1
00:00:07,400 --> 00:00:05,180
good morning and welcome to NASA's

2
00:00:09,230 --> 00:00:07,410
Kennedy Space Center in Florida we're

3
00:00:11,629 --> 00:00:09,240
gearing up for a pretty exciting test of

4
00:00:13,820 --> 00:00:11,639
the developmental program for SpaceX's

5
00:00:15,740 --> 00:00:13,830
crew Dragon spacecraft the pad abort

6
00:00:17,240 --> 00:00:15,750
test will take place from Cape Canaveral

7
00:00:19,670 --> 00:00:17,250
Air Force Station Space Launch Complex

8
00:00:22,010 --> 00:00:19,680
40 and is set to be the first visual

9
00:00:24,890 --> 00:00:22,020
milestone of the company's path toward

10
00:00:27,200 --> 00:00:24,900
launching humans to low-earth orbit Hans

11
00:00:29,660 --> 00:00:27,210
kun eggs men is the vice president of

12
00:00:31,460 --> 00:00:29,670
mission assurance at SpaceX and John

13
00:00:33,290 --> 00:00:31,470

coward is the partner manager of NASA's

14
00:00:34,819 --> 00:00:33,300
Commercial Crew program they have

15
00:00:36,440 --> 00:00:34,829
offered to sit down with us today to

16
00:00:38,540 --> 00:00:36,450
talk about the technical details of the

17
00:00:41,660 --> 00:00:38,550
test as well as what we can expect on

18
00:00:44,030 --> 00:00:41,670
test day the test is currently scheduled

19
00:00:46,069 --> 00:00:44,040
for Wednesday May sixth we'll kick this

20
00:00:47,510 --> 00:00:46,079
off and go to them and then after you're

21
00:00:49,250 --> 00:00:47,520
finished with some opening remarks will

22
00:00:51,350 --> 00:00:49,260
go to the media both in the room and on

23
00:00:56,420 --> 00:00:51,360
the phone for questions thank you over

24
00:00:58,599 --> 00:00:56,430
to you Hans good morning um we were

25
00:01:01,849 --> 00:00:58,609
super excited about this test this is a

26
00:01:03,979 --> 00:01:01,859
brand new vehicle let's say it's D does

27
00:01:06,980 --> 00:01:03,989
this is what what SpaceX was basically

28
00:01:09,950 --> 00:01:06,990
founded for human space flight and the

29
00:01:14,420 --> 00:01:09,960
test of this particular launch escape or

30
00:01:19,190 --> 00:01:14,430
pad board is going to show that we have

31
00:01:20,630 --> 00:01:19,200
developed a revolutionary system to you

32
00:01:22,130 --> 00:01:20,640
know for the safety of the astronauts

33
00:01:24,710 --> 00:01:22,140
and this test is going to show how it

34
00:01:27,380 --> 00:01:24,720
works and it's it's our first big test

35
00:01:28,999 --> 00:01:27,390
on the anti-coup dragon so I'm really

36
00:01:32,170 --> 00:01:29,009
I'm really stoked and excited about this

37
00:01:34,690 --> 00:01:32,180
I hope it's going to be a good show I

38
00:01:37,130 --> 00:01:34,700

can talk about a little bit about the

39
00:01:38,690 --> 00:01:37,140
about the but what you actually going to

40
00:01:42,020 --> 00:01:38,700
see so it's gone it's going to be a

41
00:01:43,760 --> 00:01:42,030
really it's gonna be a short test you

42
00:01:46,880 --> 00:01:43,770
can I can hold my breath the entire time

43
00:01:49,819 --> 00:01:46,890
probably it's going to be a six-second

44
00:01:51,380 --> 00:01:49,829
firing it's it's a short flash and going

45
00:01:54,800 --> 00:01:51,390
up and then it's going to cause for 20

46
00:01:58,370 --> 00:01:54,810
seconds to Apogee which is about 5,000

47
00:02:00,380 --> 00:01:58,380
feet above both the earth and then you

48
00:02:02,060 --> 00:02:00,390
will see the trunk falling away the

49
00:02:04,999 --> 00:02:02,070
trunk separates from the from the from

50
00:02:07,340 --> 00:02:05,009
Dragon a couple seconds later you see

51
00:02:09,410 --> 00:02:07,350
the drogue chutes coming out it will

52
00:02:10,850 --> 00:02:09,420
slow down on the way down and then you

53
00:02:13,720 --> 00:02:10,860
see the main chutes coming out and then

54
00:02:16,220 --> 00:02:13,730
it's going to gently land on the water

55
00:02:19,430 --> 00:02:16,230
probably one and a half minutes after

56
00:02:22,610 --> 00:02:19,440
after the ignition it's going to be a

57
00:02:25,460 --> 00:02:22,620
bunch of boats waiting for the dragon

58
00:02:29,000 --> 00:02:25,470
where we recover it and then process it

59
00:02:32,120 --> 00:02:29,010
from them yeah honza I'm like you I'm

60
00:02:34,250 --> 00:02:32,130
very excited to be here these are the

61
00:02:36,470 --> 00:02:34,260
kinds of things that in rocketry that we

62
00:02:38,120 --> 00:02:36,480
live for these dynamic very visual sorts

63
00:02:40,010 --> 00:02:38,130

of things we're going to go do we've

64
00:02:42,560 --> 00:02:40,020
been working towards this point for more

65
00:02:44,630 --> 00:02:42,570
than four years since SpaceX outlined

66
00:02:47,380 --> 00:02:44,640
the test in our space act agreement we

67
00:02:49,400 --> 00:02:47,390
have with them the CCI cap agreement

68
00:02:50,840 --> 00:02:49,410
it's not like we woke up a few months

69
00:02:52,850 --> 00:02:50,850
ago and said you know hey you know would

70
00:02:54,200 --> 00:02:52,860
be really cool no like I said we've been

71
00:02:56,660 --> 00:02:54,210
planning this for a very very long time

72
00:02:59,630 --> 00:02:56,670
a lot of folks putting a lot of effort

73
00:03:01,430 --> 00:02:59,640
into this it is rocketry like I said

74
00:03:04,100 --> 00:03:01,440
these are the days we live for in this

75
00:03:05,480 --> 00:03:04,110
business it's really cool you've worked

76
00:03:06,950 --> 00:03:05,490
very hard you've done your calculations

77
00:03:08,150 --> 00:03:06,960
you've done all the really nerdy things

78
00:03:10,040 --> 00:03:08,160
you get to go do and now there's going

79
00:03:13,270 --> 00:03:10,050
to be some smoke and fire and that's the

80
00:03:15,560 --> 00:03:13,280
part that we really love this is not

81
00:03:18,050 --> 00:03:15,570
this is rather this is a development

82
00:03:20,270 --> 00:03:18,060
test okay we are we are developing a

83
00:03:21,920 --> 00:03:20,280
system we're looking very hard at how

84
00:03:24,980 --> 00:03:21,930
the super Draco's will operate during

85
00:03:27,920 --> 00:03:24,990
this test this is not the shiny well

86
00:03:29,210 --> 00:03:27,930
polished space shuttle launch space is

87
00:03:31,280 --> 00:03:29,220
actually pulling back the curtain a

88
00:03:34,100 --> 00:03:31,290

little bit to let us see and let you

89
00:03:37,270 --> 00:03:34,110
folks see exactly the nuts and bolts of

90
00:03:39,920 --> 00:03:37,280
going and doing a developmental test so

91
00:03:41,750 --> 00:03:39,930
like I said it's not perfect they

92
00:03:43,340 --> 00:03:41,760
haven't you know gotten their pencils

93
00:03:45,020 --> 00:03:43,350
out and sharp at every single corner of

94
00:03:48,110 --> 00:03:45,030
the performance box this is let's go

95
00:03:49,700 --> 00:03:48,120
test let's let's get out there and one

96
00:03:51,950 --> 00:03:49,710
good test is worth a thousand expert

97
00:03:54,140 --> 00:03:51,960
analyses that's the thing that's why you

98
00:03:56,690 --> 00:03:54,150
go test and SpaceX has a definite test

99
00:03:59,660 --> 00:03:56,700
philosophy that that I tend to like I

100
00:04:00,950 --> 00:03:59,670
don't want to exclude anyone you always

101
00:04:02,420 --> 00:04:00,960
do and use but there are certain people

102
00:04:04,790 --> 00:04:02,430
i do want to mention that I think have

103
00:04:07,520 --> 00:04:04,800
been really critical in getting us here

104
00:04:10,010 --> 00:04:07,530
on the SpaceX side in particular i nodi

105
00:04:11,720 --> 00:04:10,020
no no and Matt McCown out of SpaceX in

106
00:04:13,400 --> 00:04:11,730
developing the super Draco engine have

107
00:04:15,260 --> 00:04:13,410
been incredible and of course the the

108
00:04:17,450 --> 00:04:15,270
leader of the tests coming up key code

109
00:04:18,890 --> 00:04:17,460
on chef he has done an amazing job

110
00:04:20,890 --> 00:04:18,900
getting this thing to where it has to be

111
00:04:23,360 --> 00:04:20,900
and on my team on the NASA side I

112
00:04:25,310 --> 00:04:23,370
couldn't have helped hurt us to this

113
00:04:26,720 --> 00:04:25,320

point without the help of my chief

114
00:04:29,720 --> 00:04:26,730
engineers Chris

115
00:04:31,760 --> 00:04:29,730
po and John posy and then up at Marshall

116
00:04:33,260 --> 00:04:31,770
Space Flight Center Adam but who is our

117
00:04:36,500 --> 00:04:33,270
propulsion guy and really knows the

118
00:04:39,290 --> 00:04:36,510
super Drake goes very well so like I

119
00:04:41,030 --> 00:04:39,300
said we're very excited we can't wait

120
00:04:42,560 --> 00:04:41,040
Wednesday won't get here soon enough I

121
00:04:44,300 --> 00:04:42,570
can assure you that there's a lot of

122
00:04:47,360 --> 00:04:44,310
work to get done between now and then

123
00:04:49,010 --> 00:04:47,370
and we you know we're going to see that

124
00:04:51,950 --> 00:04:49,020
it all gets done correctly and then

125
00:04:53,900 --> 00:04:51,960
hopefully wednesday morning Oh 700 if

126
00:04:56,570 --> 00:04:53,910
all goes well we'll get to see the the

127
00:04:58,130 --> 00:04:56,580
thing we all want to go do so I have

128
00:05:00,620 --> 00:04:58,140
nothing else dad unless you do highs I

129
00:05:02,150 --> 00:05:00,630
just wanna mention david gears also the

130
00:05:05,060 --> 00:05:02,160
program manager of dragons that's over

131
00:05:07,340 --> 00:05:05,070
there and and he's pushing as his team

132
00:05:10,250 --> 00:05:07,350
to to to to this huge effort over the

133
00:05:11,450 --> 00:05:10,260
cost last couple years I personally

134
00:05:15,710 --> 00:05:11,460
think it's the coolest looking

135
00:05:17,150 --> 00:05:15,720
spacecraft you can see and yeah that's

136
00:05:21,740 --> 00:05:17,160
that's the main thing I'm really I'm

137
00:05:22,910 --> 00:05:21,750
really excited about this okay so at

138
00:05:25,430 --> 00:05:22,920

this time we'll open it up to questions

139
00:05:26,720 --> 00:05:25,440
first in the room and on the line if you

140
00:05:29,270 --> 00:05:26,730
have a question on the line we ask that

141
00:05:31,220 --> 00:05:29,280
you press star one before you ask a

142
00:05:32,630 --> 00:05:31,230
question and in the room we will pass

143
00:05:34,460 --> 00:05:32,640
the mic to you and if you could state

144
00:05:36,260 --> 00:05:34,470
your name and your affiliation that

145
00:05:39,560 --> 00:05:36,270
would be very helpful look I'm very

146
00:05:46,040 --> 00:05:39,570
hopeful so we'll go ahead and start out

147
00:05:48,410 --> 00:05:46,050
with Irene here hi Irene Klotz with the

148
00:05:50,570 --> 00:05:48,420
with Reuters a couple questions for Hans

149
00:05:53,210 --> 00:05:50,580
um can you describe a little bit the

150
00:05:57,380 --> 00:05:53,220
setup at the pad for this test what you

151
00:06:00,470 --> 00:05:57,390
built to host the dragon on and then you

152
00:06:02,090 --> 00:06:00,480
know we're used to seeing dragon fly and

153
00:06:03,500 --> 00:06:02,100
use the thrusters and everything so

154
00:06:06,110 --> 00:06:03,510
maybe you could explain a little bit

155
00:06:11,690 --> 00:06:06,120
about what is what's never been done

156
00:06:14,180 --> 00:06:11,700
before as part of the test Thanks yeah

157
00:06:16,330 --> 00:06:14,190
so the pad the pad is a big hole

158
00:06:19,430 --> 00:06:16,340
basically reg with the flame duct and

159
00:06:21,170 --> 00:06:19,440
for the rocket we have the big

160
00:06:23,630 --> 00:06:21,180
transporter erector that we pulled over

161
00:06:24,980 --> 00:06:23,640
the hole and if you mention not having

162
00:06:28,190 --> 00:06:24,990
the top part of that but having the

163
00:06:29,570 --> 00:06:28,200

bottom part basically rebuild and that's

164
00:06:33,680 --> 00:06:29,580
pretty much what we did we have a steel

165
00:06:36,470 --> 00:06:33,690
frame that covers the whole and has a is

166
00:06:38,570 --> 00:06:36,480
a simulated upper part of the rocket

167
00:06:39,580 --> 00:06:38,580
basically on top of that and then the

168
00:06:43,060 --> 00:06:39,590
trunk which is

169
00:06:46,060 --> 00:06:43,070
the body between dragon and the stage

170
00:06:47,920 --> 00:06:46,070
sits on top of that it has fins you see

171
00:06:50,140 --> 00:06:47,930
this very prominently and then on top of

172
00:06:53,830 --> 00:06:50,150
that is dragon so it will be released

173
00:06:57,550 --> 00:06:53,840
from this stage extension part at

174
00:07:00,850 --> 00:06:57,560
liftoff and then the flame flame duct

175
00:07:05,470 --> 00:07:00,860
will take the flames largely second

176
00:07:08,590 --> 00:07:05,480
question was I was newly maneuvering

177
00:07:11,170 --> 00:07:08,600
right yes firing thrusters and basically

178
00:07:13,870 --> 00:07:11,180
what are you trying to demonstrate with

179
00:07:17,230 --> 00:07:13,880
this test that's different what we'd see

180
00:07:18,340 --> 00:07:17,240
during our returning cargo dragon yeah

181
00:07:20,500 --> 00:07:18,350
so if you if you look at traditional

182
00:07:22,990 --> 00:07:20,510
launch escape systems there's actually

183
00:07:25,810 --> 00:07:23,000
one just outside the building here and

184
00:07:28,330 --> 00:07:25,820
also solid rocket motors they're sitting

185
00:07:31,030 --> 00:07:28,340
there the first proud of the rocket when

186
00:07:33,160 --> 00:07:31,040
it launches and in case those are use

187
00:07:35,770 --> 00:07:33,170
they're going to ignite plastic capsule

188
00:07:38,080 --> 00:07:35,780

actually but pulled it out and gathered

189
00:07:39,280 --> 00:07:38,090
away that's the idea behind the that the

190
00:07:41,530 --> 00:07:39,290
traditional launch escape tower

191
00:07:44,970 --> 00:07:41,540
basically and if you look at the system

192
00:07:48,250 --> 00:07:44,980
out there that's that's a big system and

193
00:07:49,600 --> 00:07:48,260
and and incidentally you have to get rid

194
00:07:51,400 --> 00:07:49,610
of it before you get to orbit right

195
00:07:53,500 --> 00:07:51,410
because otherwise you have the system in

196
00:07:55,450 --> 00:07:53,510
orbit so every time you fly you have a

197
00:07:58,540 --> 00:07:55,460
separation event that is very critical

198
00:07:59,980 --> 00:07:58,550
and yes the launch towers provide safety

199
00:08:02,080 --> 00:07:59,990
but then there's also this critical

200
00:08:04,450 --> 00:08:02,090
event so it's kind of like a trait we on

201
00:08:06,280 --> 00:08:04,460
the other side we have a liquid

202
00:08:08,800 --> 00:08:06,290
propellant system and we the propel you

203
00:08:11,860 --> 00:08:08,810
use in orbit or potentially for landing

204
00:08:15,010 --> 00:08:11,870
you can use that same propellant for for

205
00:08:17,440 --> 00:08:15,020
launch escape on the board basically and

206
00:08:19,240 --> 00:08:17,450
then use your parachute for landing or

207
00:08:21,430 --> 00:08:19,250
because you don't go to already don't

208
00:08:23,920 --> 00:08:21,440
need the propellant and of it anymore so

209
00:08:27,160 --> 00:08:23,930
it basically used a propellant that you

210
00:08:29,470 --> 00:08:27,170
have anyways on board it makes it that

211
00:08:31,000 --> 00:08:29,480
makes it lighter and it also because you

212
00:08:33,660 --> 00:08:31,010
don't have the separation event you

213
00:08:37,540 --> 00:08:33,670

don't have to throw the way every time

214
00:08:40,120 --> 00:08:37,550
you make it to some extent safer it's

215
00:08:41,920 --> 00:08:40,130
integrated into your system so you you

216
00:08:44,230 --> 00:08:41,930
have redundancy in the system that you

217
00:08:46,480 --> 00:08:44,240
also use for for other parts so I think

218
00:08:47,950 --> 00:08:46,490
overall it's the more integrated

219
00:08:50,770 --> 00:08:47,960
approach is the more sophisticated

220
00:08:51,810 --> 00:08:50,780
modern approach and in my opinion it's

221
00:08:54,180 --> 00:08:51,820
also the

222
00:08:57,660 --> 00:08:54,190
the safer approach to to launch launch

223
00:09:00,090 --> 00:08:57,670
escape it basically closes a loop on

224
00:09:02,820 --> 00:09:00,100
previous on some of the Rockets there

225
00:09:04,950 --> 00:09:02,830
are times when you can't get out and on

226
00:09:07,830 --> 00:09:04,960
this particular vehicle you can always

227
00:09:09,540 --> 00:09:07,840
get out whatever happens to Falcon 9 you

228
00:09:12,270 --> 00:09:09,550
will be able to pull out the the

229
00:09:15,720 --> 00:09:12,280
astronauts and and land them safety on

230
00:09:18,270 --> 00:09:15,730
this crew dragon and that is and in my

231
00:09:21,510 --> 00:09:18,280
opinion this will make it the most the

232
00:09:24,360 --> 00:09:21,520
most safe this safest vehicle that that

233
00:09:26,160 --> 00:09:24,370
you can can can possibly fly when I had

234
00:09:27,690 --> 00:09:26,170
one thing Irene that it's kind of a

235
00:09:29,310 --> 00:09:27,700
distinction between this test and what

236
00:09:31,560 --> 00:09:29,320
you might see on an actual launch day of

237
00:09:33,540 --> 00:09:31,570
course there's no actual rocket sitting

238
00:09:35,610 --> 00:09:33,550

underneath the the dragon in the trunk

239
00:09:37,380 --> 00:09:35,620
this time we'll be launching almost from

240
00:09:38,970 --> 00:09:37,390
ground level so one of the things we're

241
00:09:40,380 --> 00:09:38,980
doing different is there will be water

242
00:09:41,970 --> 00:09:40,390
coming in from the side because if your

243
00:09:43,740 --> 00:09:41,980
way up high you don't have to worry

244
00:09:45,150 --> 00:09:43,750
about ground effect noise that sound

245
00:09:46,830 --> 00:09:45,160
coming back and hitting you is hard so

246
00:09:48,900 --> 00:09:46,840
for the purpose of this test will also

247
00:09:50,160 --> 00:09:48,910
be using some sound suppression water so

248
00:09:56,010 --> 00:09:50,170
that's that's something you'll see it's

249
00:09:57,600 --> 00:09:56,020
a little different than all Jason Ryan

250
00:09:59,190 --> 00:09:57,610
for spaceflight insider.com this is

251
00:10:00,960 --> 00:09:59,200
going to be kind of playing off Irene

252
00:10:03,060 --> 00:10:00,970
but directed towards John John we've

253
00:10:05,310 --> 00:10:03,070
with mercury and with Apollo and with

254
00:10:07,830 --> 00:10:05,320
Soyuz we get very used to seeing a loss

255
00:10:08,970 --> 00:10:07,840
used it last use and now we're not going

256
00:10:11,700 --> 00:10:08,980
to see that we're going to see this new

257
00:10:13,140 --> 00:10:11,710
system what has been NASA's of reaction

258
00:10:15,420 --> 00:10:13,150
to this new system and can you give us

259
00:10:18,030 --> 00:10:15,430
any specific aspects of what NASA has

260
00:10:21,480 --> 00:10:18,040
looked at when it's looks a new launch

261
00:10:24,180 --> 00:10:21,490
abort system for Dragon the launch abort

262
00:10:26,880 --> 00:10:24,190
system comes from a requirement we have

263
00:10:29,400 --> 00:10:26,890

for for loss of crew or lock as we like

264
00:10:31,440 --> 00:10:29,410
to call it in the business how you

265
00:10:33,210 --> 00:10:31,450
accomplish that so that's part of the

266
00:10:34,770 --> 00:10:33,220
reason for commercial crew is let's go

267
00:10:36,930 --> 00:10:34,780
be innovative and see what other people

268
00:10:39,300 --> 00:10:36,940
are thinking and and there are different

269
00:10:40,860 --> 00:10:39,310
ways to do business and so that SpaceX

270
00:10:43,530 --> 00:10:40,870
came up with this way we think is

271
00:10:45,300 --> 00:10:43,540
fantastic we see inherently there's

272
00:10:47,310 --> 00:10:45,310
nothing wrong with going and putting the

273
00:10:49,380 --> 00:10:47,320
Rockets on the side and is Hans has

274
00:10:51,840 --> 00:10:49,390
pointed out you you get some benefits

275
00:10:53,340 --> 00:10:51,850
from doing that you can eventually they

276
00:10:54,720 --> 00:10:53,350
hope someday to be able to do a

277
00:10:56,520 --> 00:10:54,730
propulsive landing if they don't have to

278
00:10:58,140 --> 00:10:56,530
do an abort they can use those same

279
00:11:00,540 --> 00:10:58,150
rockets for landing whereas if you had a

280
00:11:02,880 --> 00:11:00,550
conventional launch escape system on top

281
00:11:05,010 --> 00:11:02,890
you know once you get up above a certain

282
00:11:05,610 --> 00:11:05,020
point you would always blast that away

283
00:11:07,410 --> 00:11:05,620
and that's another

284
00:11:09,120 --> 00:11:07,420
point that has made which is you can use

285
00:11:11,340 --> 00:11:09,130
these aboard engines all the way to

286
00:11:13,470 --> 00:11:11,350
orbit whereas with the old mercury and

287
00:11:15,200 --> 00:11:13,480
Apollo launch escape systems you got to

288
00:11:17,490 --> 00:11:15,210

a certain altitude and you jettisoned it

289
00:11:19,740 --> 00:11:17,500
with this capsule you have the ability

290
00:11:21,540 --> 00:11:19,750
all the way to orbit to get away from

291
00:11:25,050 --> 00:11:21,550
something that's malfunctioning beneath

292
00:11:27,120 --> 00:11:25,060
you so we see no inherent problem with

293
00:11:28,800 --> 00:11:27,130
doing it this way its innovative and

294
00:11:30,060 --> 00:11:28,810
that's really part of the whole reason

295
00:11:31,860 --> 00:11:30,070
we're doing commercial crew let's go

296
00:11:37,860 --> 00:11:31,870
learn to do business a new way a little

297
00:11:39,990 --> 00:11:37,870
bit J Patterson with CT news junkie com

298
00:11:41,850 --> 00:11:40,000
can you give us some information on the

299
00:11:43,680 --> 00:11:41,860
tests test measurements that you're

300
00:11:45,269 --> 00:11:43,690
going to take on this during this what

301
00:11:47,820 --> 00:11:45,279
type of information and how many

302
00:11:50,190 --> 00:11:47,830
channels are measuring oh I don't know

303
00:11:51,930 --> 00:11:50,200
how many channels themselves but it's

304
00:11:54,660 --> 00:11:51,940
going to be a lot of instrumentation on

305
00:11:57,269 --> 00:11:54,670
this vehicle a lot and and we measure

306
00:12:00,810 --> 00:11:57,279
vibration this vibration sensors 3 x's

307
00:12:03,660 --> 00:12:00,820
excels basically obviously attitude the

308
00:12:05,519 --> 00:12:03,670
several gyros on there there's load load

309
00:12:08,310 --> 00:12:05,529
cells and some of those parts

310
00:12:10,949 --> 00:12:08,320
temperature sensors on the outside to

311
00:12:14,630 --> 00:12:10,959
see how the how they heat heat flux

312
00:12:17,190 --> 00:12:14,640
changes acoustic sensor microphones

313
00:12:19,380 --> 00:12:17,200

house house environment for the

314
00:12:21,960 --> 00:12:19,390
astronaut there's a there's a dummy in

315
00:12:26,040 --> 00:12:21,970
there that it's equipped and we will see

316
00:12:28,290 --> 00:12:26,050
how the dummy will do right let's see

317
00:12:29,730 --> 00:12:28,300
did I forget anything I this this is

318
00:12:32,160 --> 00:12:29,740
basically a flying flying

319
00:12:33,510 --> 00:12:32,170
instrumentation deck yeah the end of the

320
00:12:35,670 --> 00:12:33,520
day is a lot of instrumentation and it

321
00:12:39,870 --> 00:12:35,680
trunk y yeah yeah and then it's actually

322
00:12:41,340 --> 00:12:39,880
I mean this this is in a transmitter but

323
00:12:43,019 --> 00:12:41,350
you have the luxury it doesn't it

324
00:12:44,610 --> 00:12:43,029
doesn't go very far in the end of the

325
00:12:47,070 --> 00:12:44,620
day so you can you can actually save

326
00:12:49,530 --> 00:12:47,080
data there and there's also a lots of

327
00:12:51,690 --> 00:12:49,540
cameras right I mean those cameras are

328
00:12:55,140 --> 00:12:51,700
going to create hopefully really cool

329
00:12:57,420 --> 00:12:55,150
pictures exactly um so I'm pretty sure

330
00:12:59,040 --> 00:12:57,430
when we when we get it back there's

331
00:13:02,760 --> 00:12:59,050
going to be lots of data analysis lots

332
00:13:04,590 --> 00:13:02,770
of you know cool pictures and a new data

333
00:13:06,449 --> 00:13:04,600
for that's I mean that that at the end

334
00:13:08,120 --> 00:13:06,459
of the day is the point of the test I'd

335
00:13:12,300 --> 00:13:08,130
like we collect data we see how it goes

336
00:13:14,790 --> 00:13:12,310
and then we see if you have to make it

337
00:13:18,960 --> 00:13:14,800
out any modifications or if you can fly

338
00:13:19,230 --> 00:13:18,970

right away and you'll see that's that's

339
00:13:28,800 --> 00:13:19,240
the

340
00:13:30,930 --> 00:13:28,810
let's go get a lot of data and whatever

341
00:13:37,139 --> 00:13:30,940
is applicable towards certification

342
00:13:38,370 --> 00:13:37,149
that's what they'll go use I'm sorry to

343
00:13:40,260 --> 00:13:38,380
bother you guys again but I just

344
00:13:42,389 --> 00:13:40,270
thinking with this flight we're looking

345
00:13:44,850 --> 00:13:42,399
forward to cruise returning to flight

346
00:13:46,470 --> 00:13:44,860
from Kennedy from Cape Canaveral can you

347
00:13:48,600 --> 00:13:46,480
talk a little bit a little bit off topic

348
00:13:49,889 --> 00:13:48,610
about the what's being done or is

349
00:13:51,210 --> 00:13:49,899
anything being done it's already

350
00:13:53,460 --> 00:13:51,220
designed from the guinea the merlin 1d

351
00:13:54,900 --> 00:13:53,470
to get to be crew rated it was it

352
00:13:56,760 --> 00:13:54,910
designed to be created and is it built

353
00:13:58,470 --> 00:13:56,770
that way from the beginning or is it any

354
00:14:00,060 --> 00:13:58,480
modification is going to be need need to

355
00:14:02,550 --> 00:14:00,070
be made to the merlin 1d to make it to

356
00:14:06,360 --> 00:14:02,560
be able to launch cruise thank you yeah

357
00:14:09,660 --> 00:14:06,370
so so one day actually 1d and the Falcon

358
00:14:11,360 --> 00:14:09,670
9 was always screw rated and to me this

359
00:14:13,980 --> 00:14:11,370
looked always a little bit optimistic

360
00:14:15,660 --> 00:14:13,990
right but but as I said earlier that the

361
00:14:17,850 --> 00:14:15,670
goal of SpaceX was always human

362
00:14:19,320 --> 00:14:17,860
spaceflight and we never let any doubt

363
00:14:23,340 --> 00:14:19,330

and if you recall the first Dragon

364
00:14:25,530 --> 00:14:23,350
capsule was after all a cargo ship at

365
00:14:26,850 --> 00:14:25,540
headed window yeah and there was our way

366
00:14:30,480 --> 00:14:26,860
of saying look I mean we're ready for

367
00:14:35,190 --> 00:14:30,490
astronauts we just we just we just need

368
00:14:36,690 --> 00:14:35,200
some help with it and and and so there's

369
00:14:38,340 --> 00:14:36,700
a certain safety factors that you have

370
00:14:40,230 --> 00:14:38,350
to keep and those are already worked

371
00:14:42,090 --> 00:14:40,240
into M&D and already worked into the

372
00:14:45,690 --> 00:14:42,100
vehicle so from right from the get-go

373
00:14:47,880 --> 00:14:45,700
it's interesting because the way the way

374
00:14:49,650 --> 00:14:47,890
this works out is net for dragon the

375
00:14:51,090 --> 00:14:49,660
loads are different than for faring so

376
00:14:53,280 --> 00:14:51,100
you actually you actually don't lose any

377
00:14:55,230 --> 00:14:53,290
performance it's actually a right on the

378
00:14:58,500 --> 00:14:55,240
money for that what you would have for

379
00:15:00,060 --> 00:14:58,510
pure satellite missions anyways so it

380
00:15:03,090 --> 00:15:00,070
worked out well we have the right safety

381
00:15:06,480 --> 00:15:03,100
factors in there and and we now in the

382
00:15:11,000 --> 00:15:06,490
process towards certifying both vehicles

383
00:15:19,019 --> 00:15:15,690
Irene Klotz with Reuters again as far as

384
00:15:22,670 --> 00:15:19,029
the firing of the of the thrusters in

385
00:15:25,680 --> 00:15:22,680
the atmosphere when a when the dragon

386
00:15:27,990 --> 00:15:25,690
when the dragon cargo ship is returning

387
00:15:30,030 --> 00:15:28,000
is there ever a time that the thrusters

388
00:15:32,730 --> 00:15:30,040

are firing for maneuverability or

389
00:15:37,110 --> 00:15:32,740
steering so I guess I'm I appreciate the

390
00:15:39,530 --> 00:15:37,120
the response that you gave about how

391
00:15:43,170 --> 00:15:39,540
this operates as a launch escape system

392
00:15:47,910 --> 00:15:43,180
compared to a tower what I was asking

393
00:15:51,720 --> 00:15:47,920
about as well is the operations to

394
00:15:55,380 --> 00:15:51,730
perform abort scenarios compared to how

395
00:15:58,260 --> 00:15:55,390
you already are using dragon in Opera in

396
00:16:02,760 --> 00:15:58,270
in space operations I mean it's

397
00:16:05,130 --> 00:16:02,770
definitely different 2 2 2 run stressors

398
00:16:09,570 --> 00:16:05,140
in the air under under atmospheric

399
00:16:13,260 --> 00:16:09,580
pressure this particular case the super

400
00:16:15,410 --> 00:16:13,270
trackers are big thrusters they really

401
00:16:17,940 --> 00:16:15,420
be compared to the Drago's we fly on

402
00:16:20,819 --> 00:16:17,950
cargo dragon on the the Drake was

403
00:16:23,699 --> 00:16:20,829
actually on on this crew dragon 244

404
00:16:26,190 --> 00:16:23,709
added control and for the fine orbital

405
00:16:31,440 --> 00:16:26,200
maneuvering that we do in orbit these

406
00:16:34,139 --> 00:16:31,450
are ya total total thrusters are 20,000

407
00:16:37,980 --> 00:16:34,149
pounds so it's it's just it's a lot of

408
00:16:39,840 --> 00:16:37,990
cake yeah and what we've or example what

409
00:16:42,090 --> 00:16:39,850
we haven't done is we haven't run all

410
00:16:43,260 --> 00:16:42,100
them together so so this will be the

411
00:16:45,329 --> 00:16:43,270
first time you actually run them

412
00:16:49,350 --> 00:16:45,339
together the integrated propulsion

413
00:16:52,019 --> 00:16:49,360

system will run for the first time on on

414
00:16:54,750 --> 00:16:52,029
this test basically and that that of

415
00:16:56,790 --> 00:16:54,760
course is a big deal that's a test that

416
00:16:59,910 --> 00:16:56,800
is elaborate you can be careful it's a

417
00:17:02,130 --> 00:16:59,920
hopper goes after all so a lot of a lot

418
00:17:07,199 --> 00:17:02,140
of things have to to work to to make

419
00:17:09,150 --> 00:17:07,209
this test successful I i do like John

420
00:17:11,429 --> 00:17:09,160
did I want to point out its its its

421
00:17:13,590 --> 00:17:11,439
development test it's a it's a brand-new

422
00:17:17,040 --> 00:17:13,600
vehicle that's a very it's a very

423
00:17:20,189 --> 00:17:17,050
complex vehicle it's a at it's been in

424
00:17:23,159 --> 00:17:20,199
the works for a long time too and you

425
00:17:24,180 --> 00:17:23,169
know test the tests go this way or that

426
00:17:25,620 --> 00:17:24,190
way so

427
00:17:28,260 --> 00:17:25,630
I just want to lower the expectation

428
00:17:29,700 --> 00:17:28,270
that might be we need more time and it

429
00:17:31,950 --> 00:17:29,710
might be that we need to troubleshoot on

430
00:17:34,260 --> 00:17:31,960
certain certain things but but overall

431
00:17:36,510 --> 00:17:34,270
this particular I don't expect any any

432
00:17:38,220 --> 00:17:36,520
issues on the propulsion system just

433
00:17:42,000 --> 00:17:38,230
because it is in the air because we test

434
00:17:45,870 --> 00:17:42,010
them usually in the in ambient pressure

435
00:17:48,090 --> 00:17:45,880
too but it's a different application

436
00:17:50,070 --> 00:17:48,100
than from the in space application

437
00:17:52,110 --> 00:17:50,080
obviously we point out a couple of

438
00:17:55,350 --> 00:17:52,120

really kind of neat things about the

439
00:17:57,470 --> 00:17:55,360
souper Draco's as as Hans alluded to the

440
00:17:59,370 --> 00:17:57,480
most we've ever tested together is to

441
00:18:01,590 --> 00:17:59,380
SpaceX folks out at Thurman Gregor

442
00:18:04,110 --> 00:18:01,600
facility and this will be the first time

443
00:18:06,210 --> 00:18:04,120
all eight have ignited at the same time

444
00:18:07,800 --> 00:18:06,220
to me one of the cool things about the

445
00:18:10,700 --> 00:18:07,810
souper Draco's is they are printed

446
00:18:13,290 --> 00:18:10,710
engines these are 3d printed engines and

447
00:18:14,640 --> 00:18:13,300
the folks back at Hawthorne and McGregor

448
00:18:17,640 --> 00:18:14,650
working together have done an incredible

449
00:18:20,040 --> 00:18:17,650
job to develop this engine very very

450
00:18:21,660 --> 00:18:20,050
quickly they went through a lot of

451
00:18:23,400 --> 00:18:21,670
iterations of the design some of which

452
00:18:24,870 --> 00:18:23,410
were not printed and they finally

453
00:18:26,760 --> 00:18:24,880
settled on this one and and all

454
00:18:33,000 --> 00:18:26,770
indications are it's going to do a super

455
00:18:35,910 --> 00:18:33,010
job is there a guidance navigation on

456
00:18:39,300 --> 00:18:35,920
the vehicle and what sort of range

457
00:18:40,950 --> 00:18:39,310
safety it's just whatever we like to use

458
00:18:43,410 --> 00:18:40,960
are you there they're gonna be kind of

459
00:18:45,540 --> 00:18:43,420
as part of this guidance is running and

460
00:18:47,850 --> 00:18:45,550
guidance and control obviously is one of

461
00:18:49,980 --> 00:18:47,860
the things we test and of the integrated

462
00:18:51,960 --> 00:18:49,990
system from the rain safety perspective

463
00:18:55,380 --> 00:18:51,970

that there's a certain model for pound

464
00:18:57,660 --> 00:18:55,390
on board and it can go so far and we

465
00:18:59,580 --> 00:18:57,670
just clear the whole area make sure

466
00:19:01,380 --> 00:18:59,590
nobody's in those in that circle and

467
00:19:04,800 --> 00:19:01,390
then we do the test so I mean safety

468
00:19:08,490 --> 00:19:04,810
wise is it's a pretty simple device I

469
00:19:10,470 --> 00:19:08,500
can't get no there's no distract on it

470
00:19:11,940 --> 00:19:10,480
and it can it I don't want to say it

471
00:19:14,010 --> 00:19:11,950
can't get very far because I think she

472
00:19:15,510 --> 00:19:14,020
can't get pretty far but but you know

473
00:19:17,880 --> 00:19:15,520
what I mean right that compared to a

474
00:19:19,950 --> 00:19:17,890
rocket it can't get very far I think

475
00:19:25,050 --> 00:19:19,960
they're talking at a two point two mile

476
00:19:29,700 --> 00:19:25,060
radius clear on on test day right lane

477
00:19:31,080 --> 00:19:29,710
Harmon space head newscom we SpaceX is

478
00:19:35,910 --> 00:19:31,090
doing a lot of development so this is

479
00:19:37,450 --> 00:19:35,920
more Hans on April sixteenth Gwen shot

480
00:19:38,950 --> 00:19:37,460
well actually said that

481
00:19:40,810 --> 00:19:38,960
she didn't want to land on a barge it

482
00:19:45,789 --> 00:19:40,820
anymore that she wants to land on land

483
00:19:48,669 --> 00:19:45,799
on the 18th Ilan said that he threw a

484
00:19:52,120 --> 00:19:48,679
Twitter that he wants to try the barge

485
00:19:59,680 --> 00:19:52,130
again in june any further comment on

486
00:20:03,010 --> 00:19:59,690
that so first a drone ships right but it

487
00:20:05,590 --> 00:20:03,020
it depends on the range and rather we

488
00:20:06,760 --> 00:20:05,600

have approval to do this and so I'm

489
00:20:10,049 --> 00:20:06,770
depending on which flight they were

490
00:20:12,639 --> 00:20:10,059
talking they might have both be right

491
00:20:15,190 --> 00:20:12,649
there there are asked to flights right

492
00:20:18,399 --> 00:20:15,200
now where we work on returning to land

493
00:20:22,480 --> 00:20:18,409
but it is correct that we do want to go

494
00:20:26,980 --> 00:20:22,490
back to land because the the drone ship

495
00:20:30,340 --> 00:20:26,990
is expensive obviously and and you need

496
00:20:33,090 --> 00:20:30,350
to pull pull back the pull back for a

497
00:20:37,180 --> 00:20:33,100
couple hundred miles and takes time

498
00:20:38,560 --> 00:20:37,190
rather as a problem and go just coming

499
00:20:40,419 --> 00:20:38,570
back to land is actually that's what you

500
00:20:42,039 --> 00:20:40,429
want right you want to have a land we

501
00:20:46,750 --> 00:20:42,049
have a landing site here I'm landing

502
00:20:49,470 --> 00:20:46,760
site one I used to be LT 13 down there

503
00:20:51,789 --> 00:20:49,480
and and so imagine you land down there

504
00:20:54,580 --> 00:20:51,799
you check out the vehicle you break it

505
00:20:56,350 --> 00:20:54,590
over you bring it up to the launch pad

506
00:20:59,200 --> 00:20:56,360
and you launch it again that's that's

507
00:21:02,380 --> 00:20:59,210
division and obviously the barge is

508
00:21:05,560 --> 00:21:02,390
sorry the don't ship the drone ship is

509
00:21:09,120 --> 00:21:05,570
something that that we did because it

510
00:21:12,250 --> 00:21:09,130
takes less performance of the rocket and

511
00:21:16,240 --> 00:21:12,260
it's something that is from a safety

512
00:21:21,399 --> 00:21:16,250
perspective easier to do but it's it's

513
00:21:22,990 --> 00:21:21,409

an intermediate step I Steven Clark with

514
00:21:26,049 --> 00:21:23,000
spaceflight now a couple of questions

515
00:21:27,639 --> 00:21:26,059
first for Hans can you go in a little

516
00:21:29,889 --> 00:21:27,649
more detail about the flight sequence

517
00:21:31,299 --> 00:21:29,899
and the parameters of the flight what

518
00:21:32,830 --> 00:21:31,309
altitude do you reach how far offshore

519
00:21:37,029 --> 00:21:32,840
do you splash down what's the recovery

520
00:21:39,399 --> 00:21:37,039
plan etc and also for either one of you

521
00:21:41,409 --> 00:21:39,409
or maybe both of you what are the

522
00:21:43,149 --> 00:21:41,419
success criteria for this test what what

523
00:21:44,500 --> 00:21:43,159
do you need to see from this test to be

524
00:21:45,909 --> 00:21:44,510
able to move forward and be comfortable

525
00:21:49,629 --> 00:21:45,919
with the performance of the abort system

526
00:21:51,190 --> 00:21:49,639
thanks so the victor goes the nominal

527
00:21:54,580 --> 00:21:51,200
trajectory is going to fall

528
00:21:57,909 --> 00:21:54,590
500 feet altitude and the landing points

529
00:21:59,259 --> 00:21:57,919
about 6,000 feet to the east but what

530
00:22:02,289 --> 00:21:59,269
you will see is when it takes off it

531
00:22:07,690 --> 00:22:02,299
will pitch slightly over to the east at

532
00:22:10,379 --> 00:22:07,700
least I think it is east and a good

533
00:22:13,419 --> 00:22:10,389
point this the towards towards the ocean

534
00:22:17,470 --> 00:22:13,429
it will it will be burned short I mean

535
00:22:19,870 --> 00:22:17,480
it's a six second burn that you will it

536
00:22:22,870 --> 00:22:19,880
will be over by the time you here and

537
00:22:25,600 --> 00:22:22,880
then the code the coast goes pretty

538
00:22:29,620 --> 00:22:25,610

quickly too and it reaches the 4500 feet

539
00:22:31,539 --> 00:22:29,630
you see the trunk separate then a couple

540
00:22:34,779 --> 00:22:31,549
seconds later you see the drugs come out

541
00:22:38,710 --> 00:22:34,789
drugs will catch their reefed so they

542
00:22:42,330 --> 00:22:38,720
have to rethink stages i believe so you

543
00:22:44,470 --> 00:22:42,340
will see them getting bigger it takes a

544
00:22:46,840 --> 00:22:44,480
half a minute something like that and

545
00:22:50,139 --> 00:22:46,850
then you see the main coming out and and

546
00:22:53,649 --> 00:22:50,149
deploy also in one we think there are

547
00:22:57,430 --> 00:22:53,659
two weaving States I believe ya know

548
00:23:03,639 --> 00:22:57,440
it's three yeah 3 main parachutes two

549
00:23:07,600 --> 00:23:03,649
tokes yes and and then then you see

550
00:23:09,460 --> 00:23:07,610
basically watering from from tests

551
00:23:12,669 --> 00:23:09,470
success there's a whole list of criteria

552
00:23:15,610 --> 00:23:12,679
and that that what we want to see but

553
00:23:18,159 --> 00:23:15,620
you know the test is the test can be

554
00:23:20,980 --> 00:23:18,169
successful even if part of the tests are

555
00:23:23,590 --> 00:23:20,990
not successful now because we do have

556
00:23:27,129 --> 00:23:23,600
another we have the in in flight aboard

557
00:23:29,980 --> 00:23:27,139
coming up later this year so there are

558
00:23:37,000 --> 00:23:29,990
certain things we can we can repeat on

559
00:23:40,000 --> 00:23:37,010
this particular test we do to me you

560
00:23:42,759 --> 00:23:40,010
want to show that you can move the

561
00:23:46,149 --> 00:23:42,769
astronauts away from over the problem is

562
00:23:49,360 --> 00:23:46,159
and land them safely that that to me

563
00:23:51,669 --> 00:23:49,370

that demonstration is really one of the

564
00:23:55,210 --> 00:23:51,679
key parts together with with gathering

565
00:23:59,019 --> 00:23:55,220
data that can improve the vehicle or

566
00:24:01,060 --> 00:23:59,029
show we did a perfect job somewhere in

567
00:24:03,549 --> 00:24:01,070
between those they didn't there's all

568
00:24:04,549 --> 00:24:03,559
gray areas of success I mean even even

569
00:24:06,320 --> 00:24:04,559
you folks or

570
00:24:08,450 --> 00:24:06,330
friends in the press you you'd like to

571
00:24:10,610 --> 00:24:08,460
refer to Apollo 13 as a successful

572
00:24:12,769 --> 00:24:10,620
failure so you can in the midst of

573
00:24:14,899 --> 00:24:12,779
problems it does not have to be flawless

574
00:24:17,869 --> 00:24:14,909
for us to call it successful the point

575
00:24:20,210 --> 00:24:17,879
is to gather data now obviously you know

576
00:24:22,489 --> 00:24:20,220
perfectly successful is exactly as Hans

577
00:24:24,259 --> 00:24:22,499
described but we can live with something

578
00:24:26,690 --> 00:24:24,269
less than perfect and and no matter what

579
00:24:28,220 --> 00:24:26,700
happens on test day we are going to

580
00:24:29,930 --> 00:24:28,230
learn a lot and that's why we're here

581
00:24:32,590 --> 00:24:29,940
this is a development test I can't

582
00:24:35,330 --> 00:24:32,600
emphasize that enough let's go learn

583
00:24:36,889 --> 00:24:35,340
this is we're just we're just big kids

584
00:24:39,590 --> 00:24:36,899
with expensive toys I guess you could

585
00:24:41,090 --> 00:24:39,600
say so with that we're going to go to a

586
00:24:43,159 --> 00:24:41,100
few quick questions on the line and come

587
00:24:44,899 --> 00:24:43,169
back for questions on the room so we're

588
00:24:48,919 --> 00:24:44,909

going to go to Tariq Malik with space

589
00:24:52,039 --> 00:24:48,929
com hello thank you very much for for

590
00:24:53,869 --> 00:24:52,049
doing this today my primary question I

591
00:24:55,970 --> 00:24:53,879
think maybe for for Hans and I have a

592
00:24:58,580 --> 00:24:55,980
quick follow-up hans i'm just wondering

593
00:25:00,409 --> 00:24:58,590
for this point how fast is is the

594
00:25:01,879 --> 00:25:00,419
dragonship going to be going do you have

595
00:25:05,060 --> 00:25:01,889
an estimate on what g-loads your dummy

596
00:25:07,100 --> 00:25:05,070
is going to see and does the dummy have

597
00:25:09,019 --> 00:25:07,110
a name I guess they have a nickname at

598
00:25:13,159 --> 00:25:09,029
SpaceX thank you I start with the easy

599
00:25:18,560 --> 00:25:13,169
product that dummy's name is Buster the

600
00:25:21,680 --> 00:25:18,570
the g-load is roughly 4 24 24 24 now how

601
00:25:24,590 --> 00:25:21,690
of GS and it is early in the morning and

602
00:25:28,549 --> 00:25:24,600
by the end of the burn at the end of the

603
00:25:32,799 --> 00:25:28,559
six seconds it going between 150-200 80

604
00:25:37,730 --> 00:25:32,809
meters per second and that is x 24 knots

605
00:25:39,919 --> 00:25:37,740
so it's about 300 300 knock knots so

606
00:25:41,899 --> 00:25:39,929
you're going pretty fast for the fact

607
00:25:45,109 --> 00:25:41,909
that you only stepped on the gas for six

608
00:25:52,129 --> 00:25:45,119
seconds that's probably faster than

609
00:25:55,580 --> 00:25:52,139
Tesla going straight up maybe and did I

610
00:25:57,379 --> 00:25:55,590
answer all your questions um yes that

611
00:25:59,269 --> 00:25:57,389
that's great we'll just one final quick

612
00:26:02,029 --> 00:25:59,279
one was it how will SpaceX be reporting

613
00:26:03,980 --> 00:26:02,039

out the results of the test will to be

614
00:26:06,710 --> 00:26:03,990
just a release or are you planning a

615
00:26:08,090 --> 00:26:06,720
briefing later in the day just how do

616
00:26:09,919 --> 00:26:08,100
you plan to share that information thank

617
00:26:12,619 --> 00:26:09,929
you honestly you put me on the spot I

618
00:26:15,240 --> 00:26:12,629
don't know the I'm pretty sure we will

619
00:26:18,450 --> 00:26:15,250
communicate some somehow what

620
00:26:23,280 --> 00:26:18,460
what happened and how how it worked out

621
00:26:25,050 --> 00:26:23,290
but I have not seen any plans okay we

622
00:26:29,880 --> 00:26:25,060
have another question James Dean from

623
00:26:32,310 --> 00:26:29,890
Florida today I think have a couple

624
00:26:34,320 --> 00:26:32,320
questions I'm first a thanks for all the

625
00:26:35,760 --> 00:26:34,330
description of the the flight profile

626
00:26:37,530 --> 00:26:35,770
was just wondering if you could and

627
00:26:39,900 --> 00:26:37,540
maybe it's a little weathered dependent

628
00:26:41,790 --> 00:26:39,910
but so I wouldn't be able to convey like

629
00:26:42,840 --> 00:26:41,800
people out in the community who are

630
00:26:45,450 --> 00:26:42,850
going to be interested in watching it

631
00:26:47,190 --> 00:26:45,460
may not be right up close do you think

632
00:26:49,590 --> 00:26:47,200
this is something that they will easily

633
00:26:52,380 --> 00:26:49,600
be able to see what they see smoke and

634
00:26:54,360 --> 00:26:52,390
fire pouring out of the super Draco's or

635
00:26:56,310 --> 00:26:54,370
will they just need a shoot or you just

636
00:27:00,120 --> 00:26:56,320
got to get a picture of what you know

637
00:27:02,460 --> 00:27:00,130
people around the area it essentially be

638
00:27:04,140 --> 00:27:02,470

able to see I'm pretty sure you can see

639
00:27:05,880 --> 00:27:04,150
it I mean it is going to go it's going

640
00:27:08,160 --> 00:27:05,890
to go up to 5,000 feet and we gonna be

641
00:27:11,880 --> 00:27:08,170
gonna separate the trunk there so at

642
00:27:16,920 --> 00:27:11,890
least that as I said don't wait for the

643
00:27:18,540 --> 00:27:16,930
sound because it's probably gone no I

644
00:27:21,390 --> 00:27:18,550
pretty shy pretty sure you can you can

645
00:27:24,690 --> 00:27:21,400
see this and and and get an idea on how

646
00:27:28,200 --> 00:27:24,700
high it goes and maybe see the drugs

647
00:27:30,720 --> 00:27:28,210
come out to I think you probably is Hans

648
00:27:32,730 --> 00:27:30,730
suggest I think you'd be able to see as

649
00:27:34,020 --> 00:27:32,740
it's getting up into the atmosphere a

650
00:27:35,670 --> 00:27:34,030
little bit during the last two or three

651
00:27:36,990 --> 00:27:35,680
seconds it'll be will clear enough

652
00:27:38,670 --> 00:27:37,000
you'll be able to see some of the smoke

653
00:27:40,770 --> 00:27:38,680
and fire and and then there's a little

654
00:27:43,710 --> 00:27:40,780
bit of residual that occurs as it

655
00:27:44,940 --> 00:27:43,720
cruises on up in its trajectory you

656
00:27:46,770 --> 00:27:44,950
should be able to see the trunk separate

657
00:27:48,990 --> 00:27:46,780
that should be clearly visible and

658
00:27:50,220 --> 00:27:49,000
you'll definitely see the drugs and i'm

659
00:27:52,830 --> 00:27:50,230
pretty sure to be able to see at least

660
00:27:54,360 --> 00:27:52,840
the mains get through reefing one before

661
00:27:55,920 --> 00:27:54,370
if you're in one of the clear areas

662
00:27:59,040 --> 00:27:55,930
before you see it disappear below the

663
00:28:00,900 --> 00:27:59,050

horizon however i mean you best as a

664
00:28:03,420 --> 00:28:00,910
webcast it might be more convenient to

665
00:28:05,460 --> 00:28:03,430
do this from it's Wednesday morning

666
00:28:09,420 --> 00:28:05,470
seven o'clock so from your office yeah

667
00:28:10,410 --> 00:28:09,430
it's a sunrise about 6 45 somewhere in

668
00:28:13,440 --> 00:28:10,420
there that morning so right after

669
00:28:14,880 --> 00:28:13,450
sunrise so so the web the web cast also

670
00:28:18,330 --> 00:28:14,890
keeps you informed it's a long launch

671
00:28:20,550 --> 00:28:18,340
window it so it goes from seven to two

672
00:28:22,760 --> 00:28:20,560
early i believe in the afternoon so and

673
00:28:25,410 --> 00:28:22,770
bear with us as we said this is a

674
00:28:27,910 --> 00:28:25,420
development test you want to make sure

675
00:28:29,710 --> 00:28:27,920
it goes well so we might

676
00:28:32,830 --> 00:28:29,720
you might wait for the right moment you

677
00:28:34,600 --> 00:28:32,840
might check things again we might need

678
00:28:37,230 --> 00:28:34,610
more time just to get it done that's why

679
00:28:40,540 --> 00:28:37,240
the launch window is so long and and

680
00:28:42,220 --> 00:28:40,550
don't don't get upset when you know yeah

681
00:28:44,020 --> 00:28:42,230
we go Slater we don't have an orbit or a

682
00:28:47,520 --> 00:28:44,030
space station to catch it's not a

683
00:28:51,130 --> 00:28:47,530
patient I'm we need to do this right now

684
00:28:54,220 --> 00:28:51,140
John just kind of continuing for a bit

685
00:28:56,800 --> 00:28:54,230
on the historical context here I wanted

686
00:28:59,020 --> 00:28:56,810
it if you could say I mean to your

687
00:29:02,950 --> 00:28:59,030
knowledge have we ever seen a test like

688
00:29:07,360 --> 00:29:02,960

this of a crew capsule aboard system

689
00:29:09,100 --> 00:29:07,370
from Cape Canaveral and furthermore I

690
00:29:11,200 --> 00:29:09,110
guess I just wondered if you could we

691
00:29:13,720 --> 00:29:11,210
talk a little bit about the sort of

692
00:29:16,210 --> 00:29:13,730
difference of the pusher system from

693
00:29:20,050 --> 00:29:16,220
traditional system if you could maybe

694
00:29:21,790 --> 00:29:20,060
just put it in the context of of in

695
00:29:23,290 --> 00:29:21,800
comparison to shuttle you know which

696
00:29:27,940 --> 00:29:23,300
didn't have the support capability at

697
00:29:32,020 --> 00:29:27,950
all now whichever system might be used

698
00:29:33,790 --> 00:29:32,030
how presumably it's a improvement a

699
00:29:34,870 --> 00:29:33,800
significant improvement over that and I

700
00:29:39,000 --> 00:29:34,880
don't know if you could translate that

701
00:29:40,780 --> 00:29:39,010
into any probabilities at this stage of

702
00:29:45,520 --> 00:29:40,790
thoughts of crew and things like that

703
00:29:48,160 --> 00:29:45,530
but just sort of safety kruseman bélgica

704
00:29:51,130 --> 00:29:48,170
shuttle what boy James you're full of

705
00:29:53,500 --> 00:29:51,140
question this morning I'll try to get to

706
00:29:58,270 --> 00:29:53,510
it and you let me know if I don't get to

707
00:30:00,520 --> 00:29:58,280
all of your points historically I since

708
00:30:02,260 --> 00:30:00,530
I regret I wasn't here for Mercury

709
00:30:04,960 --> 00:30:02,270
Gemini Apollo I would have loved to have

710
00:30:07,270 --> 00:30:04,970
been here back during those days I don't

711
00:30:10,450 --> 00:30:07,280
personally recall launch abort system

712
00:30:12,580 --> 00:30:10,460
tests from here now as far as a pusher

713
00:30:16,000 --> 00:30:12,590

system goes I know up at Wallops they

714
00:30:19,540 --> 00:30:16,010
did a pusher system test up there at one

715
00:30:21,520 --> 00:30:19,550
time but this to my knowledge what

716
00:30:23,140 --> 00:30:21,530
SpaceX is doing is the first time we've

717
00:30:25,180 --> 00:30:23,150
seen anything certainly from a

718
00:30:29,710 --> 00:30:25,190
side-mounted that this is revolutionary

719
00:30:32,680 --> 00:30:29,720
in that regard on a side-mounted launch

720
00:30:34,180 --> 00:30:32,690
abort system it correct back during

721
00:30:36,790 --> 00:30:34,190
shuttle we did not have a launch escape

722
00:30:39,700 --> 00:30:36,800
system you got to remember when the when

723
00:30:43,750 --> 00:30:39,710
the shuttle was developed we were NASA

724
00:30:44,980 --> 00:30:43,760
was was very much feeling it's oats we

725
00:30:47,530 --> 00:30:44,990
had just gone to the moon which

726
00:30:48,970 --> 00:30:47,540
everybody said was impossible and so we

727
00:30:51,460 --> 00:30:48,980
designed a spaceship we thought we could

728
00:30:56,050 --> 00:30:51,470
design a spaceship that did not need one

729
00:30:57,760 --> 00:30:56,060
and we did and as as physics and nature

730
00:31:00,070 --> 00:30:57,770
will sometimes do they taught us a

731
00:31:01,840 --> 00:31:00,080
lesson that maybe you should not go do

732
00:31:03,580 --> 00:31:01,850
that so our lesson learned how to

733
00:31:05,140 --> 00:31:03,590
shuttle while it is a tremendous and we

734
00:31:08,050 --> 00:31:05,150
and we tried to build the reliability

735
00:31:10,390 --> 00:31:08,060
into that so we wouldn't need that you

736
00:31:12,400 --> 00:31:10,400
can get even better loss of crude

737
00:31:14,230 --> 00:31:12,410
numbers if you have an escape system so

738
00:31:16,060 --> 00:31:14,240

our lesson learned coming out of shuttle

739
00:31:17,950 --> 00:31:16,070
was let's go do that let's buy even more

740
00:31:20,170 --> 00:31:17,960
safety for the astronauts than we had

741
00:31:22,600 --> 00:31:20,180
let's let's not just build it in let's

742
00:31:23,710 --> 00:31:22,610
also have an escape system and and in

743
00:31:25,420 --> 00:31:23,720
the commercial crews that's where we

744
00:31:26,560 --> 00:31:25,430
were coming from because you've got to

745
00:31:30,130 --> 00:31:26,570
remember and when Commercial Crew

746
00:31:32,020 --> 00:31:30,140
started our objective was not to get

747
00:31:33,880 --> 00:31:32,030
astronauts to the space station but to

748
00:31:36,850 --> 00:31:33,890
enable the private sector to develop

749
00:31:39,880 --> 00:31:36,860
rockets and spaceships to carry anybody

750
00:31:41,500 --> 00:31:39,890
into space it is only since we've been

751
00:31:43,330 --> 00:31:41,510
in for a few years that we have come to

752
00:31:44,920 --> 00:31:43,340
the ultimate goal of now we were

753
00:31:46,420 --> 00:31:44,930
thinking about procuring them to take

754
00:31:48,940 --> 00:31:46,430
our astronauts to the space station so

755
00:31:50,920 --> 00:31:48,950
if you're going to develop a private

756
00:31:54,430 --> 00:31:50,930
sector capability let's make it as safe

757
00:31:56,680 --> 00:31:54,440
as possible for anybody because as you

758
00:31:58,210 --> 00:31:56,690
folks well no I think we're doing

759
00:32:01,870 --> 00:31:58,220
something historic hear what I like to

760
00:32:05,140 --> 00:32:01,880
tell people is if if you believe in in

761
00:32:07,630 --> 00:32:05,150
the future where two three four

762
00:32:10,030 --> 00:32:07,640
generations from now our kids grandkids

763
00:32:12,070 --> 00:32:10,040

great-grandkids go to a spaceport the

764
00:32:14,140 --> 00:32:12,080
way you and I go to a airport right now

765
00:32:16,210 --> 00:32:14,150
and they get on a rocket to go fly

766
00:32:20,770 --> 00:32:16,220
somewhere in the solar system or

767
00:32:22,420 --> 00:32:20,780
hopefully beyond the DNA of that private

768
00:32:24,010 --> 00:32:22,430
sector capability will be and what we

769
00:32:25,990 --> 00:32:24,020
are doing in the Commercial Crew program

770
00:32:27,970 --> 00:32:26,000
with SpaceX and with the Boeing folks

771
00:32:29,710 --> 00:32:27,980
right now and so that's what gets me

772
00:32:31,570 --> 00:32:29,720
excited about being a part of this I

773
00:32:35,320 --> 00:32:31,580
can't imagine doing anything else right

774
00:32:39,910 --> 00:32:35,330
now I love this so did I get your

775
00:32:41,470 --> 00:32:39,920
questions James thank you okay so with

776
00:32:45,100 --> 00:32:41,480
that we'll go to Robert Pearlman on the

777
00:32:49,750 --> 00:32:45,110
line with collectspace.com I thanks a

778
00:32:51,520 --> 00:32:49,760
couple of questions for Hans you

779
00:32:54,430 --> 00:32:51,530
mentioned that Buster's on board can you

780
00:32:57,119 --> 00:32:54,440
describe how Howie them seated

781
00:32:59,649 --> 00:32:57,129
he seated in the same type of seat that

782
00:33:02,169 --> 00:32:59,659
astronauts will use and how many of the

783
00:33:04,749 --> 00:33:02,179
seats are on board and what are what are

784
00:33:07,480 --> 00:33:04,759
the surroundings in terms of is there a

785
00:33:10,810 --> 00:33:07,490
mass simulator for the control panel or

786
00:33:12,129 --> 00:33:10,820
an actual control panel and and how much

787
00:33:16,659 --> 00:33:12,139
weight are you carrying in terms of

788
00:33:20,110 --> 00:33:16,669

equivalent for a crew so um I've seen a

789
00:33:23,919 --> 00:33:20,120
picture of Buster and the seat is very

790
00:33:25,749 --> 00:33:23,929
comfortable and it's tied tied down like

791
00:33:28,810 --> 00:33:25,759
an astronaut so that that is very

792
00:33:32,289 --> 00:33:28,820
similar to that I've seen masses or mass

793
00:33:34,869 --> 00:33:32,299
dummies like basically alumina believe

794
00:33:37,409 --> 00:33:34,879
for the for the other astronauts so we

795
00:33:40,659 --> 00:33:37,419
replicate the weight on the on the seats

796
00:33:42,279 --> 00:33:40,669
you know just just the way it's it would

797
00:33:46,149 --> 00:33:42,289
be for astronauts I guess heavy and

798
00:33:49,450 --> 00:33:46,159
light astronauts I presume you question

799
00:33:50,919 --> 00:33:49,460
about the control panel puzzles I think

800
00:33:53,470 --> 00:33:50,929
that's I think I saw the control panel

801
00:33:58,149 --> 00:33:53,480
Thank it's not in there okay it's not in

802
00:34:01,240 --> 00:33:58,159
there so we we simulate largely the

803
00:34:05,080 --> 00:34:01,250
astronaut masses we will you know

804
00:34:06,759 --> 00:34:05,090
obviously the the response of of all the

805
00:34:11,740 --> 00:34:06,769
forces on the astronaut is one of them

806
00:34:13,359 --> 00:34:11,750
the key things we be measure and we will

807
00:34:17,139 --> 00:34:13,369
check with Buster after the landing how

808
00:34:18,399 --> 00:34:17,149
he feels he's already been in there for

809
00:34:22,450 --> 00:34:18,409
a long time and he's still got a ways to

810
00:34:26,079 --> 00:34:22,460
go so it's Syria I just a good follow-up

811
00:34:28,030 --> 00:34:26,089
in terms of after splashdown where do

812
00:34:30,099 --> 00:34:28,040
you bring dragon back to you how long do

813
00:34:32,169 --> 00:34:30,109

you expect it to take to get back to

814
00:34:34,119 --> 00:34:32,179
port and then once it's back at port

815
00:34:36,520 --> 00:34:34,129
where does drag and go from there just

816
00:34:38,290 --> 00:34:36,530
are you doing the post here I mean post

817
00:34:40,990 --> 00:34:38,300
in Florida or does it go back to Texas

818
00:34:44,349 --> 00:34:41,000
or California it's going to go back to

819
00:34:48,099 --> 00:34:44,359
Texas and we will do some some more

820
00:34:51,220 --> 00:34:48,109
detailed inspections in Texas but we

821
00:34:53,290 --> 00:34:51,230
will do the domain the immediate

822
00:34:58,390 --> 00:34:53,300
operations on a barge and in this case

823
00:35:02,440 --> 00:34:58,400
you can say about out there is Boche has

824
00:35:05,480 --> 00:35:02,450
no engines here and it sits right now

825
00:35:08,270 --> 00:35:05,490
we're getting the port the system works

826
00:35:15,590 --> 00:35:08,280
I don't think we've finalized that we

827
00:35:16,970 --> 00:35:15,600
have a couple more days to go okay with

828
00:35:18,230 --> 00:35:16,980
that I believe our last question on the

829
00:35:21,260 --> 00:35:18,240
line is from Mary and Kramer with

830
00:35:23,060 --> 00:35:21,270
Mashable hi thank you very much for

831
00:35:26,150 --> 00:35:23,070
doing this on site a couple quick

832
00:35:28,670 --> 00:35:26,160
questions that's all I know the test is

833
00:35:30,859 --> 00:35:28,680
very short but is there any chance that

834
00:35:33,770 --> 00:35:30,869
we'll be able to see footage from some

835
00:35:37,280 --> 00:35:33,780
of the onboard cameras as the dragon is

836
00:35:41,870 --> 00:35:37,290
flying and also if all goes according to

837
00:35:43,760 --> 00:35:41,880
plan how long until the next flights are

838
00:35:46,400 --> 00:35:43,770

there inside aboard and thanks so much

839
00:35:48,290 --> 00:35:46,410
yeah so so the first question was can we

840
00:35:51,080 --> 00:35:48,300
see the video on the outside i'm pretty

841
00:35:54,020 --> 00:35:51,090
sure we we will see how the video is and

842
00:35:56,960 --> 00:35:54,030
if it is good then we've been in the

843
00:36:01,250 --> 00:35:56,970
habit of publishing our cool and

844
00:36:03,230 --> 00:36:01,260
not-so-cool videos and and I guess we've

845
00:36:05,690 --> 00:36:03,240
been pretty open with that so so you can

846
00:36:07,190 --> 00:36:05,700
you can you can bet on that it's going

847
00:36:11,420 --> 00:36:07,200
to be some some cool pictures i'm pretty

848
00:36:15,290 --> 00:36:11,430
sure and ok the second question

849
00:36:16,790 --> 00:36:15,300
regarding the the next test with it I so

850
00:36:21,770 --> 00:36:16,800
that's a plan the plan is later this

851
00:36:23,630 --> 00:36:21,780
year or in in summer basically but I

852
00:36:27,650 --> 00:36:23,640
must also say it depends on how this

853
00:36:30,740 --> 00:36:27,660
test goes and what we actually find out

854
00:36:34,010 --> 00:36:30,750
in this test whole whole purpose of the

855
00:36:36,109 --> 00:36:34,020
test we also need to make sure that the

856
00:36:37,820 --> 00:36:36,119
capsule goes in and instilled salt water

857
00:36:39,170 --> 00:36:37,830
so we get wins it we got to make sure

858
00:36:43,580 --> 00:36:39,180
everything is fine everything's good to

859
00:36:47,270 --> 00:36:43,590
go so that schedule is planned right now

860
00:36:49,490 --> 00:36:47,280
for for later this summer but like for

861
00:36:52,340 --> 00:36:49,500
the test itself bear with us and and

862
00:36:55,340 --> 00:36:52,350
give us a time to work this out safely

863
00:36:58,609 --> 00:36:55,350

and intelligently so that the next test

864
00:37:01,700 --> 00:36:58,619
is going to be success done yeah Kiko

865
00:37:02,690 --> 00:37:01,710
and then the talented folks here when

866
00:37:04,250 --> 00:37:02,700
they get it out of the water they're

867
00:37:05,720 --> 00:37:04,260
going to look and see if any they've

868
00:37:08,660 --> 00:37:05,730
tried to seal it up so that no salt

869
00:37:10,340 --> 00:37:08,670
water gets in I be willing to bet some

870
00:37:12,580 --> 00:37:10,350
well they'll rinsed off and that's the

871
00:37:14,420 --> 00:37:12,590
big thing let's get it back to McGregor

872
00:37:16,130 --> 00:37:14,430
decontaminated take a look at all the

873
00:37:17,870 --> 00:37:16,140
components see how they fared from the

874
00:37:19,040 --> 00:37:17,880
test that's a big thing then that's what

875
00:37:20,300 --> 00:37:19,050
tells you when

876
00:37:22,190 --> 00:37:20,310
and you can be ready to go do the

877
00:37:26,060 --> 00:37:22,200
in-flight abort test which we hope is

878
00:37:28,340 --> 00:37:26,070
later this year that's the plan and that

879
00:37:33,310 --> 00:37:28,350
same capsule will be used hopefully for

880
00:37:37,520 --> 00:37:35,780
yes yeah that's it yeah it's the same

881
00:37:42,680 --> 00:37:37,530
camp we will fly the same capsule on

882
00:37:45,170 --> 00:37:42,690
both tests okay with that will go back

883
00:37:48,020 --> 00:37:45,180
to Irene here in the room Thanks on the

884
00:37:51,560 --> 00:37:48,030
in-flight abort test went at what

885
00:37:55,130 --> 00:37:51,570
altitude are you currently targeting to

886
00:37:59,060 --> 00:37:55,140
release the capsule yeah the insider

887
00:38:01,370 --> 00:37:59,070
that we brought is a is actually that's

888
00:38:03,200 --> 00:38:01,380

a test nobody has done before let's want

889
00:38:06,590 --> 00:38:03,210
to point this out at least I don't

890
00:38:10,790 --> 00:38:06,600
remember this well I haven't heard

891
00:38:13,040 --> 00:38:10,800
anything about this ok so the insider

892
00:38:15,770 --> 00:38:13,050
bot happens that mask you which is the

893
00:38:18,290 --> 00:38:15,780
critical face actually that's where many

894
00:38:19,850 --> 00:38:18,300
things many do the loads on the on the

895
00:38:24,830 --> 00:38:19,860
orchid are pretty pretty high as the

896
00:38:28,430 --> 00:38:24,840
highest max Q and that is typically at

897
00:38:30,950 --> 00:38:28,440
like 13 kilometers that's about 38 3

898
00:38:33,110 --> 00:38:30,960
40,000 feet altitude and the in flight

899
00:38:38,150 --> 00:38:33,120
aboard will mimic this it will go to the

900
00:38:40,550 --> 00:38:38,160
right altitude and to the right speed to

901
00:38:44,180 --> 00:38:40,560
replicate this this particular situation

902
00:38:47,270 --> 00:38:44,190
which is pretty elaborate it's a very

903
00:38:49,370 --> 00:38:47,280
lava test let me let me explain because

904
00:38:51,740 --> 00:38:49,380
we use this term all the time and no one

905
00:38:54,020 --> 00:38:51,750
ever really explains it max Q its

906
00:38:55,910 --> 00:38:54,030
maximum dynamic pressure but but so the

907
00:38:57,200 --> 00:38:55,920
dynamic pressures is a combination of so

908
00:38:59,360 --> 00:38:57,210
as you go up in the atmosphere obviously

909
00:39:01,730 --> 00:38:59,370
the atmospheric pressure gets less dense

910
00:39:02,990 --> 00:39:01,740
it gets thinner but you're also ramming

911
00:39:04,040 --> 00:39:03,000
into the air much faster cause you're

912
00:39:05,990 --> 00:39:04,050
accelerating through it so the

913
00:39:07,970 --> 00:39:06,000

combination of the static air pressure

914
00:39:09,950 --> 00:39:07,980
as well as the pressure the air you're

915
00:39:11,690 --> 00:39:09,960
running into faster and faster it

916
00:39:15,170 --> 00:39:11,700
reaches a point like this and then it

917
00:39:16,790 --> 00:39:15,180
precipitously falls off and so it max Q

918
00:39:18,620 --> 00:39:16,800
is where when you try to get away from

919
00:39:20,270 --> 00:39:18,630
the rocket it's going to try and suck

920
00:39:21,650 --> 00:39:20,280
you back to it the hardest and its top

921
00:39:23,150 --> 00:39:21,660
it's trying to stop you just the

922
00:39:25,640 --> 00:39:23,160
pressure it sells trying to stop you but

923
00:39:27,050 --> 00:39:25,650
also the vortices behind they're trying

924
00:39:29,799 --> 00:39:27,060
to suck you back into the rocket so

925
00:39:34,839 --> 00:39:29,809
that's why we do it at max Q

926
00:39:37,449 --> 00:39:34,849
and an astronaut band the on the in the

927
00:39:40,449 --> 00:39:37,459
CC dev program Blue Origin tested a

928
00:39:42,759 --> 00:39:40,459
pusher escape system can you John maybe

929
00:39:46,509 --> 00:39:42,769
talk a little bit or Hans about how this

930
00:39:48,279 --> 00:39:46,519
system is different I'm gonna have to

931
00:39:50,259 --> 00:39:48,289
confess I don't know much about their

932
00:39:52,689 --> 00:39:50,269
pusher escape system so i really would

933
00:39:54,459 --> 00:39:52,699
have to to do some research i am not

934
00:39:57,759 --> 00:39:54,469
qualified to answer that question i'm

935
00:39:59,410 --> 00:39:57,769
sorry me neither i have not is that was

936
00:40:04,029 --> 00:39:59,420
that like a test like a year or two

937
00:40:06,189 --> 00:40:04,039
years ago something like that yeah it

938
00:40:08,319 --> 00:40:06,199

looked good on video I saw that I do

939
00:40:09,489 --> 00:40:08,329
remember that I'm the in flight aboard

940
00:40:12,609 --> 00:40:09,499
is there any reason why you're doing

941
00:40:17,410 --> 00:40:12,619
that in California um it's mostly we

942
00:40:21,459 --> 00:40:17,420
really busy here we've had five launches

943
00:40:23,049 --> 00:40:21,469
in four months this year and and and it

944
00:40:25,660 --> 00:40:23,059
there's no let-up right there's just

945
00:40:28,329 --> 00:40:25,670
it's just hard for this in between and

946
00:40:30,969 --> 00:40:28,339
in van Berg there's more more i'm

947
00:40:33,579 --> 00:40:30,979
scheduled availability primarily it's

948
00:40:34,839 --> 00:40:33,589
the shorter commute to and just give you

949
00:40:36,429 --> 00:40:34,849
an idea you know I told you early we're

950
00:40:37,870 --> 00:40:36,439
launching this from the ground not on

951
00:40:39,370 --> 00:40:37,880
top of rocket so one of the things I

952
00:40:41,019 --> 00:40:39,380
have to do that that affects them

953
00:40:44,380 --> 00:40:41,029
they've got to remove the catenary wires

954
00:40:48,099 --> 00:40:44,390
that are above the pad and they've kiko

955
00:40:49,269 --> 00:40:48,109
are they done doing that in process so

956
00:40:51,039 --> 00:40:49,279
therefore they got to go remove those

957
00:40:53,410 --> 00:40:51,049
wires because otherwise the normal

958
00:40:55,299 --> 00:40:53,420
trajectory from a ground-based launch

959
00:40:56,499 --> 00:40:55,309
abort test would fly through those wires

960
00:40:58,059 --> 00:40:56,509
now if you're on top of a rocket that

961
00:40:59,859 --> 00:40:58,069
were to happen we're smart enough not to

962
00:41:01,239 --> 00:40:59,869
go through the wires but this is on Mars

963
00:41:03,219 --> 00:41:01,249

there as you see in their eyes take over

964
00:41:10,029 --> 00:41:03,229
right yeah so there's still lightning

965
00:41:12,269 --> 00:41:10,039
protection right reclines me with Wi-Fi

966
00:41:14,919 --> 00:41:12,279
t radio public radio for the Space Coast

967
00:41:18,069 --> 00:41:14,929
what factors would the weather play on

968
00:41:23,229 --> 00:41:18,079
wednesday the weather will be great just

969
00:41:24,609 --> 00:41:23,239
like today we have no other guy here so

970
00:41:26,079 --> 00:41:24,619
wind of course is the main the main

971
00:41:29,709 --> 00:41:26,089
concern if the wind comes on the wrong

972
00:41:32,620 --> 00:41:29,719
side we may not be able to launch in

973
00:41:35,679 --> 00:41:32,630
particular if you have high winds on

974
00:41:37,479 --> 00:41:35,689
shore right as this direction here that

975
00:41:40,089 --> 00:41:37,489
would be that would that would cause us

976
00:41:42,750 --> 00:41:40,099
to wait on the other side it's pretty

977
00:41:45,270 --> 00:41:42,760
unlikely and

978
00:41:47,580 --> 00:41:45,280
sure not being very cooperative for the

979
00:41:50,130 --> 00:41:47,590
last couple launches I hope the weather

980
00:41:52,080 --> 00:41:50,140
will make it up and be really nice and

981
00:41:54,840 --> 00:41:52,090
have the right wind direction for for

982
00:41:56,550 --> 00:41:54,850
Wednesday but yeah it depends on the

983
00:41:57,870 --> 00:41:56,560
weather and that's one of the reasons

984
00:41:59,220 --> 00:41:57,880
they're doing it at seven o'clock in the

985
00:42:00,480 --> 00:41:59,230
morning because you know we this year we

986
00:42:03,780 --> 00:42:00,490
seem to have gotten into an earlier

987
00:42:05,130 --> 00:42:03,790
summer pattern and so let's do it in the

988
00:42:07,530 --> 00:42:05,140

morning before anything has time to

989
00:42:11,330 --> 00:42:07,540
build up potentially if I want trouble I

990
00:42:21,390 --> 00:42:16,050
okay are there any other questions in

991
00:42:23,190 --> 00:42:21,400
the room Stephen Clark spaceflight now

992
00:42:25,110 --> 00:42:23,200
again just a quick one what's the mass

993
00:42:27,120 --> 00:42:25,120
of the spacecraft or the vehicle that

994
00:42:31,590 --> 00:42:27,130
you're going to be testing so the whole

995
00:42:35,730 --> 00:42:31,600
stack is 21,000 pounds and then there's

996
00:42:36,930 --> 00:42:35,740
3,500 pounds per pound of that real

997
00:42:39,060 --> 00:42:36,940
quick when Jason Ryan spaceflight

998
00:42:40,830 --> 00:42:39,070
insider up how far do you think that the

999
00:42:43,860 --> 00:42:40,840
Dragon will travel out into the Atlantic

1000
00:42:44,940 --> 00:42:43,870
so then the nominal distant also

1001
00:42:47,720 --> 00:42:44,950
depending on the wind of course but

1002
00:42:51,120 --> 00:42:47,730
nominally at 6,000 feet about a mile and

1003
00:42:54,030 --> 00:42:51,130
it puts you I believe the shoreline is

1004
00:42:57,330 --> 00:42:54,040
right at 3,000 miles so it puts you in

1005
00:42:59,040 --> 00:42:57,340
sorry 3,000 feet so the shoreline is

1006
00:43:00,570 --> 00:42:59,050
3,000 feet are we going to 6,000 feet so

1007
00:43:04,290 --> 00:43:00,580
it puts you puts you safely into the

1008
00:43:06,000 --> 00:43:04,300
water okay with that we'd like to thank

1009
00:43:07,860 --> 00:43:06,010
John and Hans for taking time out of

1010
00:43:10,350 --> 00:43:07,870
their busy day to join us today we are

1011
00:43:12,510 --> 00:43:10,360
just as excited as they are to have this

1012
00:43:15,090 --> 00:43:12,520
pad abort test go off and we can't wait

1013
00:43:16,680 --> 00:43:15,100

to see the crew Dragon take flight the

1014
00:43:18,450 --> 00:43:16,690
test will be aired live on NASA

1015
00:43:22,590 --> 00:43:18,460
television and we will start coverage

1016
00:43:26,190 --> 00:43:22,600
about 25 minutes before the test will

1017
00:43:29,370 --> 00:43:26,200
also be blogging live on blogs at nasa

1018
00:43:30,540 --> 00:43:29,380
gov board / Commercial Crew thank you so