01:05:38,319

really coming together

1502

01:05:41,990 --> 01:05:39,760

we had a little bit of a power up

1503

01:05:43,990 --> 01:05:42,000

anomaly with some avionics components

1504

01:05:46,309 --> 01:05:44,000

the boeing and nasa team worked really

1505

01:05:48,710 --> 01:05:46,319

well to get those components reinstalled

1506

01:05:50,390 --> 01:05:48,720

and checked out and that was completed

1507

01:05:52,630 --> 01:05:50,400

over the weekend

1508

01:05:54,470 --> 01:05:52,640

but we did lose time with the with the

1509

01:05:56,230 --> 01:05:54,480

weather in houston

1510

01:05:57,829 --> 01:05:56,240

we lost about a week of time and it

1511

01:05:59,829 --> 01:05:57,839

affected the facility that does software

1512

01:06:01,109 --> 01:05:59,839

testing so we're in the process of

1513

01:06:03,109 --> 01:06:01,119

working hand-in-hand with boeing to

1514

01:06:07,670 --> 01:06:03,119

figure out when when the oft-2 flight

1515

01:06:11,589 --> 01:06:09,190

all right thank you and this is going to

1516

01:06:15,829 --> 01:06:11,599

be our final one we have andrew tangle

1517

01:06:21,510 --> 01:06:19,109

oh hi there um thanks uh uh

1518

01:06:23,510 --> 01:06:21,520

uh is that um

1519

01:06:26,309 --> 01:06:23,520

are you saying that that you all uh

1520

01:06:29,510 --> 01:06:26,319

don't know when uh in april or later

1521

01:06:30,630 --> 01:06:29,520

this year the uncrewed uh starliner

1522

01:06:32,390 --> 01:06:30,640

launch will be

1523

01:06:35,270 --> 01:06:32,400

and then um

1524

01:06:37,270 --> 01:06:35,280

my my other question was uh

1525

01:06:39,430 --> 01:06:37,280

about the

1526

01:06:40,870 --> 01:06:39,440

uh recent

1527

01:06:42,549 --> 01:06:40,880

statement by the uh

1528

01:06:44,230 --> 01:06:42,559

asap panel or a member of the asia panel

1529

01:06:45,910 --> 01:06:44,240

that was imperative that the

1530

01:06:48,390 --> 01:06:45,920

safety culture audit of boeing be

1531

01:06:49,829 --> 01:06:48,400

performed uh before the

1532

01:06:52,069 --> 01:06:49,839

uh

1533

01:06:53,029 --> 01:06:52,079

crude launch later this year

1534

01:06:54,950 --> 01:06:53,039

can you

1535

01:06:57,349 --> 01:06:54,960

tell us what the status of that safety

1536

01:07:00,230 --> 01:06:57,359

culture audit is what problems if any

1537

01:07:02,549 --> 01:07:00,240

it's found and what are those have been

1538

01:07:05,589 --> 01:07:02,559

addressed

1539

01:07:07,589 --> 01:07:05,599

i'll i'll take the questions uh yeah we

1540

01:07:09,589 --> 01:07:07,599

we are going to do an organizational

1541

01:07:11,349 --> 01:07:09,599

safety assessment with boeing

1542

01:07:14,549 --> 01:07:11,359

uh we've been looking at the right

1543

01:07:16,870 --> 01:07:14,559

timing to do that to do that audit

1544

01:07:18,069 --> 01:07:16,880

you know with covet 19 it's problematic

1545

01:07:19,510 --> 01:07:18,079

to do it in person and these are the

1546

01:07:21,670 --> 01:07:19,520

kind of audits that are

1547

01:07:24,069 --> 01:07:21,680

best done when we can sit down and talk

1548

01:07:25,430 --> 01:07:24,079

to the boeing employees face to face so

1549

01:07:27,029 --> 01:07:25,440

we'll do that before the crude flight

1550

01:07:29,430 --> 01:07:27,039

test later this year

1551
01:07:31,829 --> 01:07:29,440
we've been planning that all along and

1552
01:07:34,150 --> 01:07:31,839
the asap point that out in their public

1553
01:07:35,430 --> 01:07:34,160
remarks a few weeks back so we've been

1554
01:07:36,789 --> 01:07:35,440
we've had that on the books and we're

1555
01:07:37,670 --> 01:07:36,799
going to go do that

1556
01:07:39,109 --> 01:07:37,680
and then

1557
01:07:41,270 --> 01:07:39,119
the first question was relative to the

1558
01:07:43,190 --> 01:07:41,280
oft2 launch date yeah we are going to

1559
01:07:45,349 --> 01:07:43,200
have to move off of 4-2

1560
01:07:47,750 --> 01:07:45,359
it's a very busy time frame uh on the

1561
01:07:49,750 --> 01:07:47,760
space station with the soyuz uh mission

1562
01:07:51,430 --> 01:07:49,760
and then crew two and then it's a busy

1563
01:07:52,789 --> 01:07:51,440

time on the on the range and so we're

1564

01:07:54,870 --> 01:07:52,799

working hand-in-hand with boeing to go

1565

01:07:56,630 --> 01:07:54,880

figure out you know when that launch

1566

01:07:59,029 --> 01:07:56,640

date will be

1567

01:08:00,789 --> 01:07:59,039

and we'll just have to stand by for

1568

01:08:03,589 --> 01:08:00,799

further developments on exactly when

1569

01:08:05,349 --> 01:08:03,599

that flight will fly

1570

01:08:07,109 --> 01:08:05,359

all right thank you steve and thank you

1571

01:08:08,870 --> 01:08:07,119

to all of our briefers today that is

1572

01:08:10,789 --> 01:08:08,880

going to do it for us sorry again about

1573

01:08:12,630 --> 01:08:10,799

the late start uh but thanks to

1574

01:08:14,870 --> 01:08:12,640

everybody for taking those questions and

1575

01:08:17,030 --> 01:08:14,880

giving the answers today uh everybody be

1576

01:08:19,189 --> 01:08:17,040

sure to tune in when we have the crew 2

1577

01:08:21,749 --> 01:08:19,199

astronauts themselves talking live on

1578

01:08:23,749 --> 01:08:21,759

nasa tv coming up at 2 p.m eastern 1 pm

1579

01:08:25,990 --> 01:08:23,759

central time for their crew 2 news

1580

01:08:27,829 --> 01:08:26,000

conference and again everything focused

1581

01:08:29,590 --> 01:08:27,839

right now on no earlier than april 20th

1582

01:08:31,349 --> 01:08:29,600

for this mission so continue to stay