1
00:00:49,830 --> 00:00:39,480
[Music]

2
00:00:49,840 --> 00:00:53,890
do

3
00:02:48,869 --> 00:01:10,900
[Music]

4
00:02:48,879 --> 00:02:52,470
foreign

5
00:03:22,190 --> 00:03:02,050
[Music]

6
00:03:45,550 --> 00:03:24,140
[Applause]

7
00:03:45,560 --> 00:03:59,509
[Music]

8
00:04:19,749 --> 00:04:02,350
this is nasa tv

9
00:04:21,670 --> 00:04:19,759
[Music]

10
00:04:23,749 --> 00:04:21,680
good afternoon thank you for joining us

11
00:04:25,670 --> 00:04:23,759
here on nasa tv

12
00:04:28,150 --> 00:04:25,680
we're about to conduct a briefing right

13
00:04:30,710 --> 00:04:28,160

after the flight readiness review of the

14
00:04:33,510 --> 00:04:30,720
return of bob bankin and doug hurley to

15
00:04:35,510 --> 00:04:33,520
planet earth completing the spacex demo

16
00:04:38,310 --> 00:04:35,520
2 mission and the first test flight of

17
00:04:40,710 --> 00:04:38,320
the crude commercial vehicle i'm joined

18
00:04:42,870 --> 00:04:40,720
by an esteemed set of panelists here

19
00:04:44,469 --> 00:04:42,880
from across the country to discuss uh

20
00:04:46,870 --> 00:04:44,479
what came out of the flight readiness

21
00:04:49,830 --> 00:04:46,880
review as well as from what's to come

22
00:04:52,270 --> 00:04:49,840
both from nasa and from spacex joining

23
00:04:55,350 --> 00:04:52,280
us today for this briefing is nasa

24
00:04:57,430 --> 00:04:55,360
administrator jim bridenstine here in

25
00:04:59,189 --> 00:04:57,440
houston texas we have steve stitch

26
00:05:02,150 --> 00:04:59,199
manager of nasa's commercial crew

27
00:05:03,590 --> 00:05:02,160
program and joel montobano the manager

28
00:05:06,070 --> 00:05:03,600
of the international space station

29
00:05:08,070 --> 00:05:06,080
program and then all the way from spacex

30
00:05:09,830 --> 00:05:08,080
benji reed joining us director of crew

31
00:05:11,189 --> 00:05:09,840
mission management

32
00:05:12,550 --> 00:05:11,199
thanks to our steam panelists for

33
00:05:13,830 --> 00:05:12,560
joining us today

34
00:05:15,830 --> 00:05:13,840
we're going to be opening up with some

35
00:05:17,830 --> 00:05:15,840
comments from each of our panelists

36
00:05:19,350 --> 00:05:17,840
before getting to questions taking

37
00:05:21,510 --> 00:05:19,360
questions from our phone bridge make

38
00:05:23,670 --> 00:05:21,520

sure you call in to submit a question

39
00:05:25,590 --> 00:05:23,680
make sure you dial star one and we'll be

40
00:05:27,909 --> 00:05:25,600
able to address them right after

41
00:05:30,469 --> 00:05:27,919
comments from our panelists we're gonna

42
00:05:32,390 --> 00:05:30,479
start some comments first from nasa

43
00:05:34,629 --> 00:05:32,400
administrator jim breidenstein

44
00:05:37,430 --> 00:05:34,639
administrator brian side take it away

45
00:05:39,909 --> 00:05:37,440
well thank you so much gary um and and

46
00:05:42,390 --> 00:05:39,919
uh as as you just mentioned the return

47
00:05:44,790 --> 00:05:42,400
flight readiness review is complete and

48
00:05:45,590 --> 00:05:44,800
the teams the nasa team and the spacex

49
00:05:48,150 --> 00:05:45,600
team

50
00:05:51,029 --> 00:05:48,160
everybody remains go for return and we

51
00:05:53,189 --> 00:05:51,039
cannot wait to get bob bankin and doug

52
00:05:54,870 --> 00:05:53,199
hurley back to earth

53
00:05:57,590 --> 00:05:54,880
but of course we have some weather

54
00:05:59,110 --> 00:05:57,600
pending and uh and so just like when we

55
00:06:01,189 --> 00:05:59,120
launched we had some challenges with

56
00:06:03,909 --> 00:06:01,199
weather we may have that again

57
00:06:06,950 --> 00:06:03,919
but the first opportunity remains

58
00:06:08,629 --> 00:06:06,960
august 2nd and we look forward to seeing

59
00:06:10,390 --> 00:06:08,639
if that's going to be within the realm

60
00:06:11,830 --> 00:06:10,400
of what is possible

61
00:06:14,150 --> 00:06:11,840
a couple of things that are important

62
00:06:16,309 --> 00:06:14,160
i'm here at the kennedy space center

63
00:06:19,189 --> 00:06:16,319

right now tomorrow we're launching a

64
00:06:21,670 --> 00:06:19,199
mission to mars the mars 2020

65
00:06:24,790 --> 00:06:21,680
vehicle with the perseverance rover

66
00:06:26,629 --> 00:06:24,800
inside and ingenuity a helicopter that

67
00:06:28,309 --> 00:06:26,639
is attached to the rover

68
00:06:30,150 --> 00:06:28,319
so we have a lot of things happening

69
00:06:32,309 --> 00:06:30,160
right here at the kennedy space center

70
00:06:33,990 --> 00:06:32,319
we're excited about that launch tomorrow

71
00:06:36,309 --> 00:06:34,000
morning and of course while we were

72
00:06:39,189 --> 00:06:36,319
doing the press conference for the mars

73
00:06:41,350 --> 00:06:39,199
launch we had a barge pull into

74
00:06:43,990 --> 00:06:41,360
into the the bay here and the barge of

75
00:06:45,749 --> 00:06:44,000
course had a stage adapter for the sls

76
00:06:46,629 --> 00:06:45,759
rocket which of course is going to

77
00:06:49,589 --> 00:06:46,639
launch

78
00:06:52,469 --> 00:06:49,599
artemis one and uncrewed orion capsule

79
00:06:54,469 --> 00:06:52,479
around the moon next year so so many

80
00:06:57,189 --> 00:06:54,479
great things happening here at nasa i

81
00:06:59,350 --> 00:06:57,199
want to say thank you to the spacex team

82
00:07:02,150 --> 00:06:59,360
and of course to the nasa team

83
00:07:03,270 --> 00:07:02,160
for making demo 2 possible it is not

84
00:07:05,350 --> 00:07:03,280
over yet

85
00:07:06,150 --> 00:07:05,360
entry descent and landing is is ahead of

86
00:07:07,990 --> 00:07:06,160
us

87
00:07:10,950 --> 00:07:08,000
but certainly we're very excited to get

88
00:07:13,270 --> 00:07:10,960

bob and doug back home and get on

89
00:07:14,950 --> 00:07:13,280
to crew one and crew whole entire

90
00:07:17,589 --> 00:07:14,960
commercial crew team

91
00:07:19,749 --> 00:07:17,599
as jim said we had our flight readiness

92
00:07:22,150 --> 00:07:19,759
review this morning for landing

93
00:07:23,110 --> 00:07:22,160
we really took the time to review

94
00:07:24,710 --> 00:07:23,120
um

95
00:07:27,430 --> 00:07:24,720
the vehicle on orbit you know it's been

96
00:07:29,749 --> 00:07:27,440
on orbit for about 63 days we talked uh

97
00:07:32,629 --> 00:07:29,759
pre-flight about having capability to go

98
00:07:34,870 --> 00:07:32,639
120 days the systems on dragon are doing

99
00:07:36,790 --> 00:07:34,880
very well the spacecraft is very healthy

100
00:07:39,589 --> 00:07:36,800
we went through all the systems

101
00:07:41,430 --> 00:07:39,599
any issues or problems that we saw on

102
00:07:43,430 --> 00:07:41,440
orbit in terms of how the vehicle

103
00:07:45,029 --> 00:07:43,440
responded to the thermal environment in

104
00:07:46,550 --> 00:07:45,039
the different parts of space

105
00:07:49,430 --> 00:07:46,560
we reviewed the readiness of the ops

106
00:07:51,189 --> 00:07:49,440
teams and also the recovery teams and so

107
00:07:52,469 --> 00:07:51,199
we came out of the fr with a with a go

108
00:07:56,790 --> 00:07:52,479
to proceed toward

109
00:08:00,790 --> 00:07:58,790
today i'll talk a little bit about the

110
00:08:02,390 --> 00:08:00,800
landing operation and kind of how things

111
00:08:04,309 --> 00:08:02,400
will unfold over the next few days and a

112
00:08:06,550 --> 00:08:04,319
little bit about decision making if we

113
00:08:08,070 --> 00:08:06,560

could show the graphic uh first we have

114
00:08:09,110 --> 00:08:08,080
seven landing sites that we're going to

115
00:08:12,390 --> 00:08:09,120
be using

116
00:08:14,469 --> 00:08:12,400
as jim said for the landing as early as

117
00:08:17,189 --> 00:08:14,479
sunday you can see these sites they're

118
00:08:19,909 --> 00:08:17,199
spread across florida pensacola panama

119
00:08:21,990 --> 00:08:19,919
city tallahassee and tampa those are

120
00:08:24,469 --> 00:08:22,000
pensacola was there before but we added

121
00:08:26,309 --> 00:08:24,479
the new sites of panama city tallahassee

122
00:08:28,390 --> 00:08:26,319
and tampa since the initial flight

123
00:08:30,950 --> 00:08:28,400
maintenance review and then jacksonville

124
00:08:33,269 --> 00:08:30,960
daytona and the cape on the eastern

125
00:08:35,190 --> 00:08:33,279
coast of florida we added the daytona

126
00:08:37,430 --> 00:08:35,200
site after the flight readiness review

127
00:08:41,190 --> 00:08:37,440
and did a bunch of work between nasa and

128
00:08:43,110 --> 00:08:41,200
spacex to ensure that site was ready

129
00:08:44,870 --> 00:08:43,120
over the next few days we'll be

130
00:08:47,829 --> 00:08:44,880
carefully looking at the re weather and

131
00:08:49,670 --> 00:08:47,839
getting ready for uh for the undock uh

132
00:08:51,990 --> 00:08:49,680
and deorbit and landing

133
00:08:53,590 --> 00:08:52,000
uh just a little bit of the sequence

134
00:08:55,430 --> 00:08:53,600
for the earliest opportunity would be to

135
00:08:57,030 --> 00:08:55,440
undock on saturday the crew would wake

136
00:08:59,509 --> 00:08:57,040
up about 7 30

137
00:09:01,670 --> 00:08:59,519
central time here in houston

138
00:09:04,630 --> 00:09:01,680

we would close the hatches about 4 30 on

139
00:09:07,350 --> 00:09:04,640
saturday and undock around 6 35 pm

140
00:09:09,269 --> 00:09:07,360
central and we have about an hour or so

141
00:09:11,430 --> 00:09:09,279
on dock window and then that would set

142
00:09:12,630 --> 00:09:11,440
us up for our first landing opportunity

143
00:09:16,150 --> 00:09:12,640
on sunday

144
00:09:18,389 --> 00:09:16,160
deorbiting around 12 56

145
00:09:20,389 --> 00:09:18,399
central time on sunday

146
00:09:23,269 --> 00:09:20,399
and then landing at about

147
00:09:24,710 --> 00:09:23,279
1 48 p.m central

148
00:09:26,710 --> 00:09:24,720
we're going to watch the weather very

149
00:09:29,829 --> 00:09:26,720
carefully you know we have a series of

150
00:09:31,910 --> 00:09:29,839
sites and and many days in the future

151
00:09:33,430 --> 00:09:31,920
if we don't undock

152
00:09:35,829 --> 00:09:33,440
on saturday

153
00:09:37,670 --> 00:09:35,839
to come home on sunday we would move

154
00:09:39,190 --> 00:09:37,680
that undocking to monday so we'll watch

155
00:09:40,230 --> 00:09:39,200
this tropical storm it's probably going

156
00:09:42,550 --> 00:09:40,240
to form

157
00:09:44,790 --> 00:09:42,560
it's a tropical uh area of disturbed

158
00:09:46,949 --> 00:09:44,800
weather right now looks like it may be

159
00:09:49,110 --> 00:09:46,959
coming into the florida area

160
00:09:50,870 --> 00:09:49,120
and and we'll kind of take it day by day

161
00:09:53,350 --> 00:09:50,880
we have decision points and weather

162
00:09:54,310 --> 00:09:53,360
briefings at uh about 24 hours prior to

163
00:09:56,310 --> 00:09:54,320

undock

164
00:09:57,990 --> 00:09:56,320
then at around six hours probably prior

165
00:09:59,910 --> 00:09:58,000
to undock when we start to bring some

166
00:10:01,190 --> 00:09:59,920
cargo over from the space station and

167
00:10:02,630 --> 00:10:01,200
then two and a half hours prior to

168
00:10:05,030 --> 00:10:02,640
undock so we'll have to evaluate the

169
00:10:06,790 --> 00:10:05,040
weather each day and just see things how

170
00:10:08,389 --> 00:10:06,800
things unfold

171
00:10:10,790 --> 00:10:08,399
as jim said you know this is a test

172
00:10:12,389 --> 00:10:10,800
flight and we're going to take

173
00:10:13,910 --> 00:10:12,399
our time to come home

174
00:10:15,590 --> 00:10:13,920
we have plenty of opportunities here in

175
00:10:16,389 --> 00:10:15,600
august and we're in no hurry to come

176
00:10:17,910 --> 00:10:16,399
home

177
00:10:19,670 --> 00:10:17,920
we've completed all the objectives

178
00:10:21,030 --> 00:10:19,680
really for the mission while we were

179
00:10:21,829 --> 00:10:21,040
docked we

180
00:10:23,750 --> 00:10:21,839
uh

181
00:10:24,949 --> 00:10:23,760
figured out if four crew could live in

182
00:10:27,590 --> 00:10:24,959
dragon

183
00:10:29,670 --> 00:10:27,600
habitability demo we completed all those

184
00:10:31,030 --> 00:10:29,680
uh objectives while docked and so now is

185
00:10:32,550 --> 00:10:31,040
the right time to bring this vehicle

186
00:10:33,990 --> 00:10:32,560
back

187
00:10:36,389 --> 00:10:34,000
and then start the processing of this

188
00:10:39,190 --> 00:10:36,399

vehicle which will go forward and fly

189
00:10:40,949 --> 00:10:39,200
again in the spring on crew 2.

190
00:10:42,310 --> 00:10:40,959
and then finally when we land you know

191
00:10:44,069 --> 00:10:42,320
the important thing after landing will

192
00:10:45,990 --> 00:10:44,079
be to review all the data from this

193
00:10:48,069 --> 00:10:46,000
flight so the importance of getting the

194
00:10:50,949 --> 00:10:48,079
vehicle back getting bob and doug safely

195
00:10:53,910 --> 00:10:50,959
back is to then go assess the data on

196
00:10:56,230 --> 00:10:53,920
this flight so that sets us up for the

197
00:10:58,310 --> 00:10:56,240
crew one mission as early as the end of

198
00:10:59,829 --> 00:10:58,320
september and we'll go through the data

199
00:11:00,949 --> 00:10:59,839
methodically for that flight and make

200
00:11:02,550 --> 00:11:00,959
sure we're go ready to start the

201
00:11:03,670 --> 00:11:02,560
operational flights

202
00:11:05,030 --> 00:11:03,680
and with that i'll turn it back over to

203
00:11:06,710 --> 00:11:05,040
you gary

204
00:11:08,389 --> 00:11:06,720
thank you steve i'll now hand it over to

205
00:11:11,269 --> 00:11:08,399
international space station program

206
00:11:13,750 --> 00:11:11,279
manager joe montebono

207
00:11:15,269 --> 00:11:13,760
thank you gary hello again and welcome

208
00:11:17,990 --> 00:11:15,279
to the

209
00:11:20,389 --> 00:11:18,000
space x return post flight readiness

210
00:11:22,310 --> 00:11:20,399
review briefing we had as you heard a

211
00:11:25,910 --> 00:11:22,320
great review today we walked out of the

212
00:11:28,069 --> 00:11:25,920
review with no actions and just standard

213
00:11:30,069 --> 00:11:28,079

open work so the team has done a

214
00:11:32,230 --> 00:11:30,079
tremendous amount of work you can tell

215
00:11:34,310 --> 00:11:32,240
by what you heard today and the team is

216
00:11:36,389 --> 00:11:34,320
ready to go i mean it's been great to

217
00:11:38,310 --> 00:11:36,399
have bob and doug on board and they

218
00:11:40,470 --> 00:11:38,320
complemented the crew that came up on

219
00:11:43,190 --> 00:11:40,480
soyuz in april the fact that we were

220
00:11:45,110 --> 00:11:43,200
able to complete four evas and a

221
00:11:47,990 --> 00:11:45,120
tremendous amount of utilization

222
00:11:50,310 --> 00:11:48,000
research technology development

223
00:11:52,550 --> 00:11:50,320
we worked cargo operations with the

224
00:11:54,790 --> 00:11:52,560
japanese transfer vehicle we had medical

225
00:11:57,430 --> 00:11:54,800
operations i mean these guys have just

226
00:12:00,629 --> 00:11:57,440
complimented significantly to the iss

227
00:12:02,870 --> 00:12:00,639
team and into the isis program and and

228
00:12:05,030 --> 00:12:02,880
to nasa in general you know the work

229
00:12:07,269 --> 00:12:05,040
we're doing on board space station the

230
00:12:09,110 --> 00:12:07,279
utilization the research the technology

231
00:12:11,750 --> 00:12:09,120
development the work that's being done

232
00:12:13,670 --> 00:12:11,760
to help us for you know the go past low

233
00:12:16,790 --> 00:12:13,680
earth orbit and help us with the artemis

234
00:12:18,870 --> 00:12:16,800
program it's just been outstanding and

235
00:12:21,910 --> 00:12:18,880
the fact that we had two crew today is

236
00:12:24,150 --> 00:12:21,920
just uh a little view into the future

237
00:12:26,629 --> 00:12:24,160
eventually we'll have four crew on the

238
00:12:28,790 --> 00:12:26,639

boeing and spacex missions and and

239
00:12:31,990 --> 00:12:28,800
increasing our science and research to

240
00:12:34,550 --> 00:12:32,000
about 70 hours a week of utilization

241
00:12:36,550 --> 00:12:34,560
research technology development so we're

242
00:12:38,150 --> 00:12:36,560
just looking forward to that

243
00:12:40,710 --> 00:12:38,160
i'll also remind you that this year we

244
00:12:42,629 --> 00:12:40,720
celebrate 20 years of continuous human

245
00:12:43,670 --> 00:12:42,639
presence onboard the international space

246
00:12:46,230 --> 00:12:43,680
station

247
00:12:48,629 --> 00:12:46,240
so with that we look forward to the

248
00:12:50,550 --> 00:12:48,639
return of spacex vehicle

249
00:12:52,790 --> 00:12:50,560
doug and bob and with that i'll hand

250
00:12:54,389 --> 00:12:52,800
that back over to you gary thank you

251
00:13:04,629 --> 00:12:54,399
thank you joel now for some final

252
00:13:09,990 --> 00:13:07,030
really sincere thank you

253
00:13:12,310 --> 00:13:10,000
on behalf of all of the spacex employees

254
00:13:14,949 --> 00:13:12,320
um our vendors and contractors all of

255
00:13:17,430 --> 00:13:14,959
our team that that works together

256
00:13:19,350 --> 00:13:17,440
to nasa and of course to bob and doug

257
00:13:20,629 --> 00:13:19,360
and to their families for allowing us

258
00:13:22,629 --> 00:13:20,639
the opportunity

259
00:13:23,829 --> 00:13:22,639
to uh to return human space flight to

260
00:13:26,389 --> 00:13:23,839
united states

261
00:13:27,910 --> 00:13:26,399
um as as mentioned earlier i think the

262
00:13:29,990 --> 00:13:27,920
administrator mentioned entry descent

263
00:13:31,430 --> 00:13:30,000

landing as we call it edl

264
00:13:33,269 --> 00:13:31,440
bringing a spaceship home that's a

265
00:13:35,190 --> 00:13:33,279
really big deal and it's very important

266
00:13:37,670 --> 00:13:35,200
it's part of that sacred honor that we

267
00:13:39,269 --> 00:13:37,680
have for ensuring that we bring

268
00:13:40,629 --> 00:13:39,279
bob and doug back home to their families

269
00:13:42,949 --> 00:13:40,639
to their kids

270
00:13:45,670 --> 00:13:42,959
and making sure they're safe so

271
00:13:47,269 --> 00:13:45,680
we give it the same attention as a team

272
00:13:49,829 --> 00:13:47,279
both the spacex and the joint team with

273
00:13:52,389 --> 00:13:49,839
nasa we give it that attention and that

274
00:13:53,430 --> 00:13:52,399
um that concern that we would for any

275
00:13:54,870 --> 00:13:53,440
launch

276
00:13:56,629 --> 00:13:54,880
and we're very much looking forward to

277
00:13:59,269 --> 00:13:56,639
doing this it'll be the first time in i

278
00:14:02,069 --> 00:13:59,279
think about 45 years um that we have

279
00:14:04,230 --> 00:14:02,079
splashed down uh astronauts from space

280
00:14:07,350 --> 00:14:04,240
so this will be another historic and

281
00:14:09,030 --> 00:14:07,360
great moment for for the nation

282
00:14:11,829 --> 00:14:09,040
so i think the next thing i'd like to do

283
00:14:17,990 --> 00:14:11,839
is actually show a little video we have

284
00:14:50,470 --> 00:14:35,390
[Music]

285
00:14:54,200 --> 00:14:52,470
good morning welcome aboard

286
00:14:57,269 --> 00:14:54,210
standby from biblical com check

287
00:14:59,829 --> 00:14:57,279
[Music]

288
00:15:01,910 --> 00:14:59,839

spacex dragon we're go for launch let's

289
00:15:02,949 --> 00:15:01,920
light this candle

290
00:15:03,829 --> 00:15:02,959
three

291
00:15:19,829 --> 00:15:03,839
two

292
00:15:23,430 --> 00:15:21,590
on behalf of the entire launch team

293
00:15:25,110 --> 00:15:23,440
thanks for flying the falcon 9 today we

294
00:15:27,590 --> 00:15:25,120
hope you enjoyed the ride and wish you a

295
00:15:31,749 --> 00:15:27,600
great mission we would like to welcome

296
00:15:33,430 --> 00:15:31,759
you aboard capsule endeavor we do have a

297
00:15:36,090 --> 00:15:33,440
friend on board with us

298
00:15:49,749 --> 00:15:36,100
trimmer the apato tourist

299
00:15:53,829 --> 00:15:52,790
i get goosebumps every time i see that

300
00:15:55,590 --> 00:15:53,839
and i can only imagine what it's going

301
00:15:57,590 --> 00:15:55,600
to feel like when we bring those guys

302
00:15:59,030 --> 00:15:57,600
back home and they get to see see their

303
00:16:00,310 --> 00:15:59,040
spouses and their kids it's going to be

304
00:16:02,870 --> 00:16:00,320
amazing

305
00:16:04,230 --> 00:16:02,880
um as as mentioned um i think

306
00:16:06,150 --> 00:16:04,240
everybody's talked about it we had a

307
00:16:09,030 --> 00:16:06,160
successful flight readiness review for

308
00:16:10,790 --> 00:16:09,040
undock today with nasa an agency level

309
00:16:12,470 --> 00:16:10,800
review that went well

310
00:16:13,829 --> 00:16:12,480
and um

311
00:16:15,509 --> 00:16:13,839
as we proceed into things we'll be

312
00:16:17,590 --> 00:16:15,519
evaluating the weather so kind of over

313
00:16:19,110 --> 00:16:17,600

the next 24 or 10 48 hours we'll be

314
00:16:20,949 --> 00:16:19,120
looking at the weather

315
00:16:22,310 --> 00:16:20,959
ensuring that we're um that we're really

316
00:16:23,430 --> 00:16:22,320
ready we'll be doing that closely with

317
00:16:24,870 --> 00:16:23,440
nasa

318
00:16:26,470 --> 00:16:24,880
not only do we do these checkpoints but

319
00:16:29,030 --> 00:16:26,480
there'll be a continuous monitoring

320
00:16:30,389 --> 00:16:29,040
process to ensure that um that we know

321
00:16:32,389 --> 00:16:30,399
that we've got safe weather to bring

322
00:16:33,910 --> 00:16:32,399
them home in safe ways to splash down

323
00:16:36,230 --> 00:16:33,920
and of course do the recovery operations

324
00:16:37,590 --> 00:16:36,240
and bring it back to land

325
00:16:39,829 --> 00:16:37,600
as part of that i think we have a little

326
00:16:41,189 --> 00:16:39,839
infographic that we can put up right now

327
00:16:43,350 --> 00:16:41,199
and i'll just talk through a couple of

328
00:16:45,590 --> 00:16:43,360
items on that

329
00:16:46,790 --> 00:16:45,600
so you can see um in this graphic and

330
00:16:49,189 --> 00:16:46,800
this is one of the great graphics that

331
00:16:51,749 --> 00:16:49,199
are available online as well to check

332
00:16:53,590 --> 00:16:51,759
out but the first step that happens is

333
00:16:56,550 --> 00:16:53,600
you do a departure burn actually i'm

334
00:16:59,110 --> 00:16:56,560
sorry you do an undock automated undock

335
00:17:00,790 --> 00:16:59,120
autonomous undock from station just like

336
00:17:02,790 --> 00:17:00,800
how we did the autonomous docking and

337
00:17:04,390 --> 00:17:02,800
undocking for demo one

338
00:17:06,549 --> 00:17:04,400

we'll do the same thing uh do an

339
00:17:08,870 --> 00:17:06,559
autonomous undocking for demo two for

340
00:17:10,390 --> 00:17:08,880
this mission um then there's a departure

341
00:17:12,870 --> 00:17:10,400
burn and then we move into the phasing

342
00:17:15,189 --> 00:17:12,880
burns so depending exactly on the launch

343
00:17:16,949 --> 00:17:15,199
uh or the landing site i should say um

344
00:17:18,630 --> 00:17:16,959
and the timing of everything it depends

345
00:17:20,390 --> 00:17:18,640
on how many you know orbits we need to

346
00:17:21,909 --> 00:17:20,400
do what the number of phasing burns are

347
00:17:23,829 --> 00:17:21,919
on the timing of those so that sequence

348
00:17:25,110 --> 00:17:23,839
really depends on ultimately what or

349
00:17:26,789 --> 00:17:25,120
where our landing sites will be in our

350
00:17:28,630 --> 00:17:26,799
landing timing

351
00:17:30,870 --> 00:17:28,640
once we once we're ready to actually

352
00:17:34,870 --> 00:17:30,880
come home the next step is a trunk

353
00:17:36,470 --> 00:17:34,880
jettison and then the deorbit burn um

354
00:17:38,310 --> 00:17:36,480
and then and that your burn lasts a

355
00:17:39,350 --> 00:17:38,320
number of minutes um it's actually one

356
00:17:40,630 --> 00:17:39,360
of the longest burns in the whole

357
00:17:42,630 --> 00:17:40,640
mission

358
00:17:43,669 --> 00:17:42,640
and then we re-enter

359
00:17:46,870 --> 00:17:43,679
and

360
00:17:49,350 --> 00:17:46,880
you know there's the heat shield on

361
00:17:50,870 --> 00:17:49,360
dragon we've we've used this um

362
00:17:53,270 --> 00:17:50,880
built up on our technology that we've

363
00:17:54,789 --> 00:17:53,280

used for many of the missions um on crs

364
00:17:58,230 --> 00:17:54,799
and of course on the demo one mission we

365
00:17:59,270 --> 00:17:58,240
demonstrated on this uh dragon 2 capsule

366
00:18:00,870 --> 00:17:59,280
because you know you get a lot of

367
00:18:02,310 --> 00:18:00,880
heating as you come in and it's really

368
00:18:03,990 --> 00:18:02,320
critical that we keep the crew and the

369
00:18:05,590 --> 00:18:04,000
vehicle safe from that heating the heat

370
00:18:08,150 --> 00:18:05,600
shield and all of the thermal protection

371
00:18:10,470 --> 00:18:08,160
system that's all all around dragon

372
00:18:12,230 --> 00:18:10,480
will uh we'll keep them safe

373
00:18:14,070 --> 00:18:12,240
we'll reenter

374
00:18:15,909 --> 00:18:14,080
and then the drogue parachutes will

375
00:18:18,710 --> 00:18:15,919
deploy and then the main parachutes

376
00:18:21,270 --> 00:18:18,720
deploy um and then we splash down um

377
00:18:23,270 --> 00:18:21,280
after splashdown um we have the uh are

378
00:18:25,990 --> 00:18:23,280
the spacex recovery forces i like them

379
00:18:28,710 --> 00:18:26,000
as a spacex navy they get to go in and

380
00:18:30,549 --> 00:18:28,720
um and uh recover the crew a couple of

381
00:18:33,029 --> 00:18:30,559
fast boats will go out

382
00:18:35,510 --> 00:18:33,039
ensure that everything is ready to go um

383
00:18:37,190 --> 00:18:35,520
that the vehicle is safe to approach

384
00:18:39,350 --> 00:18:37,200
checking in front of the hypergolic

385
00:18:41,350 --> 00:18:39,360
fuels making sure there's no leaks

386
00:18:42,710 --> 00:18:41,360
everything looks ready to go

387
00:18:45,990 --> 00:18:42,720
and the other fast boat is there as a

388
00:18:48,230 --> 00:18:46,000

backup and also doing parachute recovery

389
00:18:50,470 --> 00:18:48,240
once the fastboat gives the clear then

390
00:18:51,990 --> 00:18:50,480
the main recovery vessel moves in

391
00:18:54,630 --> 00:18:52,000
and will lift

392
00:18:56,070 --> 00:18:54,640
the the capsule up onto the deck of the

393
00:18:58,789 --> 00:18:56,080
boat

394
00:19:00,789 --> 00:18:58,799
into a nest and then

395
00:19:02,470 --> 00:19:00,799
help bob and doug come out of the

396
00:19:05,270 --> 00:19:02,480
capsule and check them out and make sure

397
00:19:08,870 --> 00:19:06,310
you know

398
00:19:11,830 --> 00:19:08,880
once once once we have them on board the

399
00:19:13,990 --> 00:19:11,840
vessel will take the time um to like i

400
00:19:16,549 --> 00:19:14,000
said check them out and then uh and then

401
00:19:18,470 --> 00:19:16,559
you know within about four hours uh or

402
00:19:19,750 --> 00:19:18,480
less we should have them back to back to

403
00:19:21,669 --> 00:19:19,760
land and just depending on landing

404
00:19:22,950 --> 00:19:21,679
location and needs we have the ability

405
00:19:24,390 --> 00:19:22,960
to bring them back very quickly via

406
00:19:25,750 --> 00:19:24,400
helicopter

407
00:19:27,270 --> 00:19:25,760
or

408
00:19:29,430 --> 00:19:27,280
come back on boat

409
00:19:31,350 --> 00:19:29,440
either way

410
00:19:33,669 --> 00:19:31,360
that really is kind of the whole process

411
00:19:34,950 --> 00:19:33,679
of the recovery ultimately they get to

412
00:19:36,549 --> 00:19:34,960
you know once they get back to land and

413
00:19:38,710 --> 00:19:36,559

they get checked out there they get to

414
00:19:40,789 --> 00:19:38,720
see their families

415
00:19:43,669 --> 00:19:40,799
um this whole process of course is a

416
00:19:45,750 --> 00:19:43,679
test mission um and as we do this um you

417
00:19:47,350 --> 00:19:45,760
know we're we're again giving it all the

418
00:19:49,510 --> 00:19:47,360
same attention that we would for every

419
00:19:51,350 --> 00:19:49,520
crew mission and um and and that and

420
00:19:53,990 --> 00:19:51,360
that also extra attention we do today as

421
00:19:55,510 --> 00:19:54,000
we observe all of the data and observe

422
00:19:57,830 --> 00:19:55,520
everything that's happening this is

423
00:19:58,630 --> 00:19:57,840
really critical um obviously i mentioned

424
00:20:00,630 --> 00:19:58,640
that

425
00:20:03,110 --> 00:20:00,640
to date the the mission's looking

426
00:20:04,710 --> 00:20:03,120
beautiful it's very clean um the data's

427
00:20:06,630 --> 00:20:04,720
look great but we want to watch all of

428
00:20:08,549 --> 00:20:06,640
this data and learn from it as we come

429
00:20:11,510 --> 00:20:08,559
come back now

430
00:20:13,990 --> 00:20:11,520
what we'll do next after bob and doug or

431
00:20:15,990 --> 00:20:14,000
we've gotten bob and doug safely home is

432
00:20:18,070 --> 00:20:16,000
we'll start to look into the vehicle

433
00:20:20,149 --> 00:20:18,080
we'll open it up check it out make sure

434
00:20:21,270 --> 00:20:20,159
that everything looks great gather a lot

435
00:20:22,710 --> 00:20:21,280
of data that way we'll also have

436
00:20:24,230 --> 00:20:22,720
downloaded all the data that's recorded

437
00:20:26,390 --> 00:20:24,240
on the vehicle and then start the

438
00:20:28,149 --> 00:20:26,400

process immediately

439
00:20:29,830 --> 00:20:28,159
after splashdown of assessing and

440
00:20:31,430 --> 00:20:29,840
analyzing all of that data and making

441
00:20:33,029 --> 00:20:31,440
sure we're ready to go

442
00:20:35,750 --> 00:20:33,039
as steve stitch mentioned once this

443
00:20:37,190 --> 00:20:35,760
happens once we feel really good about

444
00:20:39,190 --> 00:20:37,200
everything that happened on this

445
00:20:41,350 --> 00:20:39,200
demonstration mission this test mission

446
00:20:43,669 --> 00:20:41,360
we wrap up the certification process

447
00:20:45,830 --> 00:20:43,679
overall for the program and then we move

448
00:20:47,430 --> 00:20:45,840
on into operational space which as joel

449
00:20:49,909 --> 00:20:47,440
mentioned is really the key that's when

450
00:20:53,190 --> 00:20:49,919
we're sending up four crew members every

451
00:20:55,510 --> 00:20:53,200
time um in every mission and we've got

452
00:20:58,549 --> 00:20:55,520
that next mission coming up um really

453
00:21:01,029 --> 00:20:58,559
soon uh and that'll be in late september

454
00:21:03,029 --> 00:21:01,039
uh crew one is what we call it and i

455
00:21:05,669 --> 00:21:03,039
think we actually have a picture of that

456
00:21:07,190 --> 00:21:05,679
vehicle ready to go just about let's

457
00:21:09,110 --> 00:21:07,200
take a look at that

458
00:21:10,390 --> 00:21:09,120
there it is you can see that it's in the

459
00:21:11,830 --> 00:21:10,400
clean room right here in hawthorne

460
00:21:13,190 --> 00:21:11,840
actually just uh just a few feet away

461
00:21:15,190 --> 00:21:13,200
from me

462
00:21:16,950 --> 00:21:15,200
and we look forward to getting that

463
00:21:18,230 --> 00:21:16,960

capsule ready to go and it'll be

464
00:21:20,310 --> 00:21:18,240
shipping out of here in just the first

465
00:21:22,149 --> 00:21:20,320
or second week of august

466
00:21:23,510 --> 00:21:22,159
um so coming up very soon that'll be

467
00:21:25,350 --> 00:21:23,520
ready to go and then it'll finish final

468
00:21:26,710 --> 00:21:25,360
preparations down at the cape

469
00:21:27,830 --> 00:21:26,720
and of course i mentioned there's four

470
00:21:31,110 --> 00:21:27,840
crew members and i think we have an

471
00:21:34,390 --> 00:21:31,120
image of the four crew members

472
00:21:36,310 --> 00:21:34,400
um and there they are shannon and victor

473
00:21:38,789 --> 00:21:36,320
and mike and soichi and soichi from the

474
00:21:40,470 --> 00:21:38,799
jackson space agency we're very excited

475
00:21:42,230 --> 00:21:40,480
to have this crew

476
00:21:43,430 --> 00:21:42,240
getting ready to go they've been going

477
00:21:44,549 --> 00:21:43,440
through their training wrapping up their

478
00:21:45,830 --> 00:21:44,559
final training they're actually here in

479
00:21:48,230 --> 00:21:45,840
the building right now doing some of

480
00:21:51,430 --> 00:21:48,240
their final work with us today um and

481
00:21:52,710 --> 00:21:51,440
this week and uh and i mentioned soichi

482
00:21:53,830 --> 00:21:52,720
is super exciting because it'll be our

483
00:21:57,190 --> 00:21:53,840
first time we have an international

484
00:21:59,830 --> 00:21:57,200
partner on board representing japan and

485
00:22:01,669 --> 00:21:59,840
the jackson space agency so super cool

486
00:22:04,149 --> 00:22:01,679
to have that coming online

487
00:22:07,830 --> 00:22:04,159
and once we go from this group

488
00:22:10,149 --> 00:22:07,840

then we'll be moving on to crew 2

489
00:22:12,310 --> 00:22:10,159
which we're going to be ready to fly uh

490
00:22:14,549 --> 00:22:12,320
just six months later um as steve stitch

491
00:22:16,390 --> 00:22:14,559
mentioned crew two will actually be um

492
00:22:18,789 --> 00:22:16,400
flying on the same vehicle that bob and

493
00:22:20,549 --> 00:22:18,799
doug are coming back home um that will

494
00:22:21,750 --> 00:22:20,559
be a refurbished uh

495
00:22:24,950 --> 00:22:21,760
vehicle we'll be putting that through

496
00:22:26,870 --> 00:22:24,960
reuse um and uh and look forward to that

497
00:22:29,190 --> 00:22:26,880
mission as well

498
00:22:32,390 --> 00:22:29,200
again i just want to say thank you um to

499
00:22:34,390 --> 00:22:32,400
to nasa to to the nation to the american

500
00:22:37,510 --> 00:22:34,400
public to all the international partners

501
00:22:39,430 --> 00:22:37,520
um uh and uh and just to everybody who's

502
00:22:40,710 --> 00:22:39,440
put all their heart and soul and time

503
00:22:43,350 --> 00:22:40,720
into this

504
00:22:44,390 --> 00:22:43,360
we got the next big step to go to bring

505
00:22:47,669 --> 00:22:44,400
those guys home and we're looking

506
00:22:49,270 --> 00:22:47,679
forward to making it happen thank you

507
00:22:51,190 --> 00:22:49,280
thank you benji and thank you to all of

508
00:22:53,270 --> 00:22:51,200
our panelists for those initial comments

509
00:22:55,430 --> 00:22:53,280
we're now going to open it up for

510
00:22:57,190 --> 00:22:55,440
questions now we have a lot of them but

511
00:22:58,149 --> 00:22:57,200
if you don't uh

512
00:22:59,590 --> 00:22:58,159
if you

513
00:23:01,669 --> 00:22:59,600

need to submit a question just make sure

514
00:23:03,350 --> 00:23:01,679
you press star one there's a lot of

515
00:23:05,590 --> 00:23:03,360
questions that we've uh have to go

516
00:23:06,789 --> 00:23:05,600
through as well as some of those initial

517
00:23:08,549 --> 00:23:06,799
comments so if you find that your

518
00:23:11,190 --> 00:23:08,559
question has already been answered just

519
00:23:12,870 --> 00:23:11,200
make sure to press star 2 to address it

520
00:23:14,789 --> 00:23:12,880
as i said we do have a lot of questions

521
00:23:17,270 --> 00:23:14,799
to get through today in a limited time

522
00:23:19,190 --> 00:23:17,280
so i do ask that you refrain to just one

523
00:23:23,350 --> 00:23:19,200
question so we'll start it off with

524
00:23:25,110 --> 00:23:23,360
lauren grush from the verge lauren

525
00:23:27,510 --> 00:23:25,120
hi thank you so much for taking my

526
00:23:30,230 --> 00:23:27,520
question i'm curious about how much

527
00:23:32,630 --> 00:23:30,240
leeway you have when performing all the

528
00:23:34,789 --> 00:23:32,640
various maneuvers for leaving so for

529
00:23:37,110 --> 00:23:34,799
instance what's the last possible moment

530
00:23:39,110 --> 00:23:37,120
before crew dragons undocking where you

531
00:23:40,710 --> 00:23:39,120
can decide to call off the return or

532
00:23:42,710 --> 00:23:40,720
schedule for another day

533
00:23:45,029 --> 00:23:42,720
also how much leeway do you have to

534
00:23:47,029 --> 00:23:45,039
perform the deorbit burn in case

535
00:23:51,269 --> 00:23:47,039
conditions drastically change at the

536
00:23:54,470 --> 00:23:51,279
landing location thank you

537
00:23:56,630 --> 00:23:54,480
yeah i'll take that one lauren so uh

538
00:23:57,590 --> 00:23:56,640

for for on doc really we

539
00:23:59,510 --> 00:23:57,600
uh

540
00:24:01,990 --> 00:23:59,520
have quite a bit of margin in terms of

541
00:24:04,230 --> 00:24:02,000
that that decision process as i said

542
00:24:06,390 --> 00:24:04,240
earlier we really are trying to look at

543
00:24:09,110 --> 00:24:06,400
about six hours prior to undock if if

544
00:24:10,630 --> 00:24:09,120
things are really uh lining up to be

545
00:24:12,710 --> 00:24:10,640
good to undock

546
00:24:14,149 --> 00:24:12,720
uh and and then another decision point a

547
00:24:16,470 --> 00:24:14,159
little closer in at two and a half hours

548
00:24:18,310 --> 00:24:16,480
that's really to prepare the vehicle and

549
00:24:19,350 --> 00:24:18,320
take a lot of the cargo in there's a

550
00:24:21,029 --> 00:24:19,360
couple of

551
00:24:22,310 --> 00:24:21,039
freezers that are bringing home

552
00:24:24,310 --> 00:24:22,320
important science that we want to put in

553
00:24:26,390 --> 00:24:24,320
the vehicle but literally we have about

554
00:24:28,710 --> 00:24:26,400
an hour period where we could undock and

555
00:24:29,750 --> 00:24:28,720
if at the last minute we

556
00:24:33,029 --> 00:24:29,760
thought that the weather something

557
00:24:35,110 --> 00:24:33,039
wasn't wasn't okay um the spacex team

558
00:24:36,630 --> 00:24:35,120
could command the vehicle and

559
00:24:38,710 --> 00:24:36,640
bob or duck could stop and stop the

560
00:24:40,549 --> 00:24:38,720
whole undock sequence and so the whole

561
00:24:43,350 --> 00:24:40,559
beauty of this sequence is that we can

562
00:24:45,190 --> 00:24:43,360
stay on station for a period of time and

563
00:24:47,110 --> 00:24:45,200

not get into free flight and then you

564
00:24:49,269 --> 00:24:47,120
know save our opportunities

565
00:24:51,430 --> 00:24:49,279
it's the same thing relative to

566
00:24:52,950 --> 00:24:51,440
the whole the orbit sequence after we've

567
00:24:54,470 --> 00:24:52,960
undocked and we're

568
00:24:55,990 --> 00:24:54,480
heading toward a landing opportunity

569
00:24:59,269 --> 00:24:56,000
most of those are about

570
00:25:03,029 --> 00:24:59,279
let's say 15 to 17 hours after undock

571
00:25:05,190 --> 00:25:03,039
we can then uh stop and pause before uh

572
00:25:07,750 --> 00:25:05,200
before we execute that deorbit burn

573
00:25:08,870 --> 00:25:07,760
and then go around again most of those

574
00:25:10,470 --> 00:25:08,880
uh

575
00:25:12,870 --> 00:25:10,480
most of the way off opportunities would

576
00:25:14,470 --> 00:25:12,880
be about 48 hours later and we have

577
00:25:15,669 --> 00:25:14,480
roughly three days of consumables once

578
00:25:19,750 --> 00:25:15,679
we undock

579
00:25:23,029 --> 00:25:20,950
thank you for your question we'll now

580
00:25:26,390 --> 00:25:23,039
move on to the next paul brinkman from

581
00:25:29,990 --> 00:25:28,710
yeah thanks for taking my question um i

582
00:25:31,430 --> 00:25:30,000
would really like to hear some more

583
00:25:33,830 --> 00:25:31,440
detail about the

584
00:25:36,070 --> 00:25:33,840
castle tests uh during the flight and

585
00:25:37,830 --> 00:25:36,080
when attached to the space station um

586
00:25:39,430 --> 00:25:37,840
what was learned especially what was

587
00:25:43,990 --> 00:25:39,440
learned during the

588
00:25:48,149 --> 00:25:46,789

yeah i could take that one uh so we did

589
00:25:49,750 --> 00:25:48,159
a habitability test and really the

590
00:25:51,430 --> 00:25:49,760
purpose of that you know this flight has

591
00:25:53,350 --> 00:25:51,440
two crew members on board

592
00:25:55,830 --> 00:25:53,360
and so bob and doug have the opportunity

593
00:25:58,549 --> 00:25:55,840
to to live in dragon for

594
00:26:00,149 --> 00:25:58,559
the first part of the flight for about

595
00:26:01,669 --> 00:26:00,159
20 hours or so

596
00:26:03,750 --> 00:26:01,679
so that habitability test was really

597
00:26:05,430 --> 00:26:03,760
looking at uh this next flight that

598
00:26:07,430 --> 00:26:05,440
benji talked about

599
00:26:09,669 --> 00:26:07,440
uh with our next crew crew one we'll

600
00:26:11,990 --> 00:26:09,679
have four people on board dragon and so

601
00:26:14,149 --> 00:26:12,000
what we did is we uh brought over

602
00:26:16,950 --> 00:26:14,159
additional crew members and had them in

603
00:26:18,789 --> 00:26:16,960
dragon and then we did a series of uh

604
00:26:21,430 --> 00:26:18,799
life in the day of dragon

605
00:26:23,590 --> 00:26:21,440
how would you prepare meals

606
00:26:25,750 --> 00:26:23,600
different hygiene activities how would

607
00:26:27,909 --> 00:26:25,760
you sleep in the seats and tried to

608
00:26:29,990 --> 00:26:27,919
assess that and tried to learn from this

609
00:26:31,830 --> 00:26:30,000
vehicle for the next vehicle and and

610
00:26:33,750 --> 00:26:31,840
those tests went really well there's a

611
00:26:35,669 --> 00:26:33,760
few things we're learning about uh how

612
00:26:38,310 --> 00:26:35,679
to package and how to stow

613
00:26:40,950 --> 00:26:38,320

various things for the crew to uh to get

614
00:26:42,549 --> 00:26:40,960
to when they need them on on orbit but

615
00:26:44,149 --> 00:26:42,559
it was very successful and so we take

616
00:26:46,310 --> 00:26:44,159
that data from that habitability

617
00:26:48,070 --> 00:26:46,320
assessment we feed it back into crew one

618
00:26:50,830 --> 00:26:48,080
and we'll make that flight even better

619
00:26:53,990 --> 00:26:50,840
for for that

620
00:26:59,510 --> 00:26:54,000
crew next we have stephen clark from

621
00:27:03,990 --> 00:27:01,590
thank you for taking my question i'm

622
00:27:05,669 --> 00:27:04,000
curious maybe benji can talk about

623
00:27:08,630 --> 00:27:05,679
what happens with the spacecraft once

624
00:27:10,470 --> 00:27:08,640
it's uh back in back on earth uh

625
00:27:12,390 --> 00:27:10,480
does it come back to cape canaveral on

626
00:27:13,909 --> 00:27:12,400
the recovery ship or does it come back

627
00:27:15,909 --> 00:27:13,919
uh by land

628
00:27:17,590 --> 00:27:15,919
and can you talk about the inspections

629
00:27:18,950 --> 00:27:17,600
refurbishment and

630
00:27:20,950 --> 00:27:18,960
some of the modifications you're gonna

631
00:27:23,830 --> 00:27:20,960
be making on the spacecraft

632
00:27:29,590 --> 00:27:23,840
to upgrade it for a full six month crew

633
00:27:34,470 --> 00:27:31,750
sure absolutely that's a great question

634
00:27:37,190 --> 00:27:34,480
um so as i mentioned once after

635
00:27:38,789 --> 00:27:37,200
splashdown we bring the vehicle up onto

636
00:27:41,350 --> 00:27:38,799
the deck of the of the recovery vessel

637
00:27:43,350 --> 00:27:41,360
we get bob and dug out and focus on them

638
00:27:45,669 --> 00:27:43,360

um uh and at the same time there's

639
00:27:48,230 --> 00:27:45,679
actually a refurbishment crew and a

640
00:27:49,909 --> 00:27:48,240
vehicle uh checkout crew that's on the

641
00:27:51,669 --> 00:27:49,919
recovery vessel at the same time so at

642
00:27:53,750 --> 00:27:51,679
the same time we're pulling bob and doug

643
00:27:55,909 --> 00:27:53,760
out we're we're inspecting the vehicle

644
00:27:57,510 --> 00:27:55,919
we're safing it in a number of ways

645
00:27:58,789 --> 00:27:57,520
we're already starting to pull data off

646
00:28:00,070 --> 00:27:58,799
of the the data recorders that are on

647
00:28:03,029 --> 00:28:00,080
that vehicle

648
00:28:05,190 --> 00:28:03,039
at that time um and starting a number of

649
00:28:06,950 --> 00:28:05,200
processes in fact we're equipped to be

650
00:28:09,909 --> 00:28:06,960
able to do start the refurbishment

651
00:28:11,909 --> 00:28:09,919
process entirely while we're on vessel

652
00:28:13,510 --> 00:28:11,919
as we're coming back into port depending

653
00:28:14,950 --> 00:28:13,520
on how long depending on the landing

654
00:28:17,350 --> 00:28:14,960
location and how long it takes for us to

655
00:28:18,630 --> 00:28:17,360
get back um since we are landing on the

656
00:28:19,669 --> 00:28:18,640
east coast and this is part of the

657
00:28:23,669 --> 00:28:19,679
reason that we're landing on the east

658
00:28:24,950 --> 00:28:23,679
coast is to bring us uh closer um to to

659
00:28:26,950 --> 00:28:24,960
where we're gonna do refurbishment and

660
00:28:29,990 --> 00:28:26,960
be ready for launch so we have an

661
00:28:31,990 --> 00:28:30,000
awesome dragon facility down there for

662
00:28:33,909 --> 00:28:32,000
not only doing the initial pre-launch

663
00:28:35,430 --> 00:28:33,919

preps when when a dragon arrives from

664
00:28:37,350 --> 00:28:35,440
hawthorne but also to do full

665
00:28:40,950 --> 00:28:37,360
refurbishment of dragons just like we do

666
00:28:42,389 --> 00:28:40,960
fervent refurbishment of the falcons

667
00:28:44,149 --> 00:28:42,399
and and basically do the whole

668
00:28:45,830 --> 00:28:44,159
processing and be ready just to put a

669
00:28:47,510 --> 00:28:45,840
dragon right back up on top of a falcon

670
00:28:48,950 --> 00:28:47,520
and get ready to launch

671
00:28:50,789 --> 00:28:48,960
some of what that looks like in this

672
00:28:52,789 --> 00:28:50,799
case is we'll actually be taking off a

673
00:28:54,310 --> 00:28:52,799
lot of the panels of dragon we'll be

674
00:28:55,510 --> 00:28:54,320
inspecting inside again as a test

675
00:28:57,190 --> 00:28:55,520
mission we want to make sure that we

676
00:28:58,710 --> 00:28:57,200
kind of dig deep and understand

677
00:28:59,990 --> 00:28:58,720
everything that happens

678
00:29:02,070 --> 00:29:00,000
that's going on with this vehicle make

679
00:29:04,389 --> 00:29:02,080
sure we're really ready to go

680
00:29:05,830 --> 00:29:04,399
and then do some of the some of the

681
00:29:07,269 --> 00:29:05,840
aspects of the refurbishment there are

682
00:29:08,710 --> 00:29:07,279
some things that we will replace some

683
00:29:10,470 --> 00:29:08,720
things that are standardly replaced some

684
00:29:12,070 --> 00:29:10,480
things that we want to upgrade based on

685
00:29:13,669 --> 00:29:12,080
on lessons learned or that were already

686
00:29:15,430 --> 00:29:13,679
planned in work

687
00:29:18,389 --> 00:29:15,440
and of course there's the trunk itself

688
00:29:20,389 --> 00:29:18,399

since the trunk is jettisoned um before

689
00:29:22,549 --> 00:29:20,399
uh before re-entry

690
00:29:24,310 --> 00:29:22,559
we have to produce a new trunk um for

691
00:29:27,190 --> 00:29:24,320
each flight and so in this case for

692
00:29:30,230 --> 00:29:27,200
example we'll have upgraded um

693
00:29:32,310 --> 00:29:30,240
solar panels uh solar rays on the

694
00:29:33,590 --> 00:29:32,320
on the trunk for the for the upcoming

695
00:29:35,750 --> 00:29:33,600
flight so it's one of the examples of

696
00:29:38,230 --> 00:29:35,760
things that will be will be upgraded the

697
00:29:39,430 --> 00:29:38,240
whole process is actually very fast

698
00:29:41,269 --> 00:29:39,440
we

699
00:29:42,710 --> 00:29:41,279
should be able to have dragon um

700
00:29:44,789 --> 00:29:42,720
refurbished and ready to go in just a

701
00:29:47,029 --> 00:29:44,799
matter of a couple months a few months

702
00:29:49,990 --> 00:29:47,039
um and and make it have plenty of margin

703
00:29:52,789 --> 00:29:50,000
multiple months of margin against um six

704
00:29:54,310 --> 00:29:52,799
month reflights so we can take a vehicle

705
00:29:56,470 --> 00:29:54,320
and be ready to fly it again six months

706
00:29:58,710 --> 00:29:56,480
later with multiple months of margin so

707
00:30:02,310 --> 00:29:58,720
that's that's actually very exciting um

708
00:30:04,870 --> 00:30:02,320
and again almost entirely um reused a

709
00:30:06,630 --> 00:30:04,880
lot of the vehicle is um

710
00:30:08,310 --> 00:30:06,640
uh you know

711
00:30:09,909 --> 00:30:08,320
almost all of it is totally reused like

712
00:30:11,350 --> 00:30:09,919
i said a few things that we that we that

713
00:30:13,110 --> 00:30:11,360

we that we fix up or that we might

714
00:30:14,950 --> 00:30:13,120
replace we decide to upgrade that's

715
00:30:17,350 --> 00:30:14,960
really it

716
00:30:19,830 --> 00:30:17,360
next we have uh joey roulette from

717
00:30:21,669 --> 00:30:19,840
reuters joey

718
00:30:23,830 --> 00:30:21,679
hey uh thanks so much for doing this

719
00:30:26,230 --> 00:30:23,840
question for benji reed originally

720
00:30:28,310 --> 00:30:26,240
spacex was planning to use new vehicles

721
00:30:31,430 --> 00:30:28,320
for each pcm mission i was wondering

722
00:30:34,149 --> 00:30:31,440
what led to the decision to reuse crew

723
00:30:36,149 --> 00:30:34,159
dragon for crew 2

724
00:30:37,269 --> 00:30:36,159
and how the refurbishment process for

725
00:30:42,549 --> 00:30:37,279
that is going to be different than

726
00:30:46,870 --> 00:30:44,310
sure absolutely you're right uh

727
00:30:50,149 --> 00:30:46,880
originally um you know on the contract

728
00:30:51,830 --> 00:30:50,159
in in we decided to to go for new

729
00:30:54,149 --> 00:30:51,840
vehicle use

730
00:30:55,750 --> 00:30:54,159
but you know as we as we've continued

731
00:30:58,310 --> 00:30:55,760
down in the last number of years of

732
00:31:00,789 --> 00:30:58,320
proving the awesomeness of reuse and

733
00:31:02,789 --> 00:31:00,799
reflight the importance of it not only

734
00:31:04,230 --> 00:31:02,799
from an economics viewpoint

735
00:31:06,230 --> 00:31:04,240
for overall for the space flight

736
00:31:08,470 --> 00:31:06,240
industry but also from a safety and

737
00:31:10,549 --> 00:31:08,480
reliability perspective you learn so

738
00:31:11,830 --> 00:31:10,559

much from a vehicle um that you that you

739
00:31:13,430 --> 00:31:11,840
can refly

740
00:31:14,870 --> 00:31:13,440
and you also have to build it better you

741
00:31:16,310 --> 00:31:14,880
have to build it more robustly for a

742
00:31:18,310 --> 00:31:16,320
vehicle that you know that you're gonna

743
00:31:20,870 --> 00:31:18,320
you need to use multiple times so the

744
00:31:22,470 --> 00:31:20,880
reality is is that dragon 2 this line of

745
00:31:24,389 --> 00:31:22,480
dragons which will be used for both the

746
00:31:27,190 --> 00:31:24,399
crew vehicles and the cargo vehicles

747
00:31:31,350 --> 00:31:27,200
dragon 2 is designed for at least five

748
00:31:33,029 --> 00:31:31,360
reuses um and possibly even more so from

749
00:31:35,029 --> 00:31:33,039
the get-go we were expecting to be able

750
00:31:36,470 --> 00:31:35,039
to reuse this vehicle

751
00:31:38,470 --> 00:31:36,480
we had always hoped that we'd be able to

752
00:31:41,269 --> 00:31:38,480
reuse it on on nasa

753
00:31:42,549 --> 00:31:41,279
astronaut missions we had also planned

754
00:31:44,470 --> 00:31:42,559
though from the beginning that we would

755
00:31:46,470 --> 00:31:44,480
be able to use it for for commercial

756
00:31:49,430 --> 00:31:46,480
passenger missions and and any other

757
00:31:51,830 --> 00:31:49,440
uses so the the good news is is that we

758
00:31:53,669 --> 00:31:51,840
were always always ready to do it um and

759
00:31:55,110 --> 00:31:53,679
it was always part of the plan

760
00:31:57,269 --> 00:31:55,120
we've been working closely with nasa

761
00:31:59,909 --> 00:31:57,279
over the last few years um and then

762
00:32:01,590 --> 00:31:59,919
recently to uh to finally kind of lay

763
00:32:03,190 --> 00:32:01,600

out the whole plan of what reuse would

764
00:32:04,870 --> 00:32:03,200
look like on crew we want to make sure

765
00:32:06,630 --> 00:32:04,880
of course that that's just as safe and

766
00:32:08,470 --> 00:32:06,640
just as reliable in fact i think it's

767
00:32:10,070 --> 00:32:08,480
even more safe and more reliable in a

768
00:32:11,430 --> 00:32:10,080
lot of ways and we've been working

769
00:32:12,830 --> 00:32:11,440
closely with nasa to lay out what that

770
00:32:15,190 --> 00:32:12,840
plan looks like and what that

771
00:32:16,630 --> 00:32:15,200
certification process is

772
00:32:18,389 --> 00:32:16,640
so while we're in the middle of

773
00:32:19,990 --> 00:32:18,399
refurbishing this drag and getting it

774
00:32:22,789 --> 00:32:20,000
ready to go for crew 2 we're also

775
00:32:24,470 --> 00:32:22,799
wrapping up the certification process

776
00:32:26,389 --> 00:32:24,480
for reflight

777
00:32:27,669 --> 00:32:26,399
so it's very exciting not a lot of

778
00:32:29,750 --> 00:32:27,679
difference in what we'd originally

779
00:32:32,710 --> 00:32:29,760
planned for this vehicle but a lot of

780
00:32:34,870 --> 00:32:32,720
difference in what it took to refurbish

781
00:32:36,789 --> 00:32:34,880
a dragon one

782
00:32:38,310 --> 00:32:36,799
that the dragon one capsule took longer

783
00:32:40,070 --> 00:32:38,320
to refurbish although we got very good

784
00:32:42,870 --> 00:32:40,080
at it out of the 20 missions that we

785
00:32:45,269 --> 00:32:42,880
flew almost half of those i think nine

786
00:32:47,430 --> 00:32:45,279
were were flight proven

787
00:32:49,669 --> 00:32:47,440
and so we learned a lot

788
00:32:51,909 --> 00:32:49,679

in that effort to go from also what was

789
00:32:54,470 --> 00:32:51,919
originally a new you know a new vehicle

790
00:32:56,230 --> 00:32:54,480
every time to reuse vehicles re-flight

791
00:32:57,830 --> 00:32:56,240
vehicles what it took to refurbish them

792
00:33:00,710 --> 00:32:57,840
and we applied all of that knowledge to

793
00:33:07,430 --> 00:33:00,720
the dragon 2 line

794
00:33:11,350 --> 00:33:09,350
hello uh thank you very much tariq

795
00:33:13,830 --> 00:33:11,360
knowledge with space.com and my question

796
00:33:16,310 --> 00:33:13,840
i think is for uh steve stitch you know

797
00:33:18,549 --> 00:33:16,320
uh uh or or benji

798
00:33:20,950 --> 00:33:18,559
uh i'm really curious about what your

799
00:33:21,909 --> 00:33:20,960
weather constraints are when you're

800
00:33:23,269 --> 00:33:21,919
picking

801
00:33:24,389 --> 00:33:23,279
one of the seven

802
00:33:25,669 --> 00:33:24,399
landing sites that you're going to

803
00:33:28,230 --> 00:33:25,679
target

804
00:33:30,389 --> 00:33:28,240
after either prior to undocking

805
00:33:32,870 --> 00:33:30,399
i know that there's a tropical storm

806
00:33:34,389 --> 00:33:32,880
approaching uh for sunday and i'm

807
00:33:35,990 --> 00:33:34,399
wondering kind of what what are you

808
00:33:37,029 --> 00:33:36,000
looking for to make sure that you're

809
00:33:39,190 --> 00:33:37,039
comfortable

810
00:33:40,870 --> 00:33:39,200
with one of those seven landing spots

811
00:33:43,669 --> 00:33:40,880
and when is that cut off to have to pick

812
00:33:45,750 --> 00:33:43,679
it before you can undock thank you

813
00:33:47,669 --> 00:33:45,760

yeah i i can talk a little bit about the

814
00:33:49,750 --> 00:33:47,679
weather constraints that we'll be

815
00:33:51,269 --> 00:33:49,760
evaluating

816
00:33:53,509 --> 00:33:51,279
the first one and probably the one that

817
00:33:55,669 --> 00:33:53,519
may be the most challenging is is wind

818
00:33:57,750 --> 00:33:55,679
the wind speed can't be any greater than

819
00:33:58,789 --> 00:33:57,760
15 feet per second or about 10 miles an

820
00:34:01,110 --> 00:33:58,799
hour

821
00:34:02,950 --> 00:34:01,120
so uh this is to protect how the vehicle

822
00:34:04,070 --> 00:34:02,960
actually lands in the water and and how

823
00:34:05,590 --> 00:34:04,080
the water

824
00:34:07,269 --> 00:34:05,600
will come up and and surround the

825
00:34:09,909 --> 00:34:07,279
vehicle at touchdown

826
00:34:12,149 --> 00:34:09,919
um the next criteria is really waves so

827
00:34:14,470 --> 00:34:12,159
there's a certain amount of uh

828
00:34:16,629 --> 00:34:14,480
of wave height and wave period

829
00:34:18,470 --> 00:34:16,639
that uh that we have to have within

830
00:34:20,550 --> 00:34:18,480
limits and that really has to do with

831
00:34:22,710 --> 00:34:20,560
again as the the heat shield impacts the

832
00:34:24,230 --> 00:34:22,720
water protecting that from a from a

833
00:34:26,069 --> 00:34:24,240
structural capability

834
00:34:27,909 --> 00:34:26,079
uh we don't want any rain within the

835
00:34:30,069 --> 00:34:27,919
area we don't want the parachute to the

836
00:34:32,230 --> 00:34:30,079
vehicle to get to get rained on or any

837
00:34:34,389 --> 00:34:32,240
lightning and then we have some also

838
00:34:36,470 --> 00:34:34,399

some criteria as benji said

839
00:34:38,790 --> 00:34:36,480
depending on the landing site the way

840
00:34:41,109 --> 00:34:38,800
that the crew gets back to shore

841
00:34:43,349 --> 00:34:41,119
actually is via helicopter and there's

842
00:34:45,190 --> 00:34:43,359
some criteria also for uh having the

843
00:34:47,829 --> 00:34:45,200
helicopter be able to to land on the

844
00:34:49,750 --> 00:34:47,839
ship in terms of the motion of the deck

845
00:34:50,950 --> 00:34:49,760
uh in the water and then obviously

846
00:34:52,389 --> 00:34:50,960
visibility and things like that for the

847
00:34:53,990 --> 00:34:52,399
helicopter so

848
00:34:55,270 --> 00:34:54,000
those are the constraints

849
00:34:56,869 --> 00:34:55,280
and and again

850
00:34:58,870 --> 00:34:56,879
what we really are trying to do is set

851
00:35:02,310 --> 00:34:58,880
ourselves up uh to have these

852
00:35:04,790 --> 00:35:02,320
constraints be met uh prior to undock

853
00:35:05,670 --> 00:35:04,800
at two sites so we're really looking for

854
00:35:10,470 --> 00:35:05,680
uh

855
00:35:13,190 --> 00:35:10,480
undock and then we can take that down to

856
00:35:14,870 --> 00:35:13,200
the wire relative to undock

857
00:35:16,390 --> 00:35:14,880
and of course we can also decide if the

858
00:35:18,069 --> 00:35:16,400
weather is looking bad that hey we're

859
00:35:20,069 --> 00:35:18,079
not even going to try to undock that day

860
00:35:22,150 --> 00:35:20,079
if if really

861
00:35:24,630 --> 00:35:22,160
if this

862
00:35:27,190 --> 00:35:24,640
hurricane tropical cyclone moves in and

863
00:35:29,670 --> 00:35:27,200

to the area and really has bad weather

864
00:35:31,829 --> 00:35:29,680
across multiple sites for multiple days

865
00:35:34,069 --> 00:35:31,839
then the beauty of this vehicle is

866
00:35:35,510 --> 00:35:34,079
we can stay docked to the space station

867
00:35:37,510 --> 00:35:35,520
we work with kenny todd and joel

868
00:35:38,870 --> 00:35:37,520
montebano and and they understand it's a

869
00:35:40,710 --> 00:35:38,880
test flight and it may take a little

870
00:35:42,630 --> 00:35:40,720
while to get off we'll just stay there

871
00:35:45,990 --> 00:35:42,640
and we'll wait for the weather to clear

872
00:35:51,270 --> 00:35:49,109
okay next we have eric berger from ours

873
00:35:52,950 --> 00:35:51,280
technica

874
00:35:55,190 --> 00:35:52,960
yeah hi good afternoon and good luck

875
00:35:57,190 --> 00:35:55,200
everyone a question for jim maybe

876
00:35:58,870 --> 00:35:57,200
following up on the question joey asked

877
00:36:00,069 --> 00:35:58,880
about reuse can you talk a little bit

878
00:36:02,550 --> 00:36:00,079
about how

879
00:36:04,230 --> 00:36:02,560
you know nasa has quickly it seems like

880
00:36:06,950 --> 00:36:04,240
become more comfortable with reusing

881
00:36:10,630 --> 00:36:06,960
both the falcon 9 rocket and the

882
00:36:13,109 --> 00:36:10,640
excuse me crew dragon spacecraft thanks

883
00:36:14,950 --> 00:36:13,119
uh yeah from my perspective uh what

884
00:36:17,190 --> 00:36:14,960
we're really looking for in all of our

885
00:36:19,670 --> 00:36:17,200
missions is sustainability and that's

886
00:36:21,829 --> 00:36:19,680
true for low earth orbit it's true

887
00:36:24,630 --> 00:36:21,839
now when we go to the moon

888
00:36:27,990 --> 00:36:24,640

we're looking for how can we how can we

889
00:36:31,270 --> 00:36:28,000
drive sustainability reduce costs

890
00:36:33,190 --> 00:36:31,280
across all of our all of our missions

891
00:36:34,950 --> 00:36:33,200
so when we think about for example and

892
00:36:37,430 --> 00:36:34,960
you know this uh eric when we think

893
00:36:38,150 --> 00:36:37,440
about the gateway for example i refer to

894
00:36:42,870 --> 00:36:38,160
it

895
00:36:45,109 --> 00:36:42,880
the moon but as a reusable command

896
00:36:47,109 --> 00:36:45,119
module that will be there for 15 years

897
00:36:49,430 --> 00:36:47,119
to be used over and over and over again

898
00:36:51,670 --> 00:36:49,440
and we want our landers to go back and

899
00:36:54,710 --> 00:36:51,680
forth to the surface of the moon to also

900
00:36:56,390 --> 00:36:54,720
be reusable and refuelable so

901
00:36:58,230 --> 00:36:56,400
really what we have learned through this

902
00:37:00,790 --> 00:36:58,240
whole process and of course the

903
00:37:02,710 --> 00:37:00,800
commercial crew program has kind of

904
00:37:05,349 --> 00:37:02,720
proven this out

905
00:37:08,230 --> 00:37:05,359
is that with reuse we can actually drive

906
00:37:09,670 --> 00:37:08,240
down costs and we can increase access

907
00:37:12,390 --> 00:37:09,680
and of course

908
00:37:14,870 --> 00:37:12,400
all of this was developed because nasa

909
00:37:17,109 --> 00:37:14,880
did the right thing and and established

910
00:37:19,589 --> 00:37:17,119
basically the the high level criteria

911
00:37:21,990 --> 00:37:19,599
the requirements and didn't get involved

912
00:37:24,310 --> 00:37:22,000
in designing everything downstream but

913
00:37:25,829 --> 00:37:24,320

we set the high level criteria

914
00:37:27,910 --> 00:37:25,839
and that was you know in terms of

915
00:37:30,310 --> 00:37:27,920
payload and safety and then we let

916
00:37:32,950 --> 00:37:30,320
private companies go and innovate and

917
00:37:35,270 --> 00:37:32,960
that innovation ultimately drove uh

918
00:37:37,750 --> 00:37:35,280
drove us to a point where we're now

919
00:37:40,150 --> 00:37:37,760
reusing these rockets reusing the

920
00:37:41,910 --> 00:37:40,160
capsules and of course we want to apply

921
00:37:45,829 --> 00:37:41,920
that to what we do at the moon and

922
00:37:52,470 --> 00:37:48,470
next is uh lavesio alessandro from the

923
00:37:54,870 --> 00:37:52,480
spacex reddit group modesio

924
00:37:57,270 --> 00:37:54,880
hello thank you so much

925
00:37:59,349 --> 00:37:57,280
this question is for benji

926
00:38:01,430 --> 00:37:59,359
what are the main reasons to deploy the

927
00:38:04,069 --> 00:38:01,440
trunk before the

928
00:38:06,550 --> 00:38:04,079
final the orbit barn unlike what was

929
00:38:09,190 --> 00:38:06,560
happening if i'm not drawing

930
00:38:15,670 --> 00:38:09,200
with dragon version one

931
00:38:18,710 --> 00:38:17,190
that's a great question

932
00:38:20,630 --> 00:38:18,720
you know fundamentally that is that is a

933
00:38:22,790 --> 00:38:20,640
big difference we're we're uh judging

934
00:38:25,109 --> 00:38:22,800
the trunk before we de-orbit uh before

935
00:38:27,750 --> 00:38:25,119
we initiate the burn versus after

936
00:38:28,470 --> 00:38:27,760
um and um and a lot of it just has to do

937
00:38:29,910 --> 00:38:28,480
with

938
00:38:32,870 --> 00:38:29,920

general differences in the design of the

939
00:38:34,390 --> 00:38:32,880
vehicle um and i don't have a lot of

940
00:38:36,230 --> 00:38:34,400
good detail to give you on that right

941
00:38:39,030 --> 00:38:36,240
now but i'm sure we can we can get some

942
00:38:45,430 --> 00:38:42,790
next is gina cinceri from abc news

943
00:38:47,829 --> 00:38:45,440
uh yes you say three days of supplies

944
00:38:49,910 --> 00:38:47,839
what are the limiting factors that would

945
00:38:55,349 --> 00:38:49,920
keep you from staying up longer before

946
00:39:00,550 --> 00:38:57,910
yeah i can take that

947
00:39:03,270 --> 00:39:00,560
the supplies that we look at really are

948
00:39:05,990 --> 00:39:03,280
you know oxygen for the crew debris

949
00:39:07,990 --> 00:39:06,000
nitrogen lithium hydroxide to scrub the

950
00:39:10,069 --> 00:39:08,000
carbon dioxide from the air

951
00:39:11,990 --> 00:39:10,079
and then simply put

952
00:39:13,270 --> 00:39:12,000
you know food and water

953
00:39:15,670 --> 00:39:13,280
and when you lay all those things

954
00:39:17,349 --> 00:39:15,680
together it turns out you know

955
00:39:19,670 --> 00:39:17,359
uh

956
00:39:20,950 --> 00:39:19,680
water and lithium hydroxide the chemical

957
00:39:22,630 --> 00:39:20,960
that scrubs the co2 are about the

958
00:39:24,550 --> 00:39:22,640
limiting consumables so

959
00:39:25,990 --> 00:39:24,560
it kind of puts you at about three days

960
00:39:27,430 --> 00:39:26,000
of capability

961
00:39:29,190 --> 00:39:27,440
if we had to we could probably stretch

962
00:39:30,630 --> 00:39:29,200
that a little bit more but going in

963
00:39:31,589 --> 00:39:30,640

that's kind of our number for planning

964
00:39:34,069 --> 00:39:31,599
and so

965
00:39:36,230 --> 00:39:34,079
um it's pretty typical for uh for any

966
00:39:37,750 --> 00:39:36,240
time that we're undocking a vehicle from

967
00:39:39,829 --> 00:39:37,760
the space station you have some time

968
00:39:41,430 --> 00:39:39,839
that you you have before you can get to

969
00:39:42,390 --> 00:39:41,440
the ground the vehicle will have plenty

970
00:39:43,910 --> 00:39:42,400
of power

971
00:39:45,829 --> 00:39:43,920
plenty of propellant

972
00:39:49,030 --> 00:39:45,839
plenty of oxygen for the crew

973
00:39:49,829 --> 00:39:49,040
it really comes down to uh to food water

974
00:39:55,270 --> 00:39:49,839
and

975
00:39:57,829 --> 00:39:55,280
next is chris davenport from the

976
00:40:00,310 --> 00:39:57,839
washington post

977
00:40:02,069 --> 00:40:00,320
hey guys thanks for taking the time i

978
00:40:04,710 --> 00:40:02,079
wonder if you could just lay out for us

979
00:40:07,349 --> 00:40:04,720
what assets you'll have on standby

980
00:40:10,309 --> 00:40:07,359
in the case of an emergency the c-17s

981
00:40:12,550 --> 00:40:10,319
etc and where they'll be stationed

982
00:40:14,950 --> 00:40:12,560
thanks

983
00:40:18,390 --> 00:40:14,960
yeah chris i can take that so we do have

984
00:40:20,630 --> 00:40:18,400
several assets on standby um we are

985
00:40:22,390 --> 00:40:20,640
activating the detachment three from the

986
00:40:26,150 --> 00:40:22,400
department of defense

987
00:40:28,309 --> 00:40:26,160
uh we will have a c-17 stationed at

988
00:40:31,270 --> 00:40:28,319

hickam in the event that we had some

989
00:40:33,510 --> 00:40:31,280
very strange this is in in hawaii on the

990
00:40:35,829 --> 00:40:33,520
in the pacific coast and arsenal also on

991
00:40:37,430 --> 00:40:35,839
the east coast of the us at charleston

992
00:40:38,630 --> 00:40:37,440
and so they'd be available for search

993
00:40:40,790 --> 00:40:38,640
and rescue

994
00:40:42,630 --> 00:40:40,800
uh for this test flight should we have

995
00:40:44,309 --> 00:40:42,640
some problem you know we don't really

996
00:40:47,349 --> 00:40:44,319
intend to have that happen we'll we'll

997
00:40:49,109 --> 00:40:47,359
have the the spacex vehicle um go search

998
00:40:51,109 --> 00:40:49,119
and go navigator out and one of those

999
00:40:52,630 --> 00:40:51,119
will be in the gulf position for those

1000
00:40:53,990 --> 00:40:52,640
sites and one will be on the east coast

1001
00:40:56,069 --> 00:40:54,000
position four

1002
00:40:57,510 --> 00:40:56,079
for jacksonville cape and daytona and

1003
00:40:58,950 --> 00:40:57,520
those will be the prime vehicles to go

1004
00:41:00,550 --> 00:40:58,960
recover the crew

1005
00:41:02,950 --> 00:41:00,560
and then of course we've got the you

1006
00:41:04,390 --> 00:41:02,960
know helicopters that spacex has

1007
00:41:05,910 --> 00:41:04,400
available to

1008
00:41:08,790 --> 00:41:05,920
to get the crew back to shore should we

1009
00:41:13,430 --> 00:41:11,109
next is phil harwood from

1010
00:41:15,589 --> 00:41:13,440
cbs news

1011
00:41:17,270 --> 00:41:15,599
yeah thanks guys uh

1012
00:41:18,630 --> 00:41:17,280
for benji i think

1013
00:41:21,349 --> 00:41:18,640

steve was telling us the vehicle is good

1014
00:41:23,190 --> 00:41:21,359
to land in winds up to 10 knots i'm

1015
00:41:24,069 --> 00:41:23,200
wondering what the specifics are of wave

1016
00:41:25,750 --> 00:41:24,079
height

1017
00:41:27,829 --> 00:41:25,760
in period what's allowed for this flight

1018
00:41:34,069 --> 00:41:27,839
and how will those numbers change

1019
00:41:37,430 --> 00:41:35,990
so that's a great question um and i'm

1020
00:41:38,870 --> 00:41:37,440
going to i'm going to look at my cheat

1021
00:41:40,470 --> 00:41:38,880
sheet

1022
00:41:43,030 --> 00:41:40,480
and we've got some good things online by

1023
00:41:45,030 --> 00:41:43,040
the way uh nasa's uh put out a a great

1024
00:41:46,870 --> 00:41:45,040
uh product that we've that we've worked

1025
00:41:49,190 --> 00:41:46,880
on with them as well

1026
00:41:50,710 --> 00:41:49,200
um and it looks like we're looking for

1027
00:41:53,190 --> 00:41:50,720
uh you know wave height generally

1028
00:41:54,390 --> 00:41:53,200
speaking um and wave period we want to

1029
00:41:56,230 --> 00:41:54,400
particularly make sure that we don't

1030
00:42:00,150 --> 00:41:56,240
have any uh greater than seven degrees

1031
00:42:01,349 --> 00:42:00,160
of wave slope um it just it's really uh

1032
00:42:03,349 --> 00:42:01,359
the important thing to understand about

1033
00:42:06,150 --> 00:42:03,359
this is that it's an integrated problem

1034
00:42:08,309 --> 00:42:06,160
um uh it's not only just you know one

1035
00:42:10,950 --> 00:42:08,319
specific like oh we have exactly this

1036
00:42:12,150 --> 00:42:10,960
threshold for you know for wins for wave

1037
00:42:14,150 --> 00:42:12,160
for all these different things there are

1038
00:42:15,430 --> 00:42:14,160

some absolute thresholds for some of

1039
00:42:16,630 --> 00:42:15,440
these these measurements that we're

1040
00:42:19,190 --> 00:42:16,640
looking for that we don't want to go

1041
00:42:21,349 --> 00:42:19,200
over but in general when we're assessing

1042
00:42:22,550 --> 00:42:21,359
um you know the readiness to bring them

1043
00:42:24,390 --> 00:42:22,560
home on you know bring home in a

1044
00:42:26,230 --> 00:42:24,400
specific location we're looking at an

1045
00:42:28,630 --> 00:42:26,240
integrated you know combination of

1046
00:42:31,030 --> 00:42:28,640
factors of the wind speed of the wave

1047
00:42:32,390 --> 00:42:31,040
height of of you know um

1048
00:42:34,870 --> 00:42:32,400
angle all of these sorts of things are

1049
00:42:36,150 --> 00:42:34,880
really important um and so and that's

1050
00:42:37,829 --> 00:42:36,160
that's it's kind of that's an important

1051
00:42:39,990 --> 00:42:37,839
part of that um and then you ask a

1052
00:42:42,069 --> 00:42:40,000
question about crew one and how that

1053
00:42:43,750 --> 00:42:42,079
changes um and we're actually um we're

1054
00:42:45,510 --> 00:42:43,760
going to have a greater capability when

1055
00:42:48,069 --> 00:42:45,520
we come to the crew one vehicle

1056
00:42:50,390 --> 00:42:48,079
we'll be able to basically withstand you

1057
00:42:51,750 --> 00:42:50,400
know even higher environments

1058
00:42:53,750 --> 00:42:51,760
for landing which will increase our

1059
00:42:55,030 --> 00:42:53,760
landing opportunities um as well in

1060
00:42:57,109 --> 00:42:55,040
combination with all of our supported

1061
00:42:58,950 --> 00:42:57,119
landing sites um we'll have have a

1062
00:43:01,349 --> 00:42:58,960
really great a lot of opportunities to

1063
00:43:03,430 --> 00:43:01,359

bring the crew home

1064
00:43:05,750 --> 00:43:03,440
thank you and as benji mentioned we do

1065
00:43:07,829 --> 00:43:05,760
have the specific uh criteria for

1066
00:43:09,190 --> 00:43:07,839
landing available at nasa.gov or

1067
00:43:10,390 --> 00:43:09,200
together with spacex on that it's

1068
00:43:12,470 --> 00:43:10,400
available there

1069
00:43:14,150 --> 00:43:12,480
next we'll move over to marcia dunn with

1070
00:43:16,470 --> 00:43:14,160
associated press

1071
00:43:19,510 --> 00:43:16,480
yes hello for benji please um i'm

1072
00:43:21,670 --> 00:43:19,520
interested in how many ships helicopters

1073
00:43:23,030 --> 00:43:21,680
and how many people you're going to have

1074
00:43:25,349 --> 00:43:23,040
staged

1075
00:43:28,470 --> 00:43:25,359
for splashdown and will you have equal

1076
00:43:32,309 --> 00:43:28,480
numbers on both coasts simultaneously

1077
00:43:35,750 --> 00:43:34,069
hi marsha uh so come and get it the

1078
00:43:38,150 --> 00:43:35,760
second fastboat is a backup and also

1079
00:43:39,589 --> 00:43:38,160
goes out and gets the the parachutes

1080
00:43:41,829 --> 00:43:39,599
in terms of number of people on the

1081
00:43:44,230 --> 00:43:41,839
boats um it's over 40. i want to think i

1082
00:43:46,790 --> 00:43:44,240
think it's 44 people um are actually on

1083
00:43:48,630 --> 00:43:46,800
the boat um you know five or so are

1084
00:43:51,109 --> 00:43:48,640
contractors the the people who who are

1085
00:43:53,109 --> 00:43:51,119
who are driving the vehicle the boat um

1086
00:43:56,470 --> 00:43:53,119
and um and then there's about half and

1087
00:43:57,829 --> 00:43:56,480
half roughly 20 and 20 um spacexers and

1088
00:43:59,750 --> 00:43:57,839

nasa people on

1089
00:44:02,309 --> 00:43:59,760
that includes doctors and nurses and

1090
00:44:03,510 --> 00:44:02,319
medical personnel it incur it includes

1091
00:44:05,990 --> 00:44:03,520
the people i mentioned before who are

1092
00:44:08,550 --> 00:44:06,000
doing safing and recovery and

1093
00:44:09,430 --> 00:44:08,560
refurbishment of the dragon vehicle

1094
00:44:12,230 --> 00:44:09,440
um

1095
00:44:13,750 --> 00:44:12,240
in the nasa group of course there are

1096
00:44:16,790 --> 00:44:13,760
people who will be

1097
00:44:19,510 --> 00:44:16,800
there ready to assist and support people

1098
00:44:21,589 --> 00:44:19,520
from health and medical um within nasa

1099
00:44:24,630 --> 00:44:21,599
um you know when we start having

1100
00:44:25,829 --> 00:44:24,640
international partners um on there'll be

1101
00:44:28,069 --> 00:44:25,839
representatives from their space

1102
00:44:30,390 --> 00:44:28,079
agencies as well as translators um to

1103
00:44:32,630 --> 00:44:30,400
help in any for any needs um so it's

1104
00:44:34,390 --> 00:44:32,640
actually a pretty uh sizable group of

1105
00:44:36,790 --> 00:44:34,400
folks that come out and help get ready

1106
00:44:38,630 --> 00:44:36,800
for recovery

1107
00:44:41,349 --> 00:44:38,640
all right next is marcia smith from

1108
00:44:43,430 --> 00:44:41,359
space policy online

1109
00:44:46,309 --> 00:44:43,440
thanks so much for taking my question

1110
00:44:48,870 --> 00:44:46,319
it's for steve and benji

1111
00:44:52,069 --> 00:44:48,880
you've talked in the past about having

1112
00:44:54,150 --> 00:44:52,079
about six weeks between the splashdown

1113
00:44:56,150 --> 00:44:54,160

and then the launch of crew one to

1114
00:44:57,990 --> 00:44:56,160
complete the certification

1115
00:44:59,589 --> 00:44:58,000
of the system

1116
00:45:02,150 --> 00:44:59,599
since the mission is going so

1117
00:45:04,550 --> 00:45:02,160
beautifully as uh i think you said benji

1118
00:45:06,470 --> 00:45:04,560
is their chance of accelerating that

1119
00:45:09,589 --> 00:45:06,480
especially if the splashdown gets

1120
00:45:12,630 --> 00:45:09,599
delayed a little bit is it a one for one

1121
00:45:16,069 --> 00:45:12,640
day delay from between splashdown and

1122
00:45:18,230 --> 00:45:16,079
the next launch or how does that work

1123
00:45:20,390 --> 00:45:18,240
yeah i'll i'll take that and then see if

1124
00:45:22,150 --> 00:45:20,400
benji has anything bad uh yeah we've

1125
00:45:23,750 --> 00:45:22,160
said in the past when we kind of looked

1126
00:45:24,470 --> 00:45:23,760
at this timeline

1127
00:45:27,750 --> 00:45:24,480
uh

1128
00:45:28,710 --> 00:45:27,760
post landing how long does it take to

1129
00:45:30,470 --> 00:45:28,720
get the

1130
00:45:32,630 --> 00:45:30,480
panels off the vehicle like benji talked

1131
00:45:35,109 --> 00:45:32,640
about do the inspections and then

1132
00:45:36,790 --> 00:45:35,119
also get all the data from the vehicle

1133
00:45:38,710 --> 00:45:36,800
all the temperatures and pressures and

1134
00:45:40,630 --> 00:45:38,720
accelerations

1135
00:45:44,150 --> 00:45:40,640
going through that whole process leading

1136
00:45:45,430 --> 00:45:44,160
to certification takes about six weeks

1137
00:45:46,790 --> 00:45:45,440
i wouldn't anticipate we would

1138
00:45:49,349 --> 00:45:46,800

accelerate that at all if we landed

1139
00:45:51,430 --> 00:45:49,359
early i you know we have talked about

1140
00:45:52,790 --> 00:45:51,440
between nasa and spacex that if the

1141
00:45:54,630 --> 00:45:52,800
landing were to slide a little bit to

1142
00:45:56,550 --> 00:45:54,640
the right and we needed more time we

1143
00:45:58,309 --> 00:45:56,560
would just adjust that crew one day just

1144
00:45:59,510 --> 00:45:58,319
to make sure we have all the time the

1145
00:46:00,950 --> 00:45:59,520
important thing about this flight is

1146
00:46:03,030 --> 00:46:00,960
it's a test flight

1147
00:46:05,750 --> 00:46:03,040
we actually have more instrumentation on

1148
00:46:08,150 --> 00:46:05,760
this vehicle than other vehicles and so

1149
00:46:10,470 --> 00:46:08,160
we want to collect all that data make

1150
00:46:13,109 --> 00:46:10,480
sure we jointly analyze it between uh

1151
00:46:15,670 --> 00:46:13,119
spacex and nasa and then set us up for

1152
00:46:17,190 --> 00:46:15,680
the the next mission with four crew and

1153
00:46:22,230 --> 00:46:17,200
to support the station needs for

1154
00:46:27,670 --> 00:46:24,069
one more question we'll pass it over to

1155
00:46:28,790 --> 00:46:27,680
dave mosher from business insider

1156
00:46:30,870 --> 00:46:28,800
thank you so much for doing this i'm

1157
00:46:33,190 --> 00:46:30,880
taking my question um can you tell us

1158
00:46:35,109 --> 00:46:33,200
about the on-orbit vehicle inspection

1159
00:46:37,030 --> 00:46:35,119
results i don't think i heard anyone

1160
00:46:38,790 --> 00:46:37,040
discuss those did you check uh detect

1161
00:46:40,710 --> 00:46:38,800
anything anomalous any signs of damage

1162
00:46:46,069 --> 00:46:40,720
to the heat shield or other parts of the

1163
00:46:49,829 --> 00:46:48,710

i guess i'll take that uh we did do an

1164
00:46:51,190 --> 00:46:49,839
inspection

1165
00:46:53,190 --> 00:46:51,200
over the weekend

1166
00:46:55,270 --> 00:46:53,200
we used the space station robotic arm to

1167
00:46:57,670 --> 00:46:55,280
look at all all the parts of the heat

1168
00:46:59,109 --> 00:46:57,680
shield that we could see and uh

1169
00:47:00,870 --> 00:46:59,119
we do this for every vehicle that

1170
00:47:02,390 --> 00:47:00,880
undocks we do it for the russian

1171
00:47:03,910 --> 00:47:02,400
vehicles as well

1172
00:47:05,829 --> 00:47:03,920
we looked at that we had a joint team

1173
00:47:07,990 --> 00:47:05,839
between nasa and spacex so we actually

1174
00:47:08,950 --> 00:47:08,000
had three engineers from spacex here in

1175
00:47:10,950 --> 00:47:08,960
houston

1176
00:47:12,230 --> 00:47:10,960
looking at all that data and

1177
00:47:13,750 --> 00:47:12,240
there was the results were very

1178
00:47:16,150 --> 00:47:13,760
favorable

1179
00:47:17,910 --> 00:47:16,160
and there was no um areas on the vehicle

1180
00:47:19,910 --> 00:47:17,920
that uh that were

1181
00:47:21,589 --> 00:47:19,920
any concern for entry we talked about

1182
00:47:24,549 --> 00:47:21,599
that as a dragon mission management team

1183
00:47:27,270 --> 00:47:24,559
and we talked about the fr today and the

1184
00:47:29,270 --> 00:47:27,280
vehicles uh safe to to return and we'll

1185
00:47:30,710 --> 00:47:29,280
do the same thing for crew one and

1186
00:47:32,710 --> 00:47:30,720
subsequent flights this was really a

1187
00:47:34,630 --> 00:47:32,720
test out of that system as well it

1188
00:47:36,870 --> 00:47:34,640

worked great and we were able to get the

1189
00:47:38,870 --> 00:47:36,880
data we needed really good resolution

1190
00:47:42,150 --> 00:47:38,880
photos and clear the thermal protection

1191
00:47:45,589 --> 00:47:43,910
all right with that we'll wrap today's

1192
00:47:47,109 --> 00:47:45,599
briefing thanks to all of our panelists

1193
00:47:48,630 --> 00:47:47,119
for joining us today and answering

1194
00:47:50,309 --> 00:47:48,640
questions and thank you for submitting

1195
00:47:51,670 --> 00:47:50,319
those questions we still have a lot of

1196
00:47:53,670 --> 00:47:51,680
milestones coming up you can go to

1197
00:47:55,990 --> 00:47:53,680
nasa.gov to reference this at any time

1198
00:47:57,190 --> 00:47:56,000
of course we have perseverance launch

1199
00:47:58,790 --> 00:47:57,200
tomorrow

1200
00:48:00,470 --> 00:47:58,800
the crew aboard the international space

1201
00:48:04,150 --> 00:48:00,480
station will be conducting a crew news

1202
00:48:05,670 --> 00:48:04,160
conference at 10 45 a.m eastern time and

1203
00:48:07,589 --> 00:48:05,680
then of course we'll continue to look

1204
00:48:11,990 --> 00:48:07,599
for that weather but right now we'll go

1205
00:48:13,349 --> 00:48:12,000
for uh 9 10 a.m uh eastern time to do a

1206
00:48:15,030 --> 00:48:13,359
farewell ceremony aboard the

1207
00:48:17,589 --> 00:48:15,040
international space station on saturday

1208
00:48:19,750 --> 00:48:17,599
august 1st and then again watching that

1209
00:48:23,430 --> 00:48:19,760
weather we'll be going live for the

1210
00:48:25,910 --> 00:48:23,440
undocking broadcast at 5 15 pm eastern

1211
00:48:33,770 --> 00:48:25,920
time thanks again for joining us

1212
00:48:45,109 --> 00:48:40,960
[Music]