
SPACEX

1
00:00:49,510 --> 00:00:32,499
[Music]

2
00:00:55,830 --> 00:00:51,270
all stations on dragon one minute until

3
00:00:55,840 --> 00:01:01,120
30 seconds

4
00:01:01,130 --> 00:01:10,310
[Music]

5
00:01:10,320 --> 00:01:24,870
15 seconds

6
00:01:24,880 --> 00:01:31,190
ignition

7
00:01:36,230 --> 00:01:33,910
welcome to our live coverage of spacex's

8
00:01:37,830 --> 00:01:36,240
demo one mission if you're just joining

9
00:01:39,429 --> 00:01:37,840
us dragon has performed its final

10
00:01:41,590 --> 00:01:39,439
departure burns from the international

11
00:01:43,830 --> 00:01:41,600
space station and is on its way back

12
00:01:46,069 --> 00:01:43,840
home to us today's mission actually

13
00:01:47,749 --> 00:01:46,079

began back on march 2nd when dragon

14
00:01:49,830 --> 00:01:47,759
launched from kennedy space center in

15
00:01:51,749 --> 00:01:49,840
florida following that successful launch

16
00:01:53,670 --> 00:01:51,759
dragon arrived at the space station and

17
00:01:54,550 --> 00:01:53,680
docked with the orbiting lab on march

18
00:01:56,310 --> 00:01:54,560
3rd

19
00:01:58,149 --> 00:01:56,320
dragon's return to earth will mark the

20
00:01:59,670 --> 00:01:58,159
third completion of spacex's first

21
00:02:01,749 --> 00:01:59,680
demonstration mission for nasa's

22
00:02:03,510 --> 00:02:01,759
commercial crew program while there are

23
00:02:05,429 --> 00:02:03,520
no astronauts on board dragons today

24
00:02:07,270 --> 00:02:05,439
this demonstration mission represents an

25
00:02:09,510 --> 00:02:07,280
important milestone as we approach our

26
00:02:11,270 --> 00:02:09,520
first crude mission later this year

27
00:02:12,869 --> 00:02:11,280
earlier today dragon powered up from

28
00:02:15,110 --> 00:02:12,879
sleep mode and began its departure

29
00:02:16,390 --> 00:02:15,120
procedures and system checks that's

30
00:02:18,150 --> 00:02:16,400
right and then the spacecraft

31
00:02:21,510 --> 00:02:18,160
autonomously undocked from the

32
00:02:23,910 --> 00:02:21,520
international space station at 11 32 p.m

33
00:02:25,510 --> 00:02:23,920
pacific time just yesterday on march 7th

34
00:02:27,670 --> 00:02:25,520
i'm pretty sure it's march 8th now we've

35
00:02:29,670 --> 00:02:27,680
been here all night and then it began a

36
00:02:31,190 --> 00:02:29,680
series of departure burns to move away

37
00:02:32,949 --> 00:02:31,200
from the station we're going to be

38
00:02:34,949 --> 00:02:32,959

bringing you live coverage of the rest

39
00:02:37,350 --> 00:02:34,959
of the mission the moment that dragon

40
00:02:39,030 --> 00:02:37,360
jettisons its trunk to the deorbit burn

41
00:02:41,990 --> 00:02:39,040
all the way to that splashdown which

42
00:02:43,910 --> 00:02:42,000
we're targeting for 5 45 a.m pacific

43
00:02:46,869 --> 00:02:43,920
time with dragons scheduled to splash

44
00:02:49,270 --> 00:02:46,879
down about 230 statute miles east of

45
00:02:51,190 --> 00:02:49,280
kennedy space center one interesting

46
00:02:54,070 --> 00:02:51,200
historical note for you real quick it's

47
00:02:56,309 --> 00:02:54,080
actually been nearly 50 years to the day

48
00:02:58,550 --> 00:02:56,319
since apollo 9 was the last spacecraft

49
00:03:00,790 --> 00:02:58,560
built for humans to splash down in the

50
00:03:04,869 --> 00:03:00,800
atlantic it completed its mission back

51
00:03:07,670 --> 00:03:04,879
on march 13 1969 so a pretty big day and

52
00:03:09,589 --> 00:03:07,680
a pretty big historical note here

53
00:03:10,550 --> 00:03:09,599
unfortunately due to a communications

54
00:03:12,470 --> 00:03:10,560
blackout we're not going to be able to

55
00:03:13,830 --> 00:03:12,480
show you every step of dragon's journey

56
00:03:15,509 --> 00:03:13,840
home where we're going to be bringing

57
00:03:17,670 --> 00:03:15,519
you live status updates as it goes

58
00:03:20,149 --> 00:03:17,680
through the phase of things like the

59
00:03:21,509 --> 00:03:20,159
orbit burn and the trunk separation and

60
00:03:23,589 --> 00:03:21,519
we've been getting some pretty great

61
00:03:25,350 --> 00:03:23,599
views from the recovery ships out there

62
00:03:27,670 --> 00:03:25,360
so we should have good views of dragon

63
00:03:29,270 --> 00:03:27,680

as it comes down towards the water yeah

64
00:03:31,270 --> 00:03:29,280
now in this next phase of the mission

65
00:03:33,910 --> 00:03:31,280
dragon has a series of steps to complete

66
00:03:36,070 --> 00:03:33,920
before it returns home first dragon will

67
00:03:37,990 --> 00:03:36,080
jettison its trunk like dan just said

68
00:03:40,390 --> 00:03:38,000
which is the cylindrical unpressurized

69
00:03:42,309 --> 00:03:40,400
part of the spacecraft we do this as the

70
00:03:44,309 --> 00:03:42,319
trunk is no longer needed to complete

71
00:03:46,390 --> 00:03:44,319
the mission yeah that's going to be

72
00:03:48,630 --> 00:03:46,400
coming up in about 15 minutes or so and

73
00:03:49,589 --> 00:03:48,640
like we said we can't show every part of

74
00:03:50,949 --> 00:03:49,599
this

75
00:03:52,789 --> 00:03:50,959
for the mission but we are going to be

76
00:03:55,190 --> 00:03:52,799
listening to the the flight control

77
00:03:57,589 --> 00:03:55,200
teams and we have one here right behind

78
00:03:59,429 --> 00:03:57,599
us and hawthorne and they're the ones

79
00:04:00,710 --> 00:03:59,439
basically monitoring all dragon systems

80
00:04:03,509 --> 00:04:00,720
just like they've been doing since it

81
00:04:06,149 --> 00:04:03,519
lifted off six days ago

82
00:04:07,350 --> 00:04:06,159
it's flown by so far it really has but

83
00:04:10,710 --> 00:04:07,360
we're going to be listening in and

84
00:04:12,390 --> 00:04:10,720
giving you the updates as they come in

85
00:04:14,390 --> 00:04:12,400
now if you've been watch following along

86
00:04:16,469 --> 00:04:14,400
so far this morning you might have seen

87
00:04:17,909 --> 00:04:16,479
us on the earlier webcast

88
00:04:19,349 --> 00:04:17,919

last night this morning it's hard to

89
00:04:20,150 --> 00:04:19,359
tell what time of day it is at this

90
00:04:22,710 --> 00:04:20,160
point

91
00:04:24,230 --> 00:04:22,720
but you saw dragon complete of a series

92
00:04:26,070 --> 00:04:24,240
of burns

93
00:04:27,430 --> 00:04:26,080
there were a number of departure burns

94
00:04:29,670 --> 00:04:27,440
away from the international space

95
00:04:31,830 --> 00:04:29,680
station that dragon completed which

96
00:04:33,670 --> 00:04:31,840
allowed the spacecraft to move further

97
00:04:36,390 --> 00:04:33,680
and further away from the station in a

98
00:04:38,390 --> 00:04:36,400
series of choreographed maneuvers

99
00:04:40,310 --> 00:04:38,400
everything went really well and like we

100
00:04:43,590 --> 00:04:40,320
said now we're just waiting for that

101
00:04:45,909 --> 00:04:43,600
trunk separation and after that we'll

102
00:04:47,590 --> 00:04:45,919
have a pretty exciting deorbit burn and

103
00:04:48,469 --> 00:04:47,600
a splashdown so we're looking forward to

104
00:04:51,189 --> 00:04:48,479
all that

105
00:04:52,950 --> 00:04:51,199
yeah at this point the dragon spacecraft

106
00:04:55,030 --> 00:04:52,960
is well below the international space

107
00:04:57,110 --> 00:04:55,040
station and quite a few kilometers ahead

108
00:04:58,710 --> 00:04:57,120
of it at this point and that's just to

109
00:05:00,870 --> 00:04:58,720
make sure once that trunk separated it's

110
00:05:03,510 --> 00:05:00,880
not on the same orbital plane basically

111
00:05:05,270 --> 00:05:03,520
as the international space station is

112
00:05:07,029 --> 00:05:05,280
so that'll be the next major milestone

113
00:05:08,629 --> 00:05:07,039

coming up and then that deorbit burn

114
00:05:10,870 --> 00:05:08,639
which will go through all those times in

115
00:05:12,710 --> 00:05:10,880
just a little bit but it's going to be

116
00:05:15,670 --> 00:05:12,720
about a 15-minute firing of those

117
00:05:17,189 --> 00:05:15,680
throughout those thrusters on dragon and

118
00:05:19,270 --> 00:05:17,199
that's just basically going to take it

119
00:05:20,710 --> 00:05:19,280
out of orbit so it's going to fire these

120
00:05:22,469 --> 00:05:20,720
thrusters until that trajectory is

121
00:05:24,710 --> 00:05:22,479
basically pointing it right back down in

122
00:05:26,790 --> 00:05:24,720
the ocean in the atlantic where we're

123
00:05:28,469 --> 00:05:26,800
landing a spacecraft built for humans

124
00:05:30,710 --> 00:05:28,479
for the first time in 50 years so this

125
00:05:32,310 --> 00:05:30,720
is going to be a really exciting morning

126
00:05:34,710 --> 00:05:32,320
and like i said we'll be bringing you

127
00:05:35,749 --> 00:05:34,720
some pretty great views the sun is up

128
00:05:37,189 --> 00:05:35,759
already

129
00:05:39,110 --> 00:05:37,199
over on the east coast so we'll have a

130
00:05:41,749 --> 00:05:39,120
nice daytime splashdown

131
00:05:43,830 --> 00:05:41,759
as someone who has seen this specific

132
00:05:46,150 --> 00:05:43,840
vehicle get built over the last couple

133
00:05:47,830 --> 00:05:46,160
of years it's pretty incredible to

134
00:05:49,670 --> 00:05:47,840
like i mentioned earlier in today's

135
00:05:51,029 --> 00:05:49,680
webcast to actually see

136
00:05:52,870 --> 00:05:51,039
the astronauts on board the

137
00:05:55,189 --> 00:05:52,880
international space station floating in

138
00:05:57,110 --> 00:05:55,199

and out of the capsule

139
00:05:59,350 --> 00:05:57,120
as they were opening the hatch and that

140
00:06:01,590 --> 00:05:59,360
was very exciting and then upon the

141
00:06:04,550 --> 00:06:01,600
departure burns earlier to see the

142
00:06:06,950 --> 00:06:04,560
imagery from the station as dragon was

143
00:06:08,550 --> 00:06:06,960
leaving it was just incredible we had

144
00:06:10,870 --> 00:06:08,560
some amazing shots and

145
00:06:12,070 --> 00:06:10,880
we've seen the artistic renderings for a

146
00:06:13,670 --> 00:06:12,080
couple of years now what it would look

147
00:06:15,270 --> 00:06:13,680
like when dragon was on station and to

148
00:06:17,990 --> 00:06:15,280
finally see it

149
00:06:20,150 --> 00:06:18,000
was just a wonderful moment in terms of

150
00:06:22,230 --> 00:06:20,160
those of us that have had so many hours

151
00:06:24,150 --> 00:06:22,240
put into this spacecraft it almost

152
00:06:25,990 --> 00:06:24,160
didn't look real yeah

153
00:06:28,150 --> 00:06:26,000
when you actually saw it flying out

154
00:06:29,189 --> 00:06:28,160
there but i mean since since it's a part

155
00:06:30,870 --> 00:06:29,199
of that it

156
00:06:32,629 --> 00:06:30,880
happened early in the cruise day on

157
00:06:34,150 --> 00:06:32,639
board the space station so they've since

158
00:06:36,390 --> 00:06:34,160
moved on to a bunch of other tests they

159
00:06:38,070 --> 00:06:36,400
actually woke up about an hour before

160
00:06:39,830 --> 00:06:38,080
crew dragon undocked as they're

161
00:06:41,990 --> 00:06:39,840
operating on greenwich meantime so it

162
00:06:44,150 --> 00:06:42,000
was early in the morning for them

163
00:06:46,230 --> 00:06:44,160

but they did offer some great words as

164
00:06:47,990 --> 00:06:46,240
dragon undocked and flew away once it

165
00:06:49,589 --> 00:06:48,000
was outside of the approach ellipsoid so

166
00:06:51,670 --> 00:06:49,599
about a kilometer or so away from the

167
00:06:53,990 --> 00:06:51,680
international space station and as kate

168
00:06:56,309 --> 00:06:54,000
said it executed all of its departure

169
00:06:57,909 --> 00:06:56,319
burns and executed four departure burns

170
00:06:59,589 --> 00:06:57,919
following that initial separation

171
00:07:01,670 --> 00:06:59,599
basically taking it out in front and

172
00:07:03,749 --> 00:07:01,680
then up around and then finally out

173
00:07:05,830 --> 00:07:03,759
beneath the international space station

174
00:07:08,390 --> 00:07:05,840
where it's now on its orbit awaiting

175
00:07:10,309 --> 00:07:08,400
this trunk separation and eventually the

176
00:07:12,710 --> 00:07:10,319
deorbit burn yeah

177
00:07:14,629 --> 00:07:12,720
so in terms of spacex history

178
00:07:16,629 --> 00:07:14,639
the this demonstration mission is

179
00:07:18,950 --> 00:07:16,639
incredibly important as it's like i said

180
00:07:20,390 --> 00:07:18,960
the demonstration of our crew program

181
00:07:22,469 --> 00:07:20,400
interestingly enough the dragon

182
00:07:24,550 --> 00:07:22,479
spacecraft that's hanging behind me here

183
00:07:26,870 --> 00:07:24,560
and hawthorne california spacex

184
00:07:29,350 --> 00:07:26,880
headquarters is similarly the same

185
00:07:31,110 --> 00:07:29,360
demonstration mission of our cargo

186
00:07:32,550 --> 00:07:31,120
program that we've been operating for

187
00:07:34,629 --> 00:07:32,560
nasa for the last couple of years in

188
00:07:36,790 --> 00:07:34,639

terms of the cargo resupply missions to

189
00:07:39,270 --> 00:07:36,800
the international space station so

190
00:07:40,950 --> 00:07:39,280
who knows if the demo one capsule will

191
00:07:42,469 --> 00:07:40,960
also be hanging behind us here in

192
00:07:44,550 --> 00:07:42,479
hawthorne i don't think we have the

193
00:07:45,350 --> 00:07:44,560
structural support for that but in terms

194
00:07:47,749 --> 00:07:45,360
of

195
00:07:50,150 --> 00:07:47,759
what you see behind me it's similar in

196
00:07:52,309 --> 00:07:50,160
terms of historical referencing for the

197
00:07:53,990 --> 00:07:52,319
importance of today's mission

198
00:07:56,150 --> 00:07:54,000
and that capsule actually already has

199
00:07:58,070 --> 00:07:56,160
another mission on the books for it

200
00:08:00,550 --> 00:07:58,080
spacex is planning to use it in their

201
00:08:02,790 --> 00:08:00,560
ascent abort test uh coming a little bit

202
00:08:04,710 --> 00:08:02,800
later this year that'll be between demo

203
00:08:06,309 --> 00:08:04,720
one which we're about to wrap up today

204
00:08:07,430 --> 00:08:06,319
and demo two which will be the first

205
00:08:09,670 --> 00:08:07,440
flight there we actually have our

206
00:08:11,749 --> 00:08:09,680
astronauts on board that spacecraft bob

207
00:08:13,749 --> 00:08:11,759
bankin and doug hurley the two nasa

208
00:08:15,430 --> 00:08:13,759
astronauts will be the first one to take

209
00:08:18,230 --> 00:08:15,440
dragon into space and the ascent of

210
00:08:20,390 --> 00:08:18,240
board that will be a pretty cool test to

211
00:08:22,309 --> 00:08:20,400
see i wouldn't want to be involved with

212
00:08:23,670 --> 00:08:22,319
it because that's a lot of g-forces but

213
00:08:25,270 --> 00:08:23,680

um it'll be really

214
00:08:27,270 --> 00:08:25,280
really important for us to be able to

215
00:08:29,029 --> 00:08:27,280
demonstrate the ability for the capsule

216
00:08:31,510 --> 00:08:29,039
to leave the vehicle

217
00:08:33,190 --> 00:08:31,520
in an urgent need to do so so we're all

218
00:08:34,310 --> 00:08:33,200
looking forward to that that test flight

219
00:08:35,750 --> 00:08:34,320
as it's also something we've been

220
00:08:37,350 --> 00:08:35,760
working towards for the last couple of

221
00:08:38,790 --> 00:08:37,360
years and

222
00:08:41,829 --> 00:08:38,800
yeah that should be coming up in a

223
00:08:43,909 --> 00:08:41,839
couple of months here

224
00:08:45,269 --> 00:08:43,919
yeah and that'll be that'll be the

225
00:08:46,870 --> 00:08:45,279
second of what you guys have done

226
00:08:47,829 --> 00:08:46,880
because you did a paddle board test

227
00:08:50,070 --> 00:08:47,839
already

228
00:08:50,790 --> 00:08:50,080
with a dragon spacecraft so basically

229
00:08:52,710 --> 00:08:50,800
just

230
00:08:54,630 --> 00:08:52,720
really putting the vehicle through all

231
00:08:57,269 --> 00:08:54,640
of the paces all these different abort

232
00:08:59,910 --> 00:08:57,279
tests missions like this one right now

233
00:09:01,430 --> 00:08:59,920
all ultimately with that goal of

234
00:09:03,670 --> 00:09:01,440
sending humans to the international

235
00:09:05,990 --> 00:09:03,680
space station not a crew dragon yeah

236
00:09:07,030 --> 00:09:06,000
something else really interesting about

237
00:09:11,990 --> 00:09:07,040
the

238
00:09:13,430 --> 00:09:12,000

commercial crew program going forward in

239
00:09:15,350 --> 00:09:13,440
terms of

240
00:09:17,590 --> 00:09:15,360
spacex's approach to landing the

241
00:09:19,590 --> 00:09:17,600
capsules we are landing them in the in

242
00:09:21,990 --> 00:09:19,600
the atlantic like we mentioned earlier

243
00:09:24,790 --> 00:09:22,000
uh whereas the commercial excuse me the

244
00:09:26,630 --> 00:09:24,800
cargo resupply mission dragon capsule

245
00:09:29,670 --> 00:09:26,640
capsules have all landed in the pacific

246
00:09:31,350 --> 00:09:29,680
so today is really exciting we're really

247
00:09:34,150 --> 00:09:31,360
pumped to bring you footage of our

248
00:09:37,030 --> 00:09:34,160
recovery team as we pull dragon out of

249
00:09:38,470 --> 00:09:37,040
the atlantic ocean it's a lot of firsts

250
00:09:40,949 --> 00:09:38,480
today it's been a lot it's a lot been a

251
00:09:42,630 --> 00:09:40,959
lot of firsts all week and um to say the

252
00:09:44,870 --> 00:09:42,640
adrenaline has been pumping around here

253
00:09:47,110 --> 00:09:44,880
is is an understatement yeah we even i

254
00:09:49,590 --> 00:09:47,120
mean we even had a crowd earlier this

255
00:09:51,030 --> 00:09:49,600
morning behind us gathered down at the

256
00:09:52,310 --> 00:09:51,040
control and there's

257
00:09:55,190 --> 00:09:52,320
more clouds

258
00:09:56,790 --> 00:09:55,200
now now it's well it's 4 30 in the

259
00:09:58,870 --> 00:09:56,800
morning here on the west coast but the

260
00:10:01,269 --> 00:09:58,880
crowd is already starting to gather uh

261
00:10:03,350 --> 00:10:01,279
here at spacex headquarters

262
00:10:05,190 --> 00:10:03,360
but interesting note yeah

263
00:10:07,030 --> 00:10:05,200

normally those cargo dragons landing

264
00:10:08,790 --> 00:10:07,040
over in the pacific

265
00:10:10,710 --> 00:10:08,800
and while this vehicle ultimately

266
00:10:12,470 --> 00:10:10,720
designed for crew it's also carrying

267
00:10:14,550 --> 00:10:12,480
some cargo it carried about 400 pounds

268
00:10:16,389 --> 00:10:14,560
of cargo up to the international space

269
00:10:18,790 --> 00:10:16,399
station and it's been packed with a

270
00:10:20,069 --> 00:10:18,800
little over 300 pounds for the return

271
00:10:22,150 --> 00:10:20,079
trip home

272
00:10:24,069 --> 00:10:22,160
and that's broken out across a couple of

273
00:10:25,269 --> 00:10:24,079
different areas one of the more

274
00:10:27,750 --> 00:10:25,279
interesting ones and one of the ones

275
00:10:29,670 --> 00:10:27,760
nasa's really keen on is it's bringing

276
00:10:32,069 --> 00:10:29,680
back what we call utilization so some

277
00:10:33,829 --> 00:10:32,079
science samples it actually has two bags

278
00:10:35,910 --> 00:10:33,839
they're basically like coolers on board

279
00:10:37,430 --> 00:10:35,920
that are packed with these cold bricks

280
00:10:39,430 --> 00:10:37,440
that were able to put

281
00:10:41,030 --> 00:10:39,440
science samples in so

282
00:10:43,030 --> 00:10:41,040
the ones that are coming back home today

283
00:10:44,790 --> 00:10:43,040
using some of the human research

284
00:10:45,990 --> 00:10:44,800
projects onboard the international space

285
00:10:47,350 --> 00:10:46,000
station is

286
00:10:49,190 --> 00:10:47,360
we like to say the astronauts are

287
00:10:50,550 --> 00:10:49,200
experiments themselves we're always

288
00:10:52,150 --> 00:10:50,560

poking and prodding while they're up

289
00:10:54,870 --> 00:10:52,160
there just to see how the human body

290
00:10:56,630 --> 00:10:54,880
changes and reacts in microgravity and a

291
00:10:59,350 --> 00:10:56,640
lot of the samples from a couple of

292
00:11:00,470 --> 00:10:59,360
those projects are coming home on dragon

293
00:11:02,389 --> 00:11:00,480
today

294
00:11:04,069 --> 00:11:02,399
also bringing home a couple of radiation

295
00:11:06,310 --> 00:11:04,079
monitors and

296
00:11:07,829 --> 00:11:06,320
one thing that our program manager kirk

297
00:11:10,069 --> 00:11:07,839
shirem and for the space station program

298
00:11:12,389 --> 00:11:10,079
noted it's also going to have a fan pump

299
00:11:14,630 --> 00:11:12,399
separator on it and that's actually a

300
00:11:17,110 --> 00:11:14,640
piece it's a piece of the

301
00:11:18,790 --> 00:11:17,120
spacesuits the emu's the extra vehicular

302
00:11:21,030 --> 00:11:18,800
mobility units i'm from nasa and we

303
00:11:23,030 --> 00:11:21,040
still use way too many acronyms

304
00:11:25,110 --> 00:11:23,040
and it's a piece that actually failed on

305
00:11:27,590 --> 00:11:25,120
orbit some time back and then bringing

306
00:11:29,350 --> 00:11:27,600
it home to take a look at it was since

307
00:11:31,590 --> 00:11:29,360
replaced with a spare unit and we do

308
00:11:32,949 --> 00:11:31,600
have some spacewalks coming up in march

309
00:11:36,230 --> 00:11:32,959
so

310
00:11:38,230 --> 00:11:36,240
very busy time in space right now but

311
00:11:40,230 --> 00:11:38,240
right now kind of all focused on

312
00:11:41,670 --> 00:11:40,240
watching this dragon come home

313
00:11:44,150 --> 00:11:41,680

so the next milestone that we have

314
00:11:47,430 --> 00:11:44,160
coming up in about seven minutes is the

315
00:11:49,750 --> 00:11:47,440
trunk separation uh we will take a break

316
00:11:58,240 --> 00:11:49,760
for a few minutes while we await that so

317
00:16:28,790 --> 00:12:21,430
[Music]

318
00:16:28,800 --> 00:17:16,620
so

319
00:17:16,630 --> 00:18:02,950
[Music]

320
00:18:06,630 --> 00:18:04,470
oh so

321
00:18:08,710 --> 00:18:06,640
right now we're waiting to hear for that

322
00:18:11,270 --> 00:18:08,720
trump separation again

323
00:18:13,990 --> 00:18:11,280
we are expecting to get that call

324
00:18:16,070 --> 00:18:14,000
just on the internal nets at any moment

325
00:18:18,549 --> 00:18:16,080
now that'll be the next major milestone

326
00:18:20,390 --> 00:18:18,559
and then it'll be on to the orbit burn

327
00:18:23,110 --> 00:18:20,400
exactly so we should have that call out

328
00:18:25,350 --> 00:18:23,120
any minute now uh as we

329
00:18:27,669 --> 00:18:25,360
wait for trunk separation this is the

330
00:18:29,590 --> 00:18:27,679
last thing that dragon has to do before

331
00:18:31,590 --> 00:18:29,600
it is able to re-enter the earth's

332
00:18:33,110 --> 00:18:31,600
atmosphere and splash down in the in the

333
00:18:35,110 --> 00:18:33,120
atlantic ocean

334
00:18:36,870 --> 00:18:35,120
that's right yeah the the trump not

335
00:18:38,789 --> 00:18:36,880
coming home but the rest of the dragon

336
00:18:39,990 --> 00:18:38,799
capsule the more important part is going

337
00:18:41,830 --> 00:18:40,000
to be coming home

338
00:18:43,510 --> 00:18:41,840

the other stuff that dragon's gonna do

339
00:18:45,350 --> 00:18:43,520
before it does that final re-entry is

340
00:18:48,549 --> 00:18:45,360
close that nose cone and we'll get

341
00:18:50,390 --> 00:18:48,559
through a little bit of that uh soon but

342
00:18:51,990 --> 00:18:50,400
basically that nose cone is going to

343
00:18:54,070 --> 00:18:52,000
protect that top part of the dragon

344
00:18:55,909 --> 00:18:54,080
spacecraft the docking adapter and also

345
00:18:57,830 --> 00:18:55,919
the guidance and navigation and control

346
00:18:59,830 --> 00:18:57,840
sensors um so that's one of the last

347
00:19:01,990 --> 00:18:59,840
major milestones so that's another kind

348
00:19:04,549 --> 00:19:02,000
of departure from the cargo dragon which

349
00:19:06,870 --> 00:19:04,559
that nose cone gets jettisoned

350
00:19:08,470 --> 00:19:06,880
uh during the launch during the launch

351
00:19:10,630 --> 00:19:08,480
phase

352
00:19:12,470 --> 00:19:10,640
but with crew dragging keeping the nose

353
00:19:14,150 --> 00:19:12,480
going all the way through it helps in

354
00:19:15,350 --> 00:19:14,160
the actual reusability of the crew

355
00:19:17,110 --> 00:19:15,360
dragon

356
00:19:20,230 --> 00:19:17,120
for future missions

357
00:19:22,789 --> 00:19:20,240
now that trunk section is unpressurized

358
00:19:24,710 --> 00:19:22,799
and we are able to use it to transport

359
00:19:25,990 --> 00:19:24,720
cargo on the way up to the international

360
00:19:27,430 --> 00:19:26,000
space station

361
00:19:29,350 --> 00:19:27,440
but everything that comes back from

362
00:19:31,350 --> 00:19:29,360
station is put into the pressurized

363
00:19:34,230 --> 00:19:31,360

section so we are able to jettison that

364
00:19:36,549 --> 00:19:34,240
trunk as it's no longer needed and

365
00:19:37,830 --> 00:19:36,559
we're able to shed that extra weight

366
00:19:39,110 --> 00:19:37,840
and i think we just heard trunk

367
00:19:40,710 --> 00:19:39,120
separation

368
00:19:42,630 --> 00:19:40,720
all right so hopefully we'll be able to

369
00:19:43,990 --> 00:19:42,640
bring you visual here shortly actually

370
00:19:45,270 --> 00:19:44,000
no we're too far away from station at

371
00:19:46,870 --> 00:19:45,280
the moment so

372
00:19:47,669 --> 00:19:46,880
yeah

373
00:19:49,909 --> 00:19:47,679
yep

374
00:19:52,630 --> 00:19:49,919
so next up is going to be uh the

375
00:19:54,470 --> 00:19:52,640
spacecraft using some forward thrusters

376
00:19:55,590 --> 00:19:54,480
to perform the de-orbit burn this is

377
00:19:57,430 --> 00:19:55,600
going to be

378
00:19:59,510 --> 00:19:57,440
a really major step because once that

379
00:20:01,110 --> 00:19:59,520
deorbit burn happens you're coming home

380
00:20:02,710 --> 00:20:01,120
you're like you're you're leaving orbit

381
00:20:03,990 --> 00:20:02,720
and you're coming back to earth and

382
00:20:06,630 --> 00:20:04,000
that's going to put dragon on a

383
00:20:09,750 --> 00:20:06,640
trajectory for that return the burn will

384
00:20:12,149 --> 00:20:09,760
last about 15 minutes once it starts so

385
00:20:13,909 --> 00:20:12,159
we're gonna again continue to stand by

386
00:20:15,669 --> 00:20:13,919
this is kind of the calm before the

387
00:20:18,310 --> 00:20:15,679
storm if you will where we're just

388
00:20:20,470 --> 00:20:18,320

waiting for things to really get into

389
00:20:22,470 --> 00:20:20,480
motion dragon's going to pretty soon do

390
00:20:24,549 --> 00:20:22,480
that deorbit burn and then following

391
00:20:26,230 --> 00:20:24,559
that it only takes about 45 minutes or

392
00:20:28,390 --> 00:20:26,240
so until it's

393
00:20:30,310 --> 00:20:28,400
in the water down in the atlantic and

394
00:20:32,390 --> 00:20:30,320
ready to get picked up by the teams on

395
00:20:33,909 --> 00:20:32,400
the boats out there so once again we're

396
00:20:35,350 --> 00:20:33,919
going to continue to stand by we're

397
00:20:36,310 --> 00:20:35,360
going to bring you these updates as they

398
00:20:37,029 --> 00:20:36,320
come in

399
00:20:39,190 --> 00:20:37,039
but

400
00:21:05,000 --> 00:20:39,200
one more milestone down just a few more

401
00:22:32,470 --> 00:22:12,720
[Music]

402
00:22:36,390 --> 00:22:34,310
and so again right now we're just

403
00:22:38,149 --> 00:22:36,400
standing by for this deorbit burn to

404
00:22:40,870 --> 00:22:38,159
start we are expecting it to start in

405
00:22:43,270 --> 00:22:40,880
about a minute or so and then after that

406
00:22:45,590 --> 00:22:43,280
it's going to take a little over 15

407
00:22:47,430 --> 00:22:45,600
minutes to complete

408
00:22:49,350 --> 00:22:47,440
yeah so we have already jettisoned the

409
00:22:51,190 --> 00:22:49,360
trunk as you heard us talk about a

410
00:22:52,950 --> 00:22:51,200
couple minutes ago that was the last

411
00:22:56,310 --> 00:22:52,960
thing dragon needed to do before it is

412
00:22:58,470 --> 00:22:56,320
able to re-enter the earth's atmosphere

413
00:23:01,750 --> 00:22:58,480

and like we said that that'll be about a

414
00:23:03,510 --> 00:23:01,760
15-minute burn and then we will have

415
00:23:04,950 --> 00:23:03,520
parachute deployment and splash down

416
00:23:06,789 --> 00:23:04,960
after that so

417
00:23:07,909 --> 00:23:06,799
like dan said kind of the calm before

418
00:23:09,590 --> 00:23:07,919
the storm we're going to have a lot of

419
00:23:11,990 --> 00:23:09,600
activity coming up

420
00:23:12,870 --> 00:23:12,000
once we do pass through the re-entry

421
00:23:14,549 --> 00:23:12,880
burn

422
00:23:17,430 --> 00:23:14,559
but at this point we should be getting

423
00:23:20,390 --> 00:23:17,440
confirmation of the deorbit burn

424
00:23:22,870 --> 00:23:20,400
in a couple of seconds here that's right

425
00:23:23,830 --> 00:23:22,880
and once the deorbit burn is complete

426
00:23:26,390 --> 00:23:23,840
it's

427
00:23:29,270 --> 00:23:26,400
just about i'm trying to do quick math

428
00:23:31,190 --> 00:23:29,280
in my head as i look at everything but

429
00:23:33,029 --> 00:23:31,200
it's just about 40 minutes or so until

430
00:23:34,789 --> 00:23:33,039
dragon's scheduled to be back down in

431
00:23:37,029 --> 00:23:34,799
the water so

432
00:23:39,190 --> 00:23:37,039
it's it's a pretty quick ride from being

433
00:23:40,950 --> 00:23:39,200
in outer space to being right back down

434
00:23:43,350 --> 00:23:40,960
in the ocean

435
00:23:45,510 --> 00:23:43,360
and we just heard a confirmation of the

436
00:23:49,190 --> 00:23:45,520
deorbit burn so like we said uh this

437
00:23:51,510 --> 00:23:49,200
will last about 15 minutes so um do-over

438
00:23:54,070 --> 00:23:51,520

burn has begun at this point dragon has

439
00:23:56,070 --> 00:23:54,080
begun to re-enter the earth's atmosphere

440
00:23:58,390 --> 00:23:56,080
it's going to get a little toasty um but

441
00:23:59,669 --> 00:23:58,400
we're excited to to for this to happen

442
00:24:02,549 --> 00:23:59,679
as it is the next step the next

443
00:24:05,190 --> 00:24:02,559
milestone in its journey home

444
00:24:06,549 --> 00:24:05,200
that's right and again

445
00:24:08,630 --> 00:24:06,559
ultimate destination down in the

446
00:24:10,310 --> 00:24:08,640
atlantic ocean and there are boats

447
00:24:12,549 --> 00:24:10,320
standing by we'll go through all the

448
00:24:14,950 --> 00:24:12,559
recovery forces and everything on site

449
00:24:17,190 --> 00:24:14,960
uh but there is one main recovery boat

450
00:24:18,710 --> 00:24:17,200
it's the go searcher

451
00:24:20,310 --> 00:24:18,720
and that's going to have all of the

452
00:24:22,549 --> 00:24:20,320
spacex recovery teams who are

453
00:24:25,190 --> 00:24:22,559
responsible for actually going out and

454
00:24:27,110 --> 00:24:25,200
picking the capsule up out of the water

455
00:24:28,870 --> 00:24:27,120
that is a view of the go searcher that

456
00:24:30,630 --> 00:24:28,880
was this is actually a camera view from

457
00:24:32,950 --> 00:24:30,640
one of the other boats that's in the

458
00:24:35,830 --> 00:24:32,960
area the go navigator that has the

459
00:24:38,230 --> 00:24:35,840
combined nasa team on board as well uh

460
00:24:39,590 --> 00:24:38,240
so once we actually have crew on board

461
00:24:41,750 --> 00:24:39,600
everyone's going to be on one vote so

462
00:24:42,549 --> 00:24:41,760
it'll be a little bit tighter quarters

463
00:24:44,630 --> 00:24:42,559

but

464
00:24:46,630 --> 00:24:44,640
you'll have obviously the spacex people

465
00:24:48,870 --> 00:24:46,640
to go and recover the capsule and then

466
00:24:51,110 --> 00:24:48,880
the nasa people typically also bring

467
00:24:53,269 --> 00:24:51,120
along the flight docks and the nurses

468
00:24:55,110 --> 00:24:53,279
anybody who's ever seen a landing in the

469
00:24:57,350 --> 00:24:55,120
soyuz over in kazakhstan is familiar

470
00:24:58,870 --> 00:24:57,360
with that once the crew comes home after

471
00:25:00,710 --> 00:24:58,880
about a six-month period it's important

472
00:25:01,909 --> 00:25:00,720
we get a quick medical check out with

473
00:25:04,070 --> 00:25:01,919
them just take the vitals make sure

474
00:25:06,070 --> 00:25:04,080
they're doing okay and help manage as

475
00:25:08,470 --> 00:25:06,080
they re-adapt or it's gravity for the

476
00:25:10,149 --> 00:25:08,480
first time in you know up to six months

477
00:25:12,070 --> 00:25:10,159
or longer so

478
00:25:13,750 --> 00:25:12,080
all everyone will be on one boat but for

479
00:25:15,909 --> 00:25:13,760
today we do have two boats so we'll get

480
00:25:17,669 --> 00:25:15,919
some additional views hopefully from

481
00:25:19,909 --> 00:25:17,679
those different cameras as we get to

482
00:25:21,590 --> 00:25:19,919
watch dragon come down but for now we

483
00:25:23,669 --> 00:25:21,600
are in that deorbit burn so we got a

484
00:25:25,830 --> 00:25:23,679
couple more minutes until that is

485
00:25:28,310 --> 00:25:25,840
complete and then we're one step closer

486
00:25:29,830 --> 00:25:28,320
to dragon being back yeah so wild dragon

487
00:25:31,909 --> 00:25:29,840
is re-entering the earth's atmosphere

488
00:25:34,310 --> 00:25:31,919

we're going to pause for a few minutes

489
00:25:35,830 --> 00:25:34,320
until the dew orbit burn completes so be

490
00:25:50,420 --> 00:25:35,840
sure to stick around and we'll see you

491
00:31:35,669 --> 00:25:58,220
[Music]

492
00:31:40,870 --> 00:31:38,230
and so right now we're about halfway

493
00:31:42,789 --> 00:31:40,880
through that deorbit burn so again we

494
00:31:44,230 --> 00:31:42,799
expect it to last about 15 minutes and

495
00:31:46,149 --> 00:31:44,240
20 seconds

496
00:31:48,710 --> 00:31:46,159
the visiting vehicle officer all the way

497
00:31:49,509 --> 00:31:48,720
back in houston i was just reporting to

498
00:31:51,269 --> 00:31:49,519
the

499
00:31:53,029 --> 00:31:51,279
station flight director again that we

500
00:31:54,950 --> 00:31:53,039
were about halfway through uh we're

501
00:31:56,710 --> 00:31:54,960
continuing to get a couple of uh views

502
00:31:58,070 --> 00:31:56,720
from the boats and again those are

503
00:31:59,750 --> 00:31:58,080
cameras that are going to be tracking

504
00:32:01,350 --> 00:31:59,760
dragon once it's coming down under those

505
00:32:03,190 --> 00:32:01,360
parachutes

506
00:32:06,630 --> 00:32:03,200
and we're also starting to get it looks

507
00:32:12,230 --> 00:32:06,640
like this is a view from a wb-57

508
00:32:15,669 --> 00:32:14,870
and so we have a number of assets out

509
00:32:18,230 --> 00:32:15,679
there

510
00:32:21,029 --> 00:32:18,240
uh off the florida coast uh again

511
00:32:23,830 --> 00:32:21,039
there's two boats or two ships rather

512
00:32:27,029 --> 00:32:23,840
both with tracking cameras on board and

513
00:32:29,350 --> 00:32:27,039

nasa also flying its wb57 aircraft

514
00:32:31,029 --> 00:32:29,360
typically used for high altitude

515
00:32:32,230 --> 00:32:31,039
weather research and

516
00:32:35,190 --> 00:32:32,240
other

517
00:32:37,269 --> 00:32:35,200
science missions but it has a camera

518
00:32:39,029 --> 00:32:37,279
affixed on it and should hopefully give

519
00:32:40,630 --> 00:32:39,039
us some views of dragon coming down

520
00:32:42,149 --> 00:32:40,640
under those parachutes

521
00:32:44,149 --> 00:32:42,159
so there on your screen you see a

522
00:32:47,029 --> 00:32:44,159
beautiful shot of go searcher which is

523
00:32:49,190 --> 00:32:47,039
our primary recovery vessel

524
00:32:51,750 --> 00:32:49,200
there on the front part of the ship you

525
00:32:53,430 --> 00:32:51,760
can see what would essentially be the

526
00:32:55,990 --> 00:32:53,440
cruise quarters

527
00:32:58,710 --> 00:32:56,000
during the wait they could be out to sea

528
00:33:00,470 --> 00:32:58,720
depending on how rough the waves are for

529
00:33:01,909 --> 00:33:00,480
a couple of weeks to just a couple of

530
00:33:03,909 --> 00:33:01,919
days depending on the re or the

531
00:33:05,509 --> 00:33:03,919
splashdown point so they're coming into

532
00:33:07,350 --> 00:33:05,519
the view

533
00:33:10,389 --> 00:33:07,360
on the right hand side of your screen at

534
00:33:13,269 --> 00:33:10,399
the top is actually the helipad

535
00:33:14,950 --> 00:33:13,279
for helicopters to land if we need to

536
00:33:15,669 --> 00:33:14,960
take the astronauts to shore quicker

537
00:33:17,830 --> 00:33:15,679
than

538
00:33:19,909 --> 00:33:17,840

just having them ride along on the ship

539
00:33:21,830 --> 00:33:19,919
and really something that i just

540
00:33:23,509 --> 00:33:21,840
absolutely love about this vessel is

541
00:33:25,269 --> 00:33:23,519
underneath that helipad

542
00:33:26,789 --> 00:33:25,279
are actually medical quarters so we're

543
00:33:28,230 --> 00:33:26,799
able to

544
00:33:30,230 --> 00:33:28,240
get the astronauts checked out

545
00:33:32,630 --> 00:33:30,240
immediately after

546
00:33:33,669 --> 00:33:32,640
egressing from the capsule and we're

547
00:33:35,909 --> 00:33:33,679
able to

548
00:33:38,630 --> 00:33:35,919
check them out there and give them a

549
00:33:39,590 --> 00:33:38,640
warm welcome not on land yet obviously

550
00:33:41,750 --> 00:33:39,600
but

551
00:33:43,830 --> 00:33:41,760
it's just such an incredible

552
00:33:45,750 --> 00:33:43,840
vehicle there that we're able to to

553
00:33:47,269 --> 00:33:45,760
sustain so much activity

554
00:33:48,630 --> 00:33:47,279
once the while we're waiting for the

555
00:33:50,710 --> 00:33:48,640
astronauts to splash down and then

556
00:33:52,950 --> 00:33:50,720
obviously once they are on board

557
00:33:55,430 --> 00:33:52,960
it's also important to note so right now

558
00:33:56,230 --> 00:33:55,440
the teams are about 200 or so give or

559
00:33:58,549 --> 00:33:56,240
take

560
00:34:01,269 --> 00:33:58,559
nautical miles off the coast that won't

561
00:34:02,470 --> 00:34:01,279
be the case when we are bringing crew

562
00:34:04,389 --> 00:34:02,480
members back

563
00:34:06,470 --> 00:34:04,399

that landing zone much closer end i

564
00:34:08,869 --> 00:34:06,480
think it typically ranges out about 20

565
00:34:11,190 --> 00:34:08,879
to 24 nautical miles or so

566
00:34:13,109 --> 00:34:11,200
away from the port so that gives them

567
00:34:15,510 --> 00:34:13,119
the capability to then get back in

568
00:34:17,430 --> 00:34:15,520
within just a couple of hours instead of

569
00:34:18,950 --> 00:34:17,440
the a little over a day that it's

570
00:34:21,669 --> 00:34:18,960
looking like it's going to take the

571
00:34:22,950 --> 00:34:21,679
teams to bring dragon back after this

572
00:34:23,990 --> 00:34:22,960
mission

573
00:34:25,349 --> 00:34:24,000
but

574
00:34:28,310 --> 00:34:25,359
there we have some

575
00:34:30,629 --> 00:34:28,320
views from dragon as it is re-entering

576
00:34:32,550 --> 00:34:30,639
the atmosphere

577
00:34:34,950 --> 00:34:32,560
it's uh it's pretty dark in space yeah

578
00:34:37,109 --> 00:34:34,960
we're still in the midst of that deorbit

579
00:34:39,430 --> 00:34:37,119
burn we're expecting that to take about

580
00:34:40,950 --> 00:34:39,440
five more minutes so that's that's

581
00:34:43,349 --> 00:34:40,960
pretty unique getting views from the

582
00:34:45,909 --> 00:34:43,359
spacecraft while that deorbit burn is

583
00:34:47,990 --> 00:34:45,919
still underway

584
00:34:49,990 --> 00:34:48,000
again this is just the final maneuver

585
00:34:52,069 --> 00:34:50,000
that final firing of those draco

586
00:34:54,389 --> 00:34:52,079
thrusters just to bring dragon out of

587
00:34:56,629 --> 00:34:54,399
orbit and set it up on a trajectory to

588
00:34:58,550 --> 00:34:56,639

ultimately splash down over there in the

589
00:35:00,790 --> 00:34:58,560
atlantic where as you were just seeing

590
00:35:11,430 --> 00:35:00,800
the recovery teams are standing by ready

591
00:35:16,230 --> 00:35:13,670
and again this deorbit burn

592
00:35:17,990 --> 00:35:16,240
lasting or plan to last about 15 minutes

593
00:35:20,069 --> 00:35:18,000
and 20 seconds

594
00:35:21,910 --> 00:35:20,079
and this is just to ultimately carry

595
00:35:23,589 --> 00:35:21,920
dragon out of its circular orbit so

596
00:35:25,990 --> 00:35:23,599
right now it's been in a circular orbit

597
00:35:28,230 --> 00:35:26,000
just beneath the space station's orbit

598
00:35:29,829 --> 00:35:28,240
we call it ecoeliptic orbit

599
00:35:32,150 --> 00:35:29,839
for the last several hours in this

600
00:35:34,230 --> 00:35:32,160
deorbit burn it's going to radically

601
00:35:36,069 --> 00:35:34,240
change that planned orbit

602
00:35:38,390 --> 00:35:36,079
basically setting it up to intersect

603
00:35:40,230 --> 00:35:38,400
back down with the earth

604
00:35:42,630 --> 00:35:40,240
back down there in the water where the

605
00:35:45,670 --> 00:35:42,640
recovery teams are waiting now that we

606
00:35:47,510 --> 00:35:45,680
have a full view of the recovery vessel

607
00:35:48,870 --> 00:35:47,520
on the very right side of your screen

608
00:35:51,030 --> 00:35:48,880
you can see a portion of the ship that

609
00:35:53,190 --> 00:35:51,040
we weren't able to see before and that's

610
00:35:55,829 --> 00:35:53,200
actually the portion of the ship where

611
00:35:58,470 --> 00:35:55,839
once the dragon capsule is close enough

612
00:36:00,230 --> 00:35:58,480
it will be lifted up out of the water by

613
00:36:02,470 --> 00:36:00,240

that vertical piece that you see there

614
00:36:05,670 --> 00:36:02,480
it'll actually actuate out over the

615
00:36:08,230 --> 00:36:05,680
water and lift the dragon capsule up out

616
00:36:11,109 --> 00:36:08,240
of the ocean and then bring it back onto

617
00:36:14,069 --> 00:36:11,119
the boat and set it down into its nest

618
00:36:16,310 --> 00:36:14,079
so pretty cool this is this is new

619
00:36:18,870 --> 00:36:16,320
um a new technology that we've installed

620
00:36:21,430 --> 00:36:18,880
on this ship specifically for our crew

621
00:36:22,550 --> 00:36:21,440
dragon missions so it's a

622
00:36:23,990 --> 00:36:22,560
like we said before this is a

623
00:36:26,790 --> 00:36:24,000
demonstration mission and while a

624
00:36:29,109 --> 00:36:26,800
recovery team has been practicing for

625
00:36:30,230 --> 00:36:29,119
recovery operations this is obviously

626
00:36:32,069 --> 00:36:30,240
the first time that they will be

627
00:36:34,150 --> 00:36:32,079
practicing with a vehicle that's coming

628
00:36:35,990 --> 00:36:34,160
from space so we're all very excited to

629
00:36:40,230 --> 00:36:36,000
be bringing you live coverage as all of

630
00:36:42,390 --> 00:36:40,240
this unfolds uh over the next hour or so

631
00:36:45,190 --> 00:36:42,400
and yeah and to give you a timeline of

632
00:36:47,670 --> 00:36:45,200
that recovery period out it's expected

633
00:36:48,950 --> 00:36:47,680
to take a little under an hour or so

634
00:36:51,829 --> 00:36:48,960
for the teams to actually have the

635
00:36:53,430 --> 00:36:51,839
capsule back up on the boat which in a

636
00:36:55,510 --> 00:36:53,440
situation where there's crew on board

637
00:36:57,190 --> 00:36:55,520
that's about that hour to get the crew

638
00:36:58,870 --> 00:36:57,200

out of the water and onto the boat so

639
00:37:00,710 --> 00:36:58,880
they can do all their initial medical

640
00:37:02,630 --> 00:37:00,720
checks and everything else that we

641
00:37:04,310 --> 00:37:02,640
typically do after crew members are

642
00:37:09,910 --> 00:37:04,320
returning from these long duration

643
00:37:15,190 --> 00:37:12,950
the waves looking pretty calm though

644
00:37:16,230 --> 00:37:15,200
looking like really good conditions out

645
00:37:17,990 --> 00:37:16,240
there

646
00:37:20,390 --> 00:37:18,000
uh in the atlantic again they're a

647
00:37:22,390 --> 00:37:20,400
little over 200 nautical miles off the

648
00:37:23,990 --> 00:37:22,400
coast of florida and they'll ultimately

649
00:37:25,430 --> 00:37:24,000
be bound back for

650
00:37:27,349 --> 00:37:25,440
port canaveral

651
00:37:28,870 --> 00:37:27,359
where the uh the spacecraft is going to

652
00:37:30,630 --> 00:37:28,880
get brought back in and handed over the

653
00:37:32,630 --> 00:37:30,640
spacex teams there where they're going

654
00:37:34,150 --> 00:37:32,640
to begin processing and pretty much

655
00:37:36,069 --> 00:37:34,160
getting ready to turn it around for that

656
00:37:38,069 --> 00:37:36,079
asset award yeah yeah

657
00:37:41,109 --> 00:37:38,079
we've been monitoring the recovery

658
00:37:43,430 --> 00:37:41,119
weather conditions over the last several

659
00:37:45,430 --> 00:37:43,440
days and now that recovery day has uh

660
00:37:46,950 --> 00:37:45,440
has come upon us we can see that we have

661
00:37:49,990 --> 00:37:46,960
beautiful skies

662
00:37:52,790 --> 00:37:50,000
and and really well in my unprofessional

663
00:37:55,589 --> 00:37:52,800

nautical knowledge uh relatively calm

664
00:37:56,870 --> 00:37:55,599
seas by by my eyes um but you know it's

665
00:37:59,109 --> 00:37:56,880
really difficult to be able to predict

666
00:38:00,230 --> 00:37:59,119
what the weather is going to be like uh

667
00:38:02,230 --> 00:38:00,240
at sea

668
00:38:04,069 --> 00:38:02,240
very far in advance so we're all very

669
00:38:05,670 --> 00:38:04,079
happy to be able to have clear imagery

670
00:38:08,470 --> 00:38:05,680
of the recovery team

671
00:38:09,829 --> 00:38:08,480
as we as we make progress here

672
00:38:12,230 --> 00:38:09,839
i feel like we've lucked out with

673
00:38:14,870 --> 00:38:12,240
florida weather so far

674
00:38:16,550 --> 00:38:14,880
on this mission

675
00:38:19,349 --> 00:38:16,560
all right we're here and there's about

676
00:38:21,109 --> 00:38:19,359
one minute left in this deorbit fern so

677
00:38:23,589 --> 00:38:21,119
just about done with that and again this

678
00:38:26,069 --> 00:38:23,599
is just that final maneuver to begin

679
00:38:28,069 --> 00:38:26,079
bringing dragon out of space and down to

680
00:38:29,829 --> 00:38:28,079
the ocean we're still getting a couple

681
00:38:31,349 --> 00:38:29,839
of views from onboard the dragon

682
00:38:58,390 --> 00:38:31,359
spacecraft that's what you're looking at

683
00:38:58,400 --> 00:39:02,390
so

684
00:39:04,870 --> 00:39:03,829
all right now we're just going to stand

685
00:39:06,870 --> 00:39:04,880
by and

686
00:39:12,310 --> 00:39:06,880
listen for how the deorbit burn went

687
00:39:16,790 --> 00:39:14,710
so like dan said we are awaiting

688
00:39:19,109 --> 00:39:16,800

confirmation of the conclusion of the

689
00:39:20,870 --> 00:39:19,119
deorbit burn uh it's been going on for

690
00:39:23,030 --> 00:39:20,880
the last several minutes and like we

691
00:39:25,270 --> 00:39:23,040
said before dragon departed space

692
00:39:27,829 --> 00:39:25,280
station earlier today performed a number

693
00:39:30,870 --> 00:39:27,839
of departure burns and now we are

694
00:39:32,870 --> 00:39:30,880
hopefully just exiting the the final

695
00:39:34,390 --> 00:39:32,880
burn and that's the re-entry burn

696
00:39:37,270 --> 00:39:34,400
and there on the left-hand side of your

697
00:39:38,790 --> 00:39:37,280
screen you can see our recovery vessel

698
00:39:40,950 --> 00:39:38,800
waiting for

699
00:39:44,550 --> 00:39:40,960
the splashdown of dragon

700
00:39:45,270 --> 00:39:44,560
once we exit the this um once we exit

701
00:40:02,550 --> 00:39:45,280
the

702
00:40:04,390 --> 00:40:02,560
allowing it to come to a a slower

703
00:40:06,710 --> 00:40:04,400
velocity as it approaches the the

704
00:40:09,190 --> 00:40:06,720
surface of the ocean and we are being

705
00:40:11,670 --> 00:40:09,200
told that was a nominal burn so the

706
00:40:13,589 --> 00:40:11,680
deorbit burn is complete dragon is on

707
00:40:15,030 --> 00:40:13,599
its way home

708
00:40:17,430 --> 00:40:15,040
and so the next thing that's going to

709
00:40:19,030 --> 00:40:17,440
happen is that nose going on dragon is

710
00:40:21,829 --> 00:40:19,040
going to get closed we heard that

711
00:40:24,150 --> 00:40:21,839
process is now in work and then it's

712
00:40:26,470 --> 00:40:24,160
time for dragon to really get through

713
00:40:28,150 --> 00:40:26,480

the earth's atmosphere and ultimately

714
00:40:29,829 --> 00:40:28,160
splash down so

715
00:40:31,349 --> 00:40:29,839
that's where the vehicle is going to

716
00:40:33,349 --> 00:40:31,359
heat up tremendously because again you

717
00:40:35,750 --> 00:40:33,359
have to keep in mind dragon traveling at

718
00:40:37,750 --> 00:40:35,760
thousands of miles per hour right now

719
00:40:39,910 --> 00:40:37,760
and when it hits the thicker part of the

720
00:40:41,829 --> 00:40:39,920
earth's atmosphere

721
00:40:43,750 --> 00:40:41,839
it's going to heat up tremendously from

722
00:40:46,309 --> 00:40:43,760
the friction and this is actually video

723
00:40:53,670 --> 00:40:46,319
of the nose cone starting to close on

724
00:40:58,150 --> 00:40:55,510
and again that nose cone just closes to

725
00:41:00,790 --> 00:40:58,160
protect that top portion of the vehicle

726
00:41:02,950 --> 00:41:00,800
from all of the re-entry

727
00:41:04,470 --> 00:41:02,960
uh events not only the re-entry through

728
00:41:07,510 --> 00:41:04,480
the earth's atmosphere but also once

729
00:41:08,309 --> 00:41:07,520
it's down in the water and that protects

730
00:41:09,670 --> 00:41:08,319
the

731
00:41:11,589 --> 00:41:09,680
guidance and navigation and control

732
00:41:14,950 --> 00:41:11,599
sensors on top of dragon

733
00:41:17,829 --> 00:41:14,960
and also that docking ring that it uses

734
00:41:19,750 --> 00:41:17,839
to attach to the space station

735
00:41:21,910 --> 00:41:19,760
so again what you're seeing right now is

736
00:41:23,190 --> 00:41:21,920
the nose cone closing on the dragon

737
00:41:26,230 --> 00:41:23,200
spacecraft

738
00:41:48,790 --> 00:41:26,240

as we await for it to re-enter

739
00:41:52,790 --> 00:41:51,030
all right so that nose gun looks like

740
00:41:54,790 --> 00:41:52,800
it's just about closed we'll wait for a

741
00:41:57,430 --> 00:41:54,800
final confirmation uh that everything

742
00:41:59,030 --> 00:41:57,440
looks good with it but then pretty soon

743
00:42:01,430 --> 00:41:59,040
we're going to be looking towards the

744
00:42:03,589 --> 00:42:01,440
actual entry interface so that's again

745
00:42:05,670 --> 00:42:03,599
where dragon starts hitting

746
00:42:07,349 --> 00:42:05,680
enough atmosphere that it's going to

747
00:42:09,670 --> 00:42:07,359
start heating up because right now it's

748
00:42:11,430 --> 00:42:09,680
still high enough uh even following that

749
00:42:12,630 --> 00:42:11,440
deorbit burn that it's still not feeling

750
00:42:13,990 --> 00:42:12,640
those effects

751
00:42:15,589 --> 00:42:14,000
the atmosphere is going to get thicker

752
00:42:17,030 --> 00:42:15,599
as it starts to descend and that's going

753
00:42:19,109 --> 00:42:17,040
to heat the vehicle up that's why you

754
00:42:21,030 --> 00:42:19,119
always have this heat shield on the

755
00:42:22,950 --> 00:42:21,040
bottom of these spacecrafts and that's

756
00:42:25,750 --> 00:42:22,960
why a lot of them are in these this

757
00:42:27,190 --> 00:42:25,760
conical shape as a lot of engineers i've

758
00:42:29,670 --> 00:42:27,200
talked to they like to say physics

759
00:42:31,750 --> 00:42:29,680
haven't changed since the 1960s

760
00:42:33,510 --> 00:42:31,760
when we made the spacecraft back then it

761
00:42:35,589 --> 00:42:33,520
was for that it was that shape for a

762
00:42:37,910 --> 00:42:35,599
reason and so that's why it's so common

763
00:42:39,349 --> 00:42:37,920

to see this capsule design just because

764
00:42:41,670 --> 00:42:39,359
of how you re-enter the earth's

765
00:42:44,390 --> 00:42:41,680
atmosphere it makes a lot of sense

766
00:42:46,950 --> 00:42:44,400
so we just heard confirmation that the

767
00:42:49,270 --> 00:42:46,960
nose cone hooks have begun the process

768
00:42:52,150 --> 00:42:49,280
of securing the nose cone into place

769
00:42:55,349 --> 00:42:52,160
prior to that re-entry burn

770
00:42:57,270 --> 00:42:55,359
that's right and so there's actually an

771
00:42:59,349 --> 00:42:57,280
anticipated time where you lose signal

772
00:43:01,030 --> 00:42:59,359
with the spacecraft and that's just

773
00:43:02,309 --> 00:43:01,040
because as you're re-entering the

774
00:43:05,190 --> 00:43:02,319
earth's atmosphere and you go through

775
00:43:06,870 --> 00:43:05,200
that intense heat plasma actually builds

776
00:43:08,710 --> 00:43:06,880
up on the outside of the spacecraft and

777
00:43:09,750 --> 00:43:08,720
you can't send or receive signals from

778
00:43:11,510 --> 00:43:09,760
there so

779
00:43:12,550 --> 00:43:11,520
it's very common when there's people on

780
00:43:13,990 --> 00:43:12,560
board you'll lose the voice

781
00:43:16,069 --> 00:43:14,000
communication between them and the

782
00:43:18,150 --> 00:43:16,079
ground and you'll lose all the telemetry

783
00:43:19,990 --> 00:43:18,160
of the data streams that you have coming

784
00:43:22,069 --> 00:43:20,000
from the spacecraft to rooms like the

785
00:43:24,230 --> 00:43:22,079
mission control center just behind us

786
00:43:27,030 --> 00:43:24,240
here in hawthorne so that'll be coming

787
00:43:30,630 --> 00:43:27,040
up we're expecting that to happen at

788
00:43:31,910 --> 00:43:30,640

about five what time is it 5 33 a.m

789
00:43:34,550 --> 00:43:31,920
pacific

790
00:43:37,750 --> 00:43:34,560
so coming up in just about 20 minutes

791
00:43:39,270 --> 00:43:37,760
from now exactly and so after we are

792
00:43:41,589 --> 00:43:39,280
able to get through that phase of the

793
00:43:43,030 --> 00:43:41,599
mission like we said before following

794
00:43:45,510 --> 00:43:43,040
that will be the deployment of the

795
00:43:47,910 --> 00:43:45,520
parachutes and then splashdown so just a

796
00:43:49,670 --> 00:43:47,920
quick recap in case if you uh have just

797
00:43:51,750 --> 00:43:49,680
joined us recently

798
00:43:54,069 --> 00:43:51,760
we have departed from the international

799
00:43:57,670 --> 00:43:54,079
space station dragon completed a series

800
00:44:00,790 --> 00:43:57,680
of four departure burns in a

801
00:44:03,510 --> 00:44:00,800
slowly choreographed maneuver and

802
00:44:07,030 --> 00:44:03,520
now we have already jettisoned the trunk

803
00:44:10,069 --> 00:44:07,040
of the the the dragon spacecraft we have

804
00:44:11,190 --> 00:44:10,079
completed the the the orbit burn and now

805
00:44:12,630 --> 00:44:11,200
we're just

806
00:44:15,270 --> 00:44:12,640
starting to come back down through the

807
00:44:17,910 --> 00:44:15,280
earth's atmosphere and the final leg on

808
00:44:19,990 --> 00:44:17,920
dragon's way home

809
00:44:22,790 --> 00:44:20,000
that's right so that nose cones close

810
00:44:24,870 --> 00:44:22,800
and we're just gonna be standing by to

811
00:44:26,390 --> 00:44:24,880
wait until we go through that entry

812
00:44:28,630 --> 00:44:26,400
interfacing and it'll be about 20

813
00:44:30,390 --> 00:44:28,640

minutes from now uh and then once it's

814
00:44:31,750 --> 00:44:30,400
down through there it's time for the

815
00:44:33,190 --> 00:44:31,760
parachutes and we talked about the

816
00:44:34,309 --> 00:44:33,200
parachutes a little while ago and we

817
00:44:36,630 --> 00:44:34,319
should hopefully get to see those

818
00:44:38,390 --> 00:44:36,640
parachutes maybe from the plane but once

819
00:44:39,670 --> 00:44:38,400
it's down beneath the cloud deck so we

820
00:44:41,670 --> 00:44:39,680
should be able to see them from the

821
00:44:43,990 --> 00:44:41,680
boats that'll be standing by and out

822
00:44:45,430 --> 00:44:44,000
there at the recovery zone and it comes

823
00:44:47,510 --> 00:44:45,440
in two different stages can you walk us

824
00:44:49,349 --> 00:44:47,520
through the parachutes real quick yeah

825
00:44:51,030 --> 00:44:49,359
so with the parachutes we will have the

826
00:44:52,870 --> 00:44:51,040
drogue parachutes those are the smaller

827
00:44:54,309 --> 00:44:52,880
shoots that will come out that will slow

828
00:44:56,230 --> 00:44:54,319
the vehicle down

829
00:44:58,150 --> 00:44:56,240
a little bit and then we will have the

830
00:45:00,230 --> 00:44:58,160
main parachutes those are clearly

831
00:45:02,950 --> 00:45:00,240
visible by the orange and white coloring

832
00:45:04,950 --> 00:45:02,960
on them very iconic if you've watched

833
00:45:05,670 --> 00:45:04,960
the pre our previous dragon splashdowns

834
00:45:07,829 --> 00:45:05,680
for

835
00:45:09,430 --> 00:45:07,839
the cargo resupply missions so we will

836
00:45:11,910 --> 00:45:09,440
have that and then that's what will slow

837
00:45:15,030 --> 00:45:11,920
the vehicle down enough to have a safe

838
00:45:17,109 --> 00:45:15,040

splashdown in the water so at this point

839
00:45:19,829 --> 00:45:17,119
another fun fact about dragon

840
00:45:22,150 --> 00:45:19,839
in the return to earth the seats inside

841
00:45:25,430 --> 00:45:22,160
the capsule at this point have actuated

842
00:45:27,670 --> 00:45:25,440
or turned into the re-entry position so

843
00:45:31,030 --> 00:45:27,680
depending on what phase of the mission

844
00:45:33,829 --> 00:45:31,040
we are in the seats will actually

845
00:45:35,109 --> 00:45:33,839
actuator or adjust the angle to make

846
00:45:37,910 --> 00:45:35,119
sure that the g-forces that the

847
00:45:40,230 --> 00:45:37,920
astronauts will be experiencing

848
00:45:42,309 --> 00:45:40,240
are in the right places so

849
00:45:43,510 --> 00:45:42,319
with that being said we will take a

850
00:45:45,190 --> 00:45:43,520
quick break

851
00:45:47,910 --> 00:45:45,200
as

852
00:45:50,550 --> 00:45:47,920
active operations here at spacex

853
00:45:52,870 --> 00:45:50,560
um so with that being said we will take

854
00:45:53,990 --> 00:45:52,880
a quick break be sure to stay tuned with

855
00:45:55,990 --> 00:45:54,000
us as we

856
00:45:58,230 --> 00:45:56,000
go through this period of anticipated

857
00:46:00,390 --> 00:45:58,240
blackout with the dragon capsule we'll

858
00:46:02,150 --> 00:46:00,400
be back in just a few as we

859
00:46:31,940 --> 00:46:02,160
come back in anticipation of that

860
00:48:49,750 --> 00:46:43,390
[Music]

861
00:48:54,630 --> 00:48:51,910
and if you're just now joining us

862
00:48:56,630 --> 00:48:54,640
we have had a successful deorbit burn so

863
00:48:58,870 --> 00:48:56,640

that was the last major milestone oh

864
00:49:01,349 --> 00:48:58,880
we've also confirmed that the nose cone

865
00:49:03,190 --> 00:49:01,359
is closed the hooks all engage

866
00:49:04,950 --> 00:49:03,200
and so now we're just waiting for dragon

867
00:49:06,950 --> 00:49:04,960
to begin making its way through the

868
00:49:09,109 --> 00:49:06,960
earth's atmosphere

869
00:49:11,190 --> 00:49:09,119
that the orbit burn lasted a little over

870
00:49:13,510 --> 00:49:11,200
15 minutes and was reported that it was

871
00:49:16,309 --> 00:49:13,520
done successfully no issues and dragon

872
00:49:17,829 --> 00:49:16,319
is now on its way home we're continuing

873
00:49:20,630 --> 00:49:17,839
to get some pretty great views from the

874
00:49:22,150 --> 00:49:20,640
boats out there in the splashdown zone

875
00:49:24,870 --> 00:49:22,160
and we're also going to be on the

876
00:49:27,430 --> 00:49:24,880
lookout for some video possibly from an

877
00:49:30,390 --> 00:49:27,440
aircraft that we have in the area one of

878
00:49:32,069 --> 00:49:30,400
nasa's wb 57 research planes

879
00:49:33,910 --> 00:49:32,079
is going to be trying to get some views

880
00:49:34,950 --> 00:49:33,920
of dragon and the chute deploy and

881
00:49:36,950 --> 00:49:34,960
actually coming down under the

882
00:49:39,030 --> 00:49:36,960
parachutes there are some clouds in the

883
00:49:40,710 --> 00:49:39,040
area so the boats might not see it right

884
00:49:42,710 --> 00:49:40,720
away but once it's underneath those

885
00:49:45,109 --> 00:49:42,720
cloud decks they'll have some pretty

886
00:49:46,790 --> 00:49:45,119
great views of it coming down

887
00:49:49,589 --> 00:49:46,800
so there on your screen again you can

888
00:49:51,829 --> 00:49:49,599

see our primary recovery vessel

889
00:49:54,950 --> 00:49:51,839
that is well there it went

890
00:49:57,270 --> 00:49:54,960
but that is a our recovery ship that is

891
00:49:59,589 --> 00:49:57,280
fully equipped with medical quarters for

892
00:50:01,349 --> 00:49:59,599
checkouts once we do have crew

893
00:50:02,870 --> 00:50:01,359
on board dragon

894
00:50:04,630 --> 00:50:02,880
for our upcoming missions they will be

895
00:50:06,630 --> 00:50:04,640
able to come out of the capsule and get

896
00:50:08,950 --> 00:50:06,640
a full medical checkout immediately

897
00:50:11,030 --> 00:50:08,960
afterward there's also a helipad there

898
00:50:12,790 --> 00:50:11,040
where a helicopter can land in the event

899
00:50:13,910 --> 00:50:12,800
that we might need to get them back to

900
00:50:15,750 --> 00:50:13,920
port

901
00:50:17,430 --> 00:50:15,760
sooner than what the boat may be able to

902
00:50:20,230 --> 00:50:17,440
go and there on your screen you can

903
00:50:21,910 --> 00:50:20,240
actually see i mentioned earlier the the

904
00:50:23,670 --> 00:50:21,920
the lift that will

905
00:50:26,470 --> 00:50:23,680
bring dragon out of the water has

906
00:50:28,309 --> 00:50:26,480
actuated it into its recovery position

907
00:50:30,150 --> 00:50:28,319
so that you can see on the right hand

908
00:50:32,549 --> 00:50:30,160
side of your screen at the end of the

909
00:50:34,710 --> 00:50:32,559
boat and that is what will actually take

910
00:50:37,589 --> 00:50:34,720
dragon out of the water lift it up and

911
00:50:40,069 --> 00:50:37,599
then place it into its nest which

912
00:50:43,990 --> 00:50:40,079
is the official term for it on the ship

913
00:50:44,790 --> 00:50:44,000

and then that would be considered

914
00:50:46,069 --> 00:50:44,800
the

915
00:50:47,109 --> 00:50:46,079
end at least whenever we get to that

916
00:50:48,390 --> 00:50:47,119
point that will be the end of our

917
00:50:50,470 --> 00:50:48,400
webcast today

918
00:50:51,349 --> 00:50:50,480
but at this point we're still waiting

919
00:50:53,910 --> 00:50:51,359
for

920
00:50:56,710 --> 00:50:53,920
the the parachutes to deploy and then

921
00:50:58,230 --> 00:50:56,720
for the entire recovery operation which

922
00:51:00,230 --> 00:50:58,240
like i mentioned before the recovery

923
00:51:02,150 --> 00:51:00,240
team has practiced this but obviously

924
00:51:03,829 --> 00:51:02,160
not with a vessel that has come down

925
00:51:05,829 --> 00:51:03,839
from the international space station yet

926
00:51:07,910 --> 00:51:05,839
so a lot of firsts that we'll be seeing

927
00:51:09,750 --> 00:51:07,920
today and we're really excited to be

928
00:51:11,589 --> 00:51:09,760
able to share that with you

929
00:51:13,589 --> 00:51:11,599
yeah and if you missed the very

930
00:51:15,990 --> 00:51:13,599
beginning the fun historical tip that we

931
00:51:18,630 --> 00:51:16,000
have we had for today was it's been

932
00:51:21,349 --> 00:51:18,640
almost 50 years to the day since we've

933
00:51:23,190 --> 00:51:21,359
landed a spacecraft designed for humans

934
00:51:26,030 --> 00:51:23,200
in the atlantic ocean that last one was

935
00:51:28,390 --> 00:51:26,040
apollo 9 and that was back on march 13th

936
00:51:30,309 --> 00:51:28,400
1969. it was actually supposed to land

937
00:51:32,150 --> 00:51:30,319
in the pacific but ended up shooting for

938
00:51:33,990 --> 00:51:32,160

the atlantic and that was the last time

939
00:51:35,990 --> 00:51:34,000
they landed one in that area so it's

940
00:51:37,430 --> 00:51:36,000
going to be exciting to see this water

941
00:51:38,790 --> 00:51:37,440
recovery

942
00:51:40,309 --> 00:51:38,800
all of our crew members for the last

943
00:51:42,230 --> 00:51:40,319
couple of years will basically since we

944
00:51:44,150 --> 00:51:42,240
stopped flying the space shuttle have

945
00:51:45,589 --> 00:51:44,160
come down for land landings over in

946
00:51:47,109 --> 00:51:45,599
kazakhstan on the russian soyuz

947
00:51:48,870 --> 00:51:47,119
spacecraft

948
00:51:50,549 --> 00:51:48,880
but in the not too distant future we'll

949
00:51:51,829 --> 00:51:50,559
have crew members

950
00:51:56,790 --> 00:51:51,839
doug

951
00:51:59,030 --> 00:51:56,800
waking up uh they'll be on the dragon

952
00:52:01,910 --> 00:51:59,040
for the demo 2 mission a little bit

953
00:52:03,670 --> 00:52:01,920
later this year so everything looking

954
00:52:05,510 --> 00:52:03,680
really good so far we're going to

955
00:52:07,670 --> 00:52:05,520
continue to stand by

956
00:52:09,589 --> 00:52:07,680
and wait for that entry interface we are

957
00:52:11,829 --> 00:52:09,599
just about 20 minutes away from what

958
00:52:13,829 --> 00:52:11,839
we're expecting to actually see dragon

959
00:52:16,870 --> 00:52:13,839
under those parachutes so

960
00:52:18,870 --> 00:52:16,880
not much longer good things to come

961
00:52:21,109 --> 00:52:18,880
there's a lot of anticipation there's a

962
00:52:22,710 --> 00:52:21,119
crowd growing uh behind me here at

963
00:52:24,870 --> 00:52:22,720

spacex headquarters our mission control

964
00:52:27,750 --> 00:52:24,880
center is just down there and you can

965
00:52:29,270 --> 00:52:27,760
probably hear the voices in in in the

966
00:52:30,309 --> 00:52:29,280
room around us and the crowd is

967
00:52:33,349 --> 00:52:30,319
definitely starting to grow in

968
00:52:35,430 --> 00:52:33,359
anticipation of dragon's reappearance

969
00:52:37,829 --> 00:52:35,440
so with that being said we will take a

970
00:52:39,510 --> 00:52:37,839
quick break as we wait for dragon to

971
00:52:41,670 --> 00:52:39,520
re-enter and for those parachute

972
00:52:44,710 --> 00:52:41,680
deployments stick around we'll be back

973
00:53:12,020 --> 00:52:44,720
in just a few

974
00:54:27,960 --> 00:53:40,010
[Music]

975
00:55:06,720 --> 00:54:27,970
[Applause]

976
00:55:09,839 --> 00:55:09,829
[Music]

977
00:55:13,750 --> 00:55:11,510
and so we're getting a bit of a treat

978
00:55:15,829 --> 00:55:13,760
here you're getting a live view inside

979
00:55:17,910 --> 00:55:15,839
the dragon capsule as again it's getting

980
00:55:19,190 --> 00:55:17,920
closer and closer to that entry

981
00:55:21,349 --> 00:55:19,200
interface coming through the earth's

982
00:55:23,670 --> 00:55:21,359
atmosphere and then splashing down in

983
00:55:25,109 --> 00:55:23,680
the atlantic ocean but first we have a

984
00:55:26,710 --> 00:55:25,119
very special guest somebody who's going

985
00:55:29,829 --> 00:55:26,720
to be on board a dragon in the not too

986
00:55:31,670 --> 00:55:29,839
distant future nasa astronaut bob bankin

987
00:55:33,030 --> 00:55:31,680
bob thanks for being here thanks for

988
00:55:34,710 --> 00:55:33,040

taking a couple of minutes i know you're

989
00:55:36,390 --> 00:55:34,720
following along with the teams there's a

990
00:55:38,069 --> 00:55:36,400
lot of excitement how are you feeling

991
00:55:39,829 --> 00:55:38,079
about the mission so far well i think i

992
00:55:42,230 --> 00:55:39,839
said this before when we're out here for

993
00:55:44,069 --> 00:55:42,240
the ascent phase and docking just super

994
00:55:45,910 --> 00:55:44,079
excited you know of course this one is

995
00:55:47,910 --> 00:55:45,920
the precursor for our mission that's

996
00:55:49,430 --> 00:55:47,920
upcoming here and so when this one's

997
00:55:51,190 --> 00:55:49,440
done successfully we'll be one step

998
00:55:53,109 --> 00:55:51,200
closer to our flight

999
00:55:54,870 --> 00:55:53,119
that's awesome yeah so what is in store

1000
00:55:56,470 --> 00:55:54,880
for you between now and that flight what

1001
00:55:57,829 --> 00:55:56,480
kind of preparations do you have left to

1002
00:55:59,589 --> 00:55:57,839
do that's a great question we have a

1003
00:56:01,430 --> 00:55:59,599
significant amount of training that we

1004
00:56:03,109 --> 00:56:01,440
need to go through so we'll walk through

1005
00:56:05,190 --> 00:56:03,119
all the various phases of flight so

1006
00:56:07,030 --> 00:56:05,200
we'll do pre-launch we'll get suited

1007
00:56:08,630 --> 00:56:07,040
we'll do that here in hawthorne in the

1008
00:56:10,549 --> 00:56:08,640
buck we'll do a walk through at the

1009
00:56:12,630 --> 00:56:10,559
kennedy space center actually on the

1010
00:56:14,470 --> 00:56:12,640
launch pad learn a little bit more about

1011
00:56:15,750 --> 00:56:14,480
the emergency escape system if we should

1012
00:56:18,630 --> 00:56:15,760
need that uh

1013
00:56:19,910 --> 00:56:18,640

prior to launching into space and so

1014
00:56:22,230 --> 00:56:19,920
we'll walk through all those different

1015
00:56:24,069 --> 00:56:22,240
scenarios then we'll head back uh

1016
00:56:25,910 --> 00:56:24,079
out here again for a couple of other

1017
00:56:28,390 --> 00:56:25,920
events associated with docking and of

1018
00:56:30,470 --> 00:56:28,400
course with the re-entry

1019
00:56:32,549 --> 00:56:30,480
so we're getting views inside the dragon

1020
00:56:34,789 --> 00:56:32,559
spacecraft and i mean a camera is okay

1021
00:56:36,870 --> 00:56:34,799
but it can't do the real thing justice

1022
00:56:38,549 --> 00:56:36,880
what's it like to be like in a

1023
00:56:40,390 --> 00:56:38,559
spacecraft when you're coming back

1024
00:56:41,829 --> 00:56:40,400
through and everything's heating up yeah

1025
00:56:43,349 --> 00:56:41,839
there's a couple of pieces of coming

1026
00:56:45,430 --> 00:56:43,359
back through the atmosphere the first

1027
00:56:47,030 --> 00:56:45,440
one is really emotional for those of us

1028
00:56:49,589 --> 00:56:47,040
who've seen a lot of spacecraft come

1029
00:56:51,270 --> 00:56:49,599
back it's just a it's very special to

1030
00:56:53,510 --> 00:56:51,280
kind of go through that experience and

1031
00:56:55,430 --> 00:56:53,520
it's a it's a physical thing as well as

1032
00:56:58,150 --> 00:56:55,440
you actually see the light from the

1033
00:56:59,829 --> 00:56:58,160
atmosphere as it heats up the external

1034
00:57:01,990 --> 00:56:59,839
portions of the spacecraft you see some

1035
00:57:04,069 --> 00:57:02,000
orange lights flickering the plasma kind

1036
00:57:06,470 --> 00:57:04,079
of go past the windows the windows will

1037
00:57:07,670 --> 00:57:06,480
be down near our feet on this vehicle

1038
00:57:09,910 --> 00:57:07,680

that'll be our

1039
00:57:10,950 --> 00:57:09,920
our closest view out the window per se

1040
00:57:12,309 --> 00:57:10,960
but

1041
00:57:14,150 --> 00:57:12,319
it's definitely something that we'll be

1042
00:57:15,349 --> 00:57:14,160
able to see and know the outside of the

1043
00:57:17,430 --> 00:57:15,359
vehicle is going through something

1044
00:57:19,030 --> 00:57:17,440
pretty severe and we'll be hoping it

1045
00:57:20,309 --> 00:57:19,040
takes care of us as it takes us through

1046
00:57:22,230 --> 00:57:20,319
entry

1047
00:57:24,789 --> 00:57:22,240
that's incredible i can't even imagine

1048
00:57:26,549 --> 00:57:24,799
what that experience might be

1049
00:57:28,390 --> 00:57:26,559
again there's the physical piece of it

1050
00:57:30,150 --> 00:57:28,400
you can you know sensations that come in

1051
00:57:31,670 --> 00:57:30,160
with the light but there's also the

1052
00:57:33,670 --> 00:57:31,680
emotion of knowing that you're taking

1053
00:57:35,270 --> 00:57:33,680
all that energy that you put into the

1054
00:57:36,710 --> 00:57:35,280
vehicle to get it into orbit it's all

1055
00:57:39,030 --> 00:57:36,720
got to come back out so that you can get

1056
00:57:40,549 --> 00:57:39,040
back to the ground safely so it's been a

1057
00:57:42,150 --> 00:57:40,559
while since you've been to space is

1058
00:57:43,750 --> 00:57:42,160
there anything you're really looking

1059
00:57:45,430 --> 00:57:43,760
forward to when you get to the space

1060
00:57:47,109 --> 00:57:45,440
station anything like what's what's your

1061
00:57:48,710 --> 00:57:47,119
bucket list once you get back up you

1062
00:57:50,470 --> 00:57:48,720
know for me when i get back to the

1063
00:57:51,910 --> 00:57:50,480

international space station i'm really

1064
00:57:53,589 --> 00:57:51,920
am looking forward to seeing it

1065
00:57:56,470 --> 00:57:53,599
completely complete i was pretty close

1066
00:57:58,069 --> 00:57:56,480
with my flight we put the cupola

1067
00:58:00,150 --> 00:57:58,079
on the underside of the space station

1068
00:58:01,430 --> 00:58:00,160
one of the things close to the

1069
00:58:02,870 --> 00:58:01,440
the construction complete on the

1070
00:58:04,150 --> 00:58:02,880
international space station so i'm

1071
00:58:06,630 --> 00:58:04,160
looking forward to getting back in there

1072
00:58:08,549 --> 00:58:06,640
and actually experiencing sunrises and

1073
00:58:10,150 --> 00:58:08,559
sunsets again they're just remarkable

1074
00:58:11,670 --> 00:58:10,160
from on orbit

1075
00:58:12,710 --> 00:58:11,680
not quite the same as they are from the

1076
00:58:15,109 --> 00:58:12,720
ground and

1077
00:58:16,549 --> 00:58:15,119
can't get that any place else

1078
00:58:18,789 --> 00:58:16,559
last question for you i'm sure you've

1079
00:58:20,870 --> 00:58:18,799
been following along uh on social media

1080
00:58:22,470 --> 00:58:20,880
you've seen the photos of our zero g

1081
00:58:24,150 --> 00:58:22,480
indicator

1082
00:58:26,069 --> 00:58:24,160
now he's not coming back until you bring

1083
00:58:28,230 --> 00:58:26,079
him back for us so you'll have a little

1084
00:58:29,670 --> 00:58:28,240
bit of time to play with him while

1085
00:58:31,990 --> 00:58:29,680
you're on station is there anything that

1086
00:58:33,990 --> 00:58:32,000
you would like to teach a little earthy

1087
00:58:35,430 --> 00:58:34,000
while you're up on station with him yeah

1088
00:58:37,349 --> 00:58:35,440

that's a that's a good question i didn't

1089
00:58:39,270 --> 00:58:37,359
actually realize that little earthly was

1090
00:58:41,510 --> 00:58:39,280
going to stay on board the space station

1091
00:58:43,190 --> 00:58:41,520
until lee rosen one of your

1092
00:58:45,430 --> 00:58:43,200
folks here at spacex come and let us

1093
00:58:47,430 --> 00:58:45,440
know when we when we sat down to watch

1094
00:58:49,349 --> 00:58:47,440
undocking and he said hey we're going to

1095
00:58:51,750 --> 00:58:49,359
need erthy back

1096
00:58:53,750 --> 00:58:51,760
and so i think our plan is to have him

1097
00:58:55,829 --> 00:58:53,760
teach us he's going to welcome us aboard

1098
00:58:58,150 --> 00:58:55,839
probably when we get there and i think

1099
00:58:59,670 --> 00:58:58,160
ann and david and oleg have trained him

1100
00:59:01,750 --> 00:58:59,680
up well so hopefully he can walk us

1101
00:59:03,510 --> 00:59:01,760
through the emergency brief and he's a

1102
00:59:04,950 --> 00:59:03,520
full-fledged station crew member by the

1103
00:59:06,309 --> 00:59:04,960
time that we get there well it

1104
00:59:08,630 --> 00:59:06,319
definitely looks like he's been getting

1105
00:59:09,990 --> 00:59:08,640
a crash course in just about everything

1106
00:59:11,829 --> 00:59:10,000
he should have it all and he ought to be

1107
00:59:14,150 --> 00:59:11,839
able to transfer it to us that's part of

1108
00:59:15,750 --> 00:59:14,160
being a crew member that arrives and

1109
00:59:17,349 --> 00:59:15,760
takes over responsibilities on the

1110
00:59:18,950 --> 00:59:17,359
international space station that's very

1111
00:59:21,589 --> 00:59:18,960
cool well we certainly look forward to

1112
00:59:23,589 --> 00:59:21,599
him coming back as well as you and doug

1113
00:59:25,510 --> 00:59:23,599

in our demo 2 mission in a couple of

1114
00:59:26,870 --> 00:59:25,520
months so be very exciting very much

1115
00:59:27,829 --> 00:59:26,880
looking forward to it as you might

1116
00:59:29,510 --> 00:59:27,839
imagine

1117
00:59:31,589 --> 00:59:29,520
us as well thank you well we're going to

1118
00:59:33,430 --> 00:59:31,599
get back to the re-entry interface bob

1119
00:59:35,510 --> 00:59:33,440
we're going to let you go

1120
00:59:37,430 --> 00:59:35,520
watch along because again best of

1121
00:59:38,950 --> 00:59:37,440
interest

1122
00:59:39,990 --> 00:59:38,960
thanks so much for jumping upstairs real

1123
00:59:45,589 --> 00:59:40,000
quick and talking about it thank you

1124
00:59:49,030 --> 00:59:47,349
so with that we

1125
00:59:51,589 --> 00:59:49,040
uh

1126
00:59:54,150 --> 00:59:51,599
are awaiting the deployment or to be the

1127
00:59:55,990 --> 00:59:54,160
the final phase of the re-entry of

1128
00:59:58,390 --> 00:59:56,000
dragon spacecraft as it's coming back

1129
01:00:00,789 --> 00:59:58,400
through the earth's atmosphere uh i'm

1130
01:00:02,549 --> 01:00:00,799
still kind of reeling from his comments

1131
01:00:04,390 --> 01:00:02,559
about what it's like to actually come

1132
01:00:05,829 --> 01:00:04,400
barreling through the earth's atmosphere

1133
01:00:08,150 --> 01:00:05,839
uh something that you see depicted in

1134
01:00:09,750 --> 01:00:08,160
movies and tv shows of course but to

1135
01:00:11,750 --> 01:00:09,760
hear it live from the source is pretty

1136
01:00:14,789 --> 01:00:11,760
cool and that's exactly what dragon and

1137
01:00:16,390 --> 01:00:14,799
ripley are doing right now so we brought

1138
01:00:18,230 --> 01:00:16,400

you a live view of that just a couple of

1139
01:00:20,630 --> 01:00:18,240
minutes ago that was pretty cool that we

1140
01:00:22,230 --> 01:00:20,640
were able to get that shot like we said

1141
01:00:23,510 --> 01:00:22,240
uh plasma will be building up on the

1142
01:00:25,670 --> 01:00:23,520
exterior of the vehicle as it's

1143
01:00:28,390 --> 01:00:25,680
reentering the atmosphere so

1144
01:00:30,150 --> 01:00:28,400
there's a blackout period that we are

1145
01:00:32,069 --> 01:00:30,160
we were expecting and that's where we're

1146
01:00:34,230 --> 01:00:32,079
at right now so but we can't bring you

1147
01:00:36,549 --> 01:00:34,240
view of ripley on her journey back to

1148
01:00:38,630 --> 01:00:36,559
the atlantic ocean you can see a view of

1149
01:00:41,430 --> 01:00:38,640
our recovery ship there like i said

1150
01:00:43,270 --> 01:00:41,440
before we can now see that the lift arms

1151
01:00:45,270 --> 01:00:43,280
have actuated out into the recovery

1152
01:00:47,349 --> 01:00:45,280
position and they're like that in

1153
01:00:50,150 --> 01:00:47,359
anticipation of dragon

1154
01:00:52,470 --> 01:00:50,160
being pulled in to position closer to

1155
01:00:55,510 --> 01:00:52,480
that the the end of the ship and being

1156
01:00:56,390 --> 01:00:55,520
lifted up into the into the recovery

1157
01:00:58,470 --> 01:00:56,400
nest

1158
01:01:00,710 --> 01:00:58,480
and you gotta imagine the teams out

1159
01:01:01,750 --> 01:01:00,720
there on the ocean are ready for this to

1160
01:01:03,910 --> 01:01:01,760
come home

1161
01:01:06,470 --> 01:01:03,920
again since they're about 200

1162
01:01:08,150 --> 01:01:06,480
give or take nautical miles out to sea

1163
01:01:10,309 --> 01:01:08,160

they actually left yesterday so they've

1164
01:01:11,990 --> 01:01:10,319
been out on the water for some time so

1165
01:01:14,150 --> 01:01:12,000
they're ready and waiting again the

1166
01:01:16,069 --> 01:01:14,160
prime team is on that go searcher and

1167
01:01:18,230 --> 01:01:16,079
that's a bunch of spacex technicians who

1168
01:01:21,190 --> 01:01:18,240
are going to be responsible for going

1169
01:01:23,349 --> 01:01:21,200
out on some fast boats that will deploy

1170
01:01:24,950 --> 01:01:23,359
from that prime ship and they'll begin

1171
01:01:27,109 --> 01:01:24,960
just basically getting the capsule

1172
01:01:29,109 --> 01:01:27,119
stable and then bringing it in closer to

1173
01:01:31,349 --> 01:01:29,119
ultimately get hoisted up on the ship

1174
01:01:32,950 --> 01:01:31,359
also going off to make sure that they

1175
01:01:34,789 --> 01:01:32,960
get those parachutes as those get

1176
01:01:37,109 --> 01:01:34,799
jettisoned from the capsule

1177
01:01:38,950 --> 01:01:37,119
at pretty much just at the moment of

1178
01:01:40,710 --> 01:01:38,960
touchdown so

1179
01:01:43,349 --> 01:01:40,720
we're just going to be ready to watch

1180
01:01:45,510 --> 01:01:43,359
all of that unfold pretty soon we should

1181
01:01:47,589 --> 01:01:45,520
be seeing those parachutes in about 10

1182
01:01:49,510 --> 01:01:47,599
or 11 minutes from now

1183
01:01:51,190 --> 01:01:49,520
right after dragon begins that final

1184
01:01:53,030 --> 01:01:51,200
plunge to the earth's atmosphere so

1185
01:01:54,470 --> 01:01:53,040
we're getting a lot closer things are

1186
01:01:57,109 --> 01:01:54,480
really going to pick up once we get

1187
01:01:59,510 --> 01:01:57,119
those first use a dragon over the uh the

1188
01:02:01,270 --> 01:01:59,520

atlantic there absolutely so like

1189
01:02:03,109 --> 01:02:01,280
dandruff said we've got about 10 minutes

1190
01:02:04,829 --> 01:02:03,119
until we see the first deployment which

1191
01:02:06,950 --> 01:02:04,839
are the deployments of the drug

1192
01:02:09,109 --> 01:02:06,960
parachutes so with that being said we're

1193
01:02:10,789 --> 01:02:09,119
going to take a quick break and we'll be

1194
01:03:30,050 --> 01:02:10,799
back in a few as we get closer to

1195
01:03:30,060 --> 01:06:51,349
[Music]

1196
01:06:51,359 --> 01:07:05,990
do

1197
01:07:06,000 --> 01:07:39,750
[Laughter]

1198
01:07:46,150 --> 01:07:43,990
and so this is a view from that wb 57

1199
01:07:48,309 --> 01:07:46,160
airplane you were looking at dragons

1200
01:07:50,069 --> 01:07:48,319
streaking across the sky

1201
01:07:52,870 --> 01:07:50,079
on its re-entry through the earth's

1202
01:07:57,029 --> 01:07:52,880
atmosphere aiming for a splashdown in

1203
01:07:58,789 --> 01:07:57,039
just a little while from now

1204
01:08:01,029 --> 01:07:58,799
so it's pretty exciting that we get this

1205
01:08:03,670 --> 01:08:01,039
shot right now as it is

1206
01:08:06,069 --> 01:08:03,680
our first view from planet earth of the

1207
01:08:07,750 --> 01:08:06,079
dragon capsule since it lifted off from

1208
01:08:13,510 --> 01:08:07,760
cape canaveral

1209
01:08:17,590 --> 01:08:15,750
i will say this is this is a pretty rare

1210
01:08:19,829 --> 01:08:17,600
treat to be able to see this here and

1211
01:08:22,390 --> 01:08:19,839
again this this video is coming from a

1212
01:08:25,510 --> 01:08:22,400
nasa airplane that we're flying around

1213
01:08:27,510 --> 01:08:25,520

that recovery zone there a wb 57 it's

1214
01:08:29,749 --> 01:08:27,520
commonly used for a lot of atmospheric

1215
01:08:32,070 --> 01:08:29,759
studies and other science missions i've

1216
01:08:34,070 --> 01:08:32,080
been able to put a tracking camera on it

1217
01:08:35,829 --> 01:08:34,080
to try and get

1218
01:08:37,590 --> 01:08:35,839
this

1219
01:08:39,030 --> 01:08:37,600
re-entry through the earth's atmosphere

1220
01:08:41,910 --> 01:08:39,040
today we're hearing that they should

1221
01:08:44,229 --> 01:08:41,920
have aoso acquisition acquisition of

1222
01:08:46,390 --> 01:08:44,239
signal back with the dragon spacecraft

1223
01:08:49,110 --> 01:08:46,400
right now it's about 46 kilometers in

1224
01:08:53,349 --> 01:08:51,669
yeah so just for orientation purposes

1225
01:08:55,430 --> 01:08:53,359
if you've seen our our launches

1226
01:08:57,669 --> 01:08:55,440
previously you might be familiar with

1227
01:08:59,669 --> 01:08:57,679
the angling of this as take off

1228
01:09:01,990 --> 01:08:59,679
reminder this is re-entry

1229
01:09:04,070 --> 01:09:02,000
the plane is below the dragon spacecraft

1230
01:09:06,070 --> 01:09:04,080
and the camera is looking upward as it's

1231
01:09:06,950 --> 01:09:06,080
coming over the spacecraft so it looks

1232
01:09:09,349 --> 01:09:06,960
like

1233
01:09:11,430 --> 01:09:09,359
from the orientation of the the imagery

1234
01:09:13,669 --> 01:09:11,440
there the dragon is going up when in

1235
01:09:24,309 --> 01:09:13,679
fact it is it is still coming back down

1236
01:09:28,550 --> 01:09:25,749
and again just keeping you on the

1237
01:09:30,789 --> 01:09:28,560
timeline so we actually acquired signal

1238
01:09:32,550 --> 01:09:30,799

about a minute ahead of when it was

1239
01:09:34,630 --> 01:09:32,560
expected where we're going to be looking

1240
01:09:35,829 --> 01:09:34,640
for those initial drogue shoot

1241
01:09:38,470 --> 01:09:35,839
deployments

1242
01:09:40,229 --> 01:09:38,480
at about 41 minutes after the hour so

1243
01:09:42,229 --> 01:09:40,239
after dragon gets a little bit lower

1244
01:09:43,349 --> 01:09:42,239
down we're going to be keeping an eye

1245
01:09:46,070 --> 01:09:43,359
out you're going to see the drogue

1246
01:09:48,870 --> 01:09:46,080
shoots deploy initially followed by

1247
01:09:50,870 --> 01:09:48,880
those four main parachutes much larger

1248
01:10:03,750 --> 01:09:50,880
and able to slow the vehicle down for a

1249
01:10:07,350 --> 01:10:05,750
we should be getting that drug drug

1250
01:10:09,510 --> 01:10:07,360
shoot deployment in just about two

1251
01:10:12,149 --> 01:10:09,520
minutes now

1252
01:10:32,149 --> 01:10:12,159
and just heard that we're now below 30

1253
01:10:37,430 --> 01:10:34,390
and if you're just now tuning in this is

1254
01:10:39,590 --> 01:10:37,440
dragon this is dragon coming home

1255
01:10:40,950 --> 01:10:39,600
this is from a camera on board a chase

1256
01:10:42,790 --> 01:10:40,960
plane there

1257
01:10:45,590 --> 01:10:42,800
at the the landing zone over the

1258
01:10:49,510 --> 01:10:45,600
atlantic about 200 or so nautical miles

1259
01:10:53,110 --> 01:10:51,669
we're under 30 kilometers continuing to

1260
01:10:54,470 --> 01:10:53,120
descend

1261
01:11:04,870 --> 01:10:54,480
the next milestone we're going to be

1262
01:11:24,709 --> 01:11:06,550
and hearing we're now about 20

1263
01:11:24,719 --> 01:11:34,310

man

1264
01:11:38,630 --> 01:11:36,310
the dragon spacecraft continuing to

1265
01:11:40,709 --> 01:11:38,640
descend it's now subsonic so already

1266
01:11:42,550 --> 01:11:40,719
starting to slow down thanks to the

1267
01:11:44,630 --> 01:11:42,560
error breaking basically slamming into

1268
01:11:45,590 --> 01:11:44,640
that earth's atmosphere causes a lot of

1269
01:11:48,790 --> 01:11:45,600
friction

1270
01:11:51,669 --> 01:11:48,800
and allows the vehicle to eventually

1271
01:11:53,030 --> 01:11:51,679
reach its terminal velocity basically

1272
01:11:59,510 --> 01:11:53,040
and then those parachutes are going to

1273
01:12:03,270 --> 01:12:01,189
so there you have usual confirmation of

1274
01:12:05,030 --> 01:12:03,280
the deployment of our drogue parachutes

1275
01:12:13,430 --> 01:12:05,040
this is the first of two parachute

1276
01:12:16,630 --> 01:12:15,189
so those drug shoots do the initial

1277
01:12:18,070 --> 01:12:16,640
slowing and then they're ultimately

1278
01:12:20,790 --> 01:12:18,080
going to pull out the four main

1279
01:12:22,630 --> 01:12:20,800
parachutes responsible for really

1280
01:12:28,630 --> 01:12:22,640
slowing the spacecraft down

1281
01:12:32,550 --> 01:12:30,709
you can hear cheering here at spacex

1282
01:12:34,070 --> 01:12:32,560
headquarters as the employees that have

1283
01:12:36,950 --> 01:12:34,080
gathered around our mission control

1284
01:12:39,030 --> 01:12:36,960
center are sharing the same view as you

1285
01:12:44,160 --> 01:12:39,040
what a gorgeous shot of dragon coming

1286
01:12:44,170 --> 01:12:52,790
[Applause]

1287
01:12:52,800 --> 01:12:59,510
and here from the mains

1288
01:12:59,520 --> 01:13:03,110

over the next few

1289
01:13:07,030 --> 01:13:04,630
like that seconds to

1290
01:13:09,590 --> 01:13:07,040
expand as they capture more air further

1291
01:13:15,990 --> 01:13:09,600
decelerating the dragon vehicle down to

1292
01:13:19,669 --> 01:13:17,990
really can't ask for a more picture

1293
01:13:22,149 --> 01:13:19,679
perfect

1294
01:13:24,790 --> 01:13:22,159
shot than that

1295
01:13:26,470 --> 01:13:24,800
and yes all four

1296
01:13:28,790 --> 01:13:26,480
shoots now deployed it's going to

1297
01:13:33,430 --> 01:13:28,800
continue

1298
01:13:35,669 --> 01:13:33,440
slow down and then ultimately splash

1299
01:13:54,790 --> 01:13:35,679
down in the atlantic fair

1300
01:13:54,800 --> 01:14:12,149
just about 750 meters to go

1301
01:14:15,750 --> 01:14:13,669
in case if you're just joining us you

1302
01:14:17,590 --> 01:14:15,760
can see on your screen there dragon

1303
01:14:18,950 --> 01:14:17,600
re-entering your has just re-entered the

1304
01:14:20,950 --> 01:14:18,960
earth's atmosphere after departing from

1305
01:14:22,550 --> 01:14:20,960
the international space station we have

1306
01:14:23,830 --> 01:14:22,560
a gorgeous shot of four healthy

1307
01:14:26,229 --> 01:14:23,840
parachutes

1308
01:14:27,750 --> 01:14:26,239
deployed and slowing the vehicle down as

1309
01:14:29,110 --> 01:14:27,760
it is approaching the surface of the

1310
01:14:32,470 --> 01:14:29,120
atlantic ocean

1311
01:14:37,990 --> 01:14:34,390
and it's continuing to descend under

1312
01:14:39,910 --> 01:14:38,000
those shoots we just passed 500 meters

1313
01:14:42,790 --> 01:14:39,920

everything continuing to look good via

1314
01:14:56,390 --> 01:14:42,800
reports to all the flight control teams

1315
01:15:01,110 --> 01:14:58,870
and just passing 300 meters continuing

1316
01:15:02,950 --> 01:15:01,120
to descend we might be right on time we

1317
01:15:04,870 --> 01:15:02,960
were planning on splashing down at about

1318
01:15:06,709 --> 01:15:04,880
5 45 a.m

1319
01:15:23,830 --> 01:15:06,719
pacific and we're getting real close to

1320
01:15:27,910 --> 01:15:25,750
and we have confirmation that dragon is

1321
01:15:29,910 --> 01:15:27,920
now under 100 meters

1322
01:15:32,550 --> 01:15:29,920
uh is 100 meters above the surface of

1323
01:15:32,560 --> 01:15:41,920
next up spin standing by for splashdown

1324
01:15:41,930 --> 01:15:52,149
[Applause]

1325
01:15:55,750 --> 01:15:54,630
and there we have confirmation of slash

1326
01:15:57,990 --> 01:15:55,760
down

1327
01:16:00,630 --> 01:15:58,000
dragon has returned to planet earth it

1328
01:16:03,430 --> 01:16:00,640
is now back home and you can see on your

1329
01:16:06,550 --> 01:16:03,440
screen our two fast boats racing out to

1330
01:16:11,350 --> 01:16:06,560
the capsule now in recovery that

1331
01:16:15,910 --> 01:16:11,360
splashdown came right on time 5 45 a.m

1332
01:16:17,350 --> 01:16:15,920
pacific 8 45 a.m over on the east coast

1333
01:16:19,350 --> 01:16:17,360
the teams that have been ready and

1334
01:16:21,350 --> 01:16:19,360
waiting they were staged just a few

1335
01:16:23,030 --> 01:16:21,360
nautical miles away they're going to

1336
01:16:25,189 --> 01:16:23,040
start moving in now you can see those

1337
01:16:27,860 --> 01:16:25,199
two fast approach roads already speeding

1338
01:16:36,950 --> 01:16:27,870

their way towards the capsule

1339
01:16:38,149 --> 01:16:36,960
[Applause]

1340
01:16:39,910 --> 01:16:38,159
well there's still a little bit more

1341
01:16:42,630 --> 01:16:39,920
work to be done at this point like we

1342
01:16:45,350 --> 01:16:42,640
said uh the recovery team has to save

1343
01:16:48,470 --> 01:16:45,360
the vehicle and then lift it onto the

1344
01:16:50,630 --> 01:16:48,480
recovery vessel however obviously by the

1345
01:16:52,550 --> 01:16:50,640
excited cheers

1346
01:16:54,870 --> 01:16:52,560
here at mission control the splashdown

1347
01:16:57,830 --> 01:16:54,880
is an enormous event for us

1348
01:16:59,830 --> 01:16:57,840
in terms of the safe reentry or excuse

1349
01:17:02,550 --> 01:16:59,840
me the safe return to earth from the

1350
01:17:03,430 --> 01:17:02,560
international space station that's right

1351
01:17:05,350 --> 01:17:03,440
and

1352
01:17:07,510 --> 01:17:05,360
you'll notice two boats on their way one

1353
01:17:09,750 --> 01:17:07,520
boat actually responsible for beginning

1354
01:17:11,430 --> 01:17:09,760
to safe the vehicle and get it ready to

1355
01:17:12,630 --> 01:17:11,440
go up onto the boat the other one's

1356
01:17:14,790 --> 01:17:12,640
going to go off and collect those

1357
01:17:16,470 --> 01:17:14,800
parachutes as those four main shoots

1358
01:17:18,310 --> 01:17:16,480
actually get jettisoned away from the

1359
01:17:20,630 --> 01:17:18,320
spacecraft as soon as the vehicle

1360
01:17:24,229 --> 01:17:20,640
detects that it's splashed down in the

1361
01:17:25,270 --> 01:17:24,239
water but if you missed it i'm really

1362
01:17:27,430 --> 01:17:25,280
sorry

1363
01:17:30,550 --> 01:17:27,440

because that was really cool

1364
01:17:33,669 --> 01:17:30,560
the dragon did splash down at 5 45 a.m

1365
01:17:35,830 --> 01:17:33,679
pacific time 8 45 a.m over there on the

1366
01:17:38,790 --> 01:17:35,840
east coast where they're now moving in

1367
01:17:41,189 --> 01:17:38,800
on dragon spacecraft in the water ready

1368
01:17:43,110 --> 01:17:41,199
to recover it exactly so like we said

1369
01:17:45,590 --> 01:17:43,120
the recovery team has been ready and

1370
01:17:47,189 --> 01:17:45,600
waiting for dragon splash for today for

1371
01:17:49,430 --> 01:17:47,199
a dragon splashdown

1372
01:17:51,750 --> 01:17:49,440
it's been quite the morning

1373
01:17:53,030 --> 01:17:51,760
evening dan and i have been here since

1374
01:17:55,669 --> 01:17:53,040
yesterday night

1375
01:17:57,270 --> 01:17:55,679
uh bringing you coverage from a dragon

1376
01:17:59,270 --> 01:17:57,280
departure from the international space

1377
01:18:00,709 --> 01:17:59,280
space station now all the way down to

1378
01:18:03,030 --> 01:18:00,719
splashdown so

1379
01:18:04,709 --> 01:18:03,040
it's a great next milestone and we are

1380
01:18:07,510 --> 01:18:04,719
excited to bring you coverage of the

1381
01:18:09,189 --> 01:18:07,520
recovery operations as well

1382
01:18:11,350 --> 01:18:09,199
but we have a few minutes before that

1383
01:18:13,590 --> 01:18:11,360
happens so and we're going to take a

1384
01:18:15,510 --> 01:18:13,600
break momentarily and we will continue

1385
01:19:52,720 --> 01:18:15,520
bringing coverage as the recovery

1386
01:21:35,590 --> 01:19:58,440
[Music]

1387
01:21:35,600 --> 01:21:42,480
do

1388
01:21:42,490 --> 01:22:15,189

[Music]

1389
01:22:15,199 --> 01:22:22,900
oh

1390
01:22:22,910 --> 01:22:28,550
[Music]

1391
01:22:28,560 --> 01:22:57,190
foreign

1392
01:25:38,190 --> 01:23:15,800
[Music]

1393
01:25:40,550 --> 01:25:38,200
[Applause]

1394
01:25:42,709 --> 01:25:40,560
[Music]

1395
01:25:44,550 --> 01:25:42,719
and so we're going to take a quick break

1396
01:25:46,310 --> 01:25:44,560
from the operations because right now we

1397
01:25:48,310 --> 01:25:46,320
have benji reed he's the director of the

1398
01:25:50,470 --> 01:25:48,320
commercial crew mission management here

1399
01:25:52,550 --> 01:25:50,480
at spacex benji first off

1400
01:25:55,590 --> 01:25:52,560
congratulations successful splashdown

1401
01:25:56,790 --> 01:25:55,600
successful ended them or demo one what's

1402
01:25:58,310 --> 01:25:56,800
it been like to watch through this

1403
01:25:59,750 --> 01:25:58,320
mission what are your thoughts what are

1404
01:26:01,590 --> 01:25:59,760
you looking forward to have you had a

1405
01:26:04,070 --> 01:26:01,600
chance to catch your breath

1406
01:26:05,669 --> 01:26:04,080
no but i'm super excited i thank you for

1407
01:26:07,350 --> 01:26:05,679
having me up here um

1408
01:26:10,310 --> 01:26:07,360
to be honest i'm kind of shaking and i'm

1409
01:26:12,709 --> 01:26:10,320
super you know excited it was an

1410
01:26:15,189 --> 01:26:12,719
incredible journey to get to this moment

1411
01:26:17,750 --> 01:26:15,199
um the teams have just done an amazing

1412
01:26:19,270 --> 01:26:17,760
job both the spacex and the nasa teams

1413
01:26:21,669 --> 01:26:19,280

jointly

1414
01:26:23,590 --> 01:26:21,679
it's fundamentally this is like a great

1415
01:26:26,149 --> 01:26:23,600
day for the nation

1416
01:26:27,350 --> 01:26:26,159
for spacex for nasa for all of us really

1417
01:26:28,709 --> 01:26:27,360
for the world

1418
01:26:31,830 --> 01:26:28,719
i think it was ann who said this is the

1419
01:26:35,030 --> 01:26:31,840
first time in 40 years that we have a

1420
01:26:37,189 --> 01:26:35,040
spacecraft designed for humans to fly

1421
01:26:38,470 --> 01:26:37,199
and not only did she fly and go to the

1422
01:26:39,590 --> 01:26:38,480
space station do everything she was

1423
01:26:41,830 --> 01:26:39,600
supposed to do

1424
01:26:44,790 --> 01:26:41,840
but he brought her home safe and sound

1425
01:26:46,470 --> 01:26:44,800
landing here in the atlanta just amazing

1426
01:26:48,390 --> 01:26:46,480
um i can't believe how well the whole

1427
01:26:50,709 --> 01:26:48,400
mission is done

1428
01:26:53,110 --> 01:26:50,719
i pretty much i think on every point

1429
01:26:55,030 --> 01:26:53,120
everything's been nailed all the way

1430
01:26:56,550 --> 01:26:55,040
along uh particularly this last piece

1431
01:26:58,310 --> 01:26:56,560
you know we're all very excited to see

1432
01:27:00,709 --> 01:26:58,320
as we go through reentry

1433
01:27:01,910 --> 01:27:00,719
and parachute drove deployed and main

1434
01:27:03,669 --> 01:27:01,920
deploy

1435
01:27:05,750 --> 01:27:03,679
splashdown everything happened just

1436
01:27:07,669 --> 01:27:05,760
perfectly right on time

1437
01:27:09,189 --> 01:27:07,679
the way that we expected it to almost

1438
01:27:10,470 --> 01:27:09,199

down to the second

1439
01:27:12,070 --> 01:27:10,480
second right

1440
01:27:13,510 --> 01:27:12,080
it was amazing

1441
01:27:16,550 --> 01:27:13,520
and so you know

1442
01:27:18,950 --> 01:27:16,560
as as a team um spacex you know we're

1443
01:27:20,229 --> 01:27:18,960
here we're just super honored to have

1444
01:27:22,790 --> 01:27:20,239
the opportunity to have to have done

1445
01:27:25,110 --> 01:27:22,800
this mission to work with nasa to work

1446
01:27:28,229 --> 01:27:25,120
through this um you know number one is

1447
01:27:29,910 --> 01:27:28,239
fundamentally this first major milestone

1448
01:27:31,510 --> 01:27:29,920
in our process towards certification i

1449
01:27:33,189 --> 01:27:31,520
always like to remind everybody that

1450
01:27:34,629 --> 01:27:33,199
like this is a whole system right

1451
01:27:36,709 --> 01:27:34,639
there's crew dragon but there's the

1452
01:27:38,950 --> 01:27:36,719
falcon that's going to be certified to

1453
01:27:40,550 --> 01:27:38,960
fly humans there's also all the ground

1454
01:27:42,629 --> 01:27:40,560
systems the operations our entire

1455
01:27:44,149 --> 01:27:42,639
factory and production system everything

1456
01:27:46,470 --> 01:27:44,159
that we do is being certified to be able

1457
01:27:48,550 --> 01:27:46,480
to fly astronauts safely and this is a

1458
01:27:50,310 --> 01:27:48,560
huge step towards that

1459
01:27:51,910 --> 01:27:50,320
you know as we kind of look back over

1460
01:27:53,830 --> 01:27:51,920
what happened over the last few days

1461
01:27:55,510 --> 01:27:53,840
which is seems incredible to me and

1462
01:27:58,149 --> 01:27:55,520
really it's the culmination of years of

1463
01:27:59,669 --> 01:27:58,159

work to get us just to this day

1464
01:28:01,350 --> 01:27:59,679
we had launch

1465
01:28:02,950 --> 01:28:01,360
crew dragon deployed

1466
01:28:05,430 --> 01:28:02,960
beautiful free flight one of the things

1467
01:28:07,750 --> 01:28:05,440
that's hard to test when you're um when

1468
01:28:10,310 --> 01:28:07,760
you're on the ground is how micro how

1469
01:28:14,310 --> 01:28:10,320
fluids work in microgravity so things

1470
01:28:15,750 --> 01:28:14,320
like the prop system and all of the uh

1471
01:28:17,270 --> 01:28:15,760
and what's amazing is that work just

1472
01:28:21,270 --> 01:28:17,280
well worked perfectly just like we

1473
01:28:23,350 --> 01:28:21,280
expected um we got the station we docked

1474
01:28:25,510 --> 01:28:23,360
and uh you know it's the first time i

1475
01:28:27,669 --> 01:28:25,520
think in history that a commercial

1476
01:28:29,430 --> 01:28:27,679
vehicle and also an american vehicle has

1477
01:28:32,470 --> 01:28:29,440
docked autonomously the international

1478
01:28:34,870 --> 01:28:32,480
space station so that's just super cool

1479
01:28:36,870 --> 01:28:34,880
um loaded with all kinds of sensors all

1480
01:28:38,390 --> 01:28:36,880
kinds of tests that we did we all met

1481
01:28:39,830 --> 01:28:38,400
ripley

1482
01:28:41,189 --> 01:28:39,840
you know she's loaded with sensors so we

1483
01:28:42,310 --> 01:28:41,199
can understand exactly all the forces

1484
01:28:43,110 --> 01:28:42,320
that will happen on the crew as they

1485
01:28:45,590 --> 01:28:43,120
come

1486
01:28:48,229 --> 01:28:45,600
as as they're launched at the center

1487
01:28:49,750 --> 01:28:48,239
station come home um we got the little

1488
01:28:52,149 --> 01:28:49,760

earth guy

1489
01:28:54,070 --> 01:28:52,159
i heard he's going to stay on station

1490
01:28:56,470 --> 01:28:54,080
and so that'll be for bob and dr

1491
01:28:58,870 --> 01:28:56,480
retrieves that's really exciting um

1492
01:29:00,550 --> 01:28:58,880
undocking of course

1493
01:29:02,310 --> 01:29:00,560
some more free flight and then we came

1494
01:29:04,310 --> 01:29:02,320
home jettison the trunk

1495
01:29:05,750 --> 01:29:04,320
uh closed the nose cone

1496
01:29:07,590 --> 01:29:05,760
and then again like i said just

1497
01:29:08,950 --> 01:29:07,600
beautiful parachute deployment

1498
01:29:10,310 --> 01:29:08,960
everything the way we expected all of

1499
01:29:12,229 --> 01:29:10,320
these gazillions of tests that we've

1500
01:29:13,830 --> 01:29:12,239
been doing on parachutes

1501
01:29:15,750 --> 01:29:13,840
all of the analysis and work that we've

1502
01:29:17,990 --> 01:29:15,760
done on understanding the aerodynamics

1503
01:29:20,149 --> 01:29:18,000
of re-entry and and coming home

1504
01:29:21,669 --> 01:29:20,159
everything's just wonderful

1505
01:29:23,669 --> 01:29:21,679
the important thing now

1506
01:29:26,070 --> 01:29:23,679
is we take all of this data that we've

1507
01:29:27,830 --> 01:29:26,080
learned we love data we love data right

1508
01:29:29,669 --> 01:29:27,840
i mean fundamentally we're engineers and

1509
01:29:30,790 --> 01:29:29,679
engineering driven behavior right so

1510
01:29:32,310 --> 01:29:30,800
that's what we've got to do so we take

1511
01:29:33,990 --> 01:29:32,320
all that great data

1512
01:29:35,910 --> 01:29:34,000
and we're going to

1513
01:29:38,229 --> 01:29:35,920

apply that to the next steps so what's

1514
01:29:39,669 --> 01:29:38,239
coming up next i think because i believe

1515
01:29:42,629 --> 01:29:39,679
it or not as excited and like still

1516
01:29:44,229 --> 01:29:42,639
shaking as i am about this return um

1517
01:29:45,990 --> 01:29:44,239
there's there's a lot more to do right

1518
01:29:48,550 --> 01:29:46,000
because our ultimate goal is to be able

1519
01:29:49,750 --> 01:29:48,560
to continue to staff space station right

1520
01:29:52,229 --> 01:29:49,760
and provide

1521
01:29:54,310 --> 01:29:52,239
astronauts rides up to space give them a

1522
01:29:56,629 --> 01:29:54,320
safe a safe place to be safe place to

1523
01:29:58,709 --> 01:29:56,639
come home in and do crew rotations every

1524
01:30:01,189 --> 01:29:58,719
six months so how do we get there so

1525
01:30:03,189 --> 01:30:01,199
we've finished demo one huge milestone

1526
01:30:04,709 --> 01:30:03,199
next up we take that data we apply it we

1527
01:30:06,870 --> 01:30:04,719
learn from it and we're going to go to

1528
01:30:09,110 --> 01:30:06,880
our in-flight abort test similar to that

1529
01:30:10,149 --> 01:30:09,120
pad avoid test that we did um a few

1530
01:30:11,510 --> 01:30:10,159
years ago

1531
01:30:13,270 --> 01:30:11,520
except this time we put the dragon

1532
01:30:15,030 --> 01:30:13,280
actually the same dragon that we flew on

1533
01:30:17,110 --> 01:30:15,040
demo one we're going to take that and

1534
01:30:19,030 --> 01:30:17,120
put it on top of a falcon 9 launch it

1535
01:30:21,990 --> 01:30:19,040
get it going super fast get into test

1536
01:30:24,390 --> 01:30:22,000
conditions and then um

1537
01:30:25,750 --> 01:30:24,400
and then escape it off of the rocket and

1538
01:30:27,110 --> 01:30:25,760

again do the same thing bring it home

1539
01:30:28,709 --> 01:30:27,120
safely on his parachutes land it in the

1540
01:30:31,030 --> 01:30:28,719
ocean

1541
01:30:33,189 --> 01:30:31,040
and then from there

1542
01:30:35,189 --> 01:30:33,199
after we get that done we go to demo two

1543
01:30:36,550 --> 01:30:35,199
and that's kind of like wow that's the

1544
01:30:38,149 --> 01:30:36,560
big prize right because that's going to

1545
01:30:39,669 --> 01:30:38,159
be um

1546
01:30:41,030 --> 01:30:39,679
sending bob and doug you know our

1547
01:30:41,990 --> 01:30:41,040
astronauts and our partners and our

1548
01:30:44,229 --> 01:30:42,000
friends

1549
01:30:47,030 --> 01:30:44,239
sending them up on dragon taking them to

1550
01:30:48,950 --> 01:30:47,040
the station safely and home safely

1551
01:30:51,270 --> 01:30:48,960
and then with that done we'll go through

1552
01:30:53,350 --> 01:30:51,280
final full certification and start those

1553
01:30:55,189 --> 01:30:53,360
six months rotation missions which we're

1554
01:30:56,149 --> 01:30:55,199
just all so excited about

1555
01:30:57,110 --> 01:30:56,159
you know i

1556
01:30:58,709 --> 01:30:57,120
as

1557
01:31:00,550 --> 01:30:58,719
it's important to take kind of take a

1558
01:31:02,629 --> 01:31:00,560
step back and think about all of what it

1559
01:31:05,270 --> 01:31:02,639
took to get here all the work from all

1560
01:31:06,870 --> 01:31:05,280
the joint teams nasa and spacex

1561
01:31:08,870 --> 01:31:06,880
all the support that we've had from you

1562
01:31:10,709 --> 01:31:08,880
know friends and family

1563
01:31:13,110 --> 01:31:10,719

and really i think the most important

1564
01:31:14,310 --> 01:31:13,120
thing is that on behalf of all of the 6

1565
01:31:16,310 --> 01:31:14,320
000

1566
01:31:18,229 --> 01:31:16,320
people here at spacex

1567
01:31:19,910 --> 01:31:18,239
we really want to thank nasa we want to

1568
01:31:21,270 --> 01:31:19,920
thank the space station international

1569
01:31:23,189 --> 01:31:21,280
partners

1570
01:31:25,270 --> 01:31:23,199
and thank the american public

1571
01:31:27,110 --> 01:31:25,280
for their support and partnership as we

1572
01:31:28,870 --> 01:31:27,120
go through this we're really proud to be

1573
01:31:31,270 --> 01:31:28,880
part of this endeavor

1574
01:31:33,910 --> 01:31:31,280
thank you for being here with us um

1575
01:31:36,229 --> 01:31:33,920
it is early friday morning here in in

1576
01:31:37,990 --> 01:31:36,239
hawthorne so for those of us that work

1577
01:31:39,669 --> 01:31:38,000
here at spacex we still got a full work

1578
01:31:42,229 --> 01:31:39,679
day going and obviously we've already

1579
01:31:44,149 --> 01:31:42,239
been working on demo two for a while

1580
01:31:46,629 --> 01:31:44,159
even though today how was the demo one

1581
01:31:48,950 --> 01:31:46,639
day so i'm sure that you like me will

1582
01:31:49,910 --> 01:31:48,960
continue our work on demo for the rest

1583
01:31:51,430 --> 01:31:49,920
of the day

1584
01:31:52,390 --> 01:31:51,440
to meetings to start talking about the

1585
01:31:54,149 --> 01:31:52,400
next step that we've already been

1586
01:31:55,669 --> 01:31:54,159
working on too

1587
01:31:58,149 --> 01:31:55,679
well thank you so much for being here

1588
01:32:01,189 --> 01:31:58,159

with us um congratulations to your team

1589
01:32:02,709 --> 01:32:01,199
as well on the success of the last week

1590
01:32:05,110 --> 01:32:02,719
really it's been

1591
01:32:06,870 --> 01:32:05,120
awesome too for us to be able to share

1592
01:32:08,550 --> 01:32:06,880
the hard work of all spacex employees

1593
01:32:10,629 --> 01:32:08,560
with the public

1594
01:32:14,310 --> 01:32:10,639
so with that being said thanks for being

1595
01:32:15,910 --> 01:32:14,320
here we're going to take a quick break

1596
01:32:17,669 --> 01:32:15,920
as we bring you more coverage of the

1597
01:32:20,310 --> 01:32:17,679
recovery operations which you can see is

1598
01:32:21,910 --> 01:32:20,320
ongoing on your screen there on the left

1599
01:32:36,730 --> 01:32:21,920
so stick around we'll be back in just a

1600
01:38:10,629 --> 01:33:43,810
[Music]

1601
01:38:14,870 --> 01:38:11,830
right now we're waiting to get some

1602
01:38:16,709 --> 01:38:14,880
video back from those recovery teams out

1603
01:38:18,629 --> 01:38:16,719
there in the atlantic for now though we

1604
01:38:21,030 --> 01:38:18,639
do have another guest for today's

1605
01:38:23,350 --> 01:38:21,040
broadcast nasa administrator jim

1606
01:38:25,990 --> 01:38:23,360
greinstein who's standing by over at

1607
01:38:28,149 --> 01:38:26,000
nasa headquarters in washington d.c so

1608
01:38:29,990 --> 01:38:28,159
i'll send it over to you mr bridenstine

1609
01:38:32,070 --> 01:38:30,000
thoughts about today's mission what this

1610
01:38:35,270 --> 01:38:32,080
means for nasa and what we have to look

1611
01:38:40,229 --> 01:38:37,430
absolutely this is uh an amazing

1612
01:38:42,470 --> 01:38:40,239
achievement in american history in fact

1613
01:38:43,990 --> 01:38:42,480

i said on a press conference at four in

1614
01:38:45,030 --> 01:38:44,000
the morning after it launched that this

1615
01:38:47,350 --> 01:38:45,040
was

1616
01:38:49,750 --> 01:38:47,360
the dawn of a new era in american human

1617
01:38:51,510 --> 01:38:49,760
space flight and really in the space

1618
01:38:53,910 --> 01:38:51,520
flight for the entire world because of

1619
01:38:55,830 --> 01:38:53,920
all of our international partners on the

1620
01:38:58,070 --> 01:38:55,840
international space station

1621
01:39:01,270 --> 01:38:58,080
but this achievement

1622
01:39:03,990 --> 01:39:01,280
spans many administrations it spans many

1623
01:39:06,229 --> 01:39:04,000
nasa administrators i want to start by

1624
01:39:08,070 --> 01:39:06,239
by thanking mike griffin who was the

1625
01:39:10,629 --> 01:39:08,080
nasa administrator that really got this

1626
01:39:12,470 --> 01:39:10,639
program going during the george w bush

1627
01:39:14,470 --> 01:39:12,480
administration and of course

1628
01:39:16,870 --> 01:39:14,480
charlie bolden was the administrator for

1629
01:39:19,189 --> 01:39:16,880
eight years under president barack obama

1630
01:39:21,510 --> 01:39:19,199
he kept this program strong

1631
01:39:23,430 --> 01:39:21,520
and then of course robert lightfoot was

1632
01:39:25,830 --> 01:39:23,440
immediately preceded me

1633
01:39:27,830 --> 01:39:25,840
and here we are today with

1634
01:39:30,390 --> 01:39:27,840
with this amazing achievement and the

1635
01:39:33,990 --> 01:39:30,400
current president president trump his

1636
01:39:36,310 --> 01:39:34,000
his budgets for nasa have been as strong

1637
01:39:37,430 --> 01:39:36,320
as as they have been in my adult

1638
01:39:39,030 --> 01:39:37,440

lifetime

1639
01:39:42,470 --> 01:39:39,040
so this really is

1640
01:39:44,870 --> 01:39:42,480
an american achievement that spans many

1641
01:39:47,669 --> 01:39:44,880
many generations of nasa administrators

1642
01:39:49,669 --> 01:39:47,679
and in fact you know over a decade of

1643
01:39:51,910 --> 01:39:49,679
work by the nasa team

1644
01:39:54,470 --> 01:39:51,920
so i want to congratulate first of all

1645
01:39:56,709 --> 01:39:54,480
the nasa commercial crew program

1646
01:39:59,189 --> 01:39:56,719
all of the amazing engineers that have

1647
01:40:00,709 --> 01:39:59,199
been involved from the very beginning i

1648
01:40:02,709 --> 01:40:00,719
want to thank of course the amazing

1649
01:40:03,590 --> 01:40:02,719
achievement of spacex and their entire

1650
01:40:05,830 --> 01:40:03,600
team

1651
01:40:06,709 --> 01:40:05,840
and the vision of elon musk and what he

1652
01:40:09,109 --> 01:40:06,719
has done

1653
01:40:12,390 --> 01:40:09,119
to help really rejuvenate uh this this

1654
01:40:15,030 --> 01:40:12,400
very inspirational moment for uh the

1655
01:40:18,390 --> 01:40:15,040
this new era in american human space

1656
01:40:20,629 --> 01:40:18,400
flight so this is really a a a an

1657
01:40:22,229 --> 01:40:20,639
amazing achievement for all of america

1658
01:40:23,189 --> 01:40:22,239
but it's not just for all of america

1659
01:40:25,109 --> 01:40:23,199
right now

1660
01:40:28,470 --> 01:40:25,119
it goes back in time there are so many

1661
01:40:29,189 --> 01:40:28,480
people that that deserve credit and um

1662
01:40:37,030 --> 01:40:29,199
and

1663
01:40:39,430 --> 01:40:37,040

know there's a long way to go we

1664
01:40:41,910 --> 01:40:39,440
launched an uncrewed spacecraft here of

1665
01:40:44,550 --> 01:40:41,920
course we have demo two which will be a

1666
01:40:46,070 --> 01:40:44,560
crude spacecraft uh and between now and

1667
01:40:48,390 --> 01:40:46,080
then we have

1668
01:40:50,870 --> 01:40:48,400
uh a pad abort that we that we need to

1669
01:40:53,510 --> 01:40:50,880
test as well and so these are all these

1670
01:40:55,750 --> 01:40:53,520
are all capabilities that um that that

1671
01:40:57,510 --> 01:40:55,760
are leading to a day where we are

1672
01:41:00,950 --> 01:40:57,520
launching american astronauts on

1673
01:41:02,790 --> 01:41:00,960
american rockets from american soil

1674
01:41:04,470 --> 01:41:02,800
i have heard when i was a member of

1675
01:41:05,669 --> 01:41:04,480
congress i heard over and over again how

1676
01:41:07,590 --> 01:41:05,679
do we keep

1677
01:41:09,990 --> 01:41:07,600
constancy of purpose because it seems

1678
01:41:12,149 --> 01:41:10,000
like we lurch from one administration to

1679
01:41:13,669 --> 01:41:12,159
the next and changing visions and

1680
01:41:16,390 --> 01:41:13,679
changing budgets how do we keep

1681
01:41:18,550 --> 01:41:16,400
constancy well this is a perfect example

1682
01:41:20,229 --> 01:41:18,560
of a program

1683
01:41:22,709 --> 01:41:20,239
when we talk about these things that

1684
01:41:23,910 --> 01:41:22,719
nasa does it takes in many cases decades

1685
01:41:26,550 --> 01:41:23,920
to achieve

1686
01:41:29,189 --> 01:41:26,560
this kind of capability

1687
01:41:31,590 --> 01:41:29,199
and the constancy of purpose here for

1688
01:41:33,910 --> 01:41:31,600

all of these years

1689
01:41:36,070 --> 01:41:33,920
is important but now nasa can be a

1690
01:41:37,510 --> 01:41:36,080
customer we can be one customer of many

1691
01:41:39,990 --> 01:41:37,520
customers for

1692
01:41:41,830 --> 01:41:40,000
human space flight in what we believe

1693
01:41:44,550 --> 01:41:41,840
will be a very robust commercial

1694
01:41:46,550 --> 01:41:44,560
marketplace for space operations and

1695
01:41:48,470 --> 01:41:46,560
we're going to have numerous providers

1696
01:41:50,149 --> 01:41:48,480
that are going to compete on cost and

1697
01:41:52,229 --> 01:41:50,159
innovation and of course that's how

1698
01:41:55,430 --> 01:41:52,239
we're able to do what we've seen now

1699
01:41:57,510 --> 01:41:55,440
where rockets are being reused the idea

1700
01:42:00,390 --> 01:41:57,520
that we can reuse rockets and drive down

1701
01:42:02,550 --> 01:42:00,400
cost and increase access to space just

1702
01:42:04,790 --> 01:42:02,560
an amazing capability for our country an

1703
01:42:06,629 --> 01:42:04,800
amazing capability for the world just

1704
01:42:09,510 --> 01:42:06,639
like we reuse airplanes there's going to

1705
01:42:11,270 --> 01:42:09,520
come a day when we're reusing rockets

1706
01:42:13,270 --> 01:42:11,280
and space flight is going to become more

1707
01:42:14,470 --> 01:42:13,280
routine we're not there yet we have a

1708
01:42:16,709 --> 01:42:14,480
long way to go

1709
01:42:20,229 --> 01:42:16,719
uh but this is an amazing an amazing

1710
01:42:21,990 --> 01:42:20,239
achievement in this path um to really a

1711
01:42:24,550 --> 01:42:22,000
sustainable return to the moon quite

1712
01:42:26,629 --> 01:42:24,560
frankly which is my charge the president

1713
01:42:28,390 --> 01:42:26,639

has given me to get us back to the moon

1714
01:42:30,470 --> 01:42:28,400
so we're driving down costs for low

1715
01:42:32,709 --> 01:42:30,480
earth orbit we're commercializing low

1716
01:42:33,590 --> 01:42:32,719
earth orbit not just with launch but

1717
01:42:35,590 --> 01:42:33,600
also

1718
01:42:37,430 --> 01:42:35,600
eventually with space stations with

1719
01:42:39,669 --> 01:42:37,440
human activities where nasa can be a

1720
01:42:41,030 --> 01:42:39,679
customer for human activities in low

1721
01:42:43,430 --> 01:42:41,040
earth orbit and then we can use the

1722
01:42:45,590 --> 01:42:43,440
taxpayer resources

1723
01:42:48,310 --> 01:42:45,600
that that are bestowed upon us we can

1724
01:42:50,310 --> 01:42:48,320
use those resources to do exploration to

1725
01:42:52,709 --> 01:42:50,320
go further to go back to the moon

1726
01:42:55,990 --> 01:42:52,719
sustainably where we can stay at the

1727
01:42:58,149 --> 01:42:56,000
moon and ultimately go on to mars and

1728
01:43:01,109 --> 01:42:58,159
and this is this is one small piece in

1729
01:43:03,030 --> 01:43:01,119
that really grand vision but it is this

1730
01:43:04,950 --> 01:43:03,040
is no small piece this is an amazing

1731
01:43:07,430 --> 01:43:04,960
achievement in the history of the united

1732
01:43:09,910 --> 01:43:07,440
states of america and it just really

1733
01:43:17,669 --> 01:43:09,920
exemplifies what we can achieve when we

1734
01:43:20,629 --> 01:43:18,629
all right

1735
01:43:22,870 --> 01:43:20,639
and thank you administrator jim

1736
01:43:25,189 --> 01:43:22,880
bridenstine again joining us just there

1737
01:43:26,950 --> 01:43:25,199
from nasa headquarters over in

1738
01:43:28,390 --> 01:43:26,960

washington dc

1739
01:43:29,990 --> 01:43:28,400
we are still waiting to get some views

1740
01:43:31,990 --> 01:43:30,000
from all the recovery teams they are

1741
01:43:33,990 --> 01:43:32,000
still in that recovery process again we

1742
01:43:35,669 --> 01:43:34,000
expected it to be between 30 minutes and

1743
01:43:38,229 --> 01:43:35,679
an hour until they get

1744
01:43:40,310 --> 01:43:38,239
the dragon capsule back up on the boat

1745
01:43:42,149 --> 01:43:40,320
so before we do get those feeds back

1746
01:43:43,750 --> 01:43:42,159
we're going to head out to jsc real

1747
01:43:45,669 --> 01:43:43,760
quick the johnson space center in

1748
01:43:48,629 --> 01:43:45,679
houston where we have a few more folks

1749
01:43:49,430 --> 01:43:48,639
standing by including steve stitch who

1750
01:43:51,430 --> 01:43:49,440
is

1751
01:43:53,590 --> 01:43:51,440
the deputy program manager for nasa's

1752
01:43:56,229 --> 01:43:53,600
commercial crew program we also have

1753
01:43:57,350 --> 01:43:56,239
mike hopkins a nasa astronaut and one of

1754
01:43:59,109 --> 01:43:57,360
those uh

1755
01:44:01,510 --> 01:43:59,119
astronauts already assigned to a future

1756
01:44:03,830 --> 01:44:01,520
dragon mission and then mr kenny todd

1757
01:44:06,070 --> 01:44:03,840
he's the operations integration manager

1758
01:44:07,910 --> 01:44:06,080
for the international space station so

1759
01:44:09,510 --> 01:44:07,920
guys i'll send it over to you real quick

1760
01:44:11,510 --> 01:44:09,520
offer us your thoughts on how this

1761
01:44:13,830 --> 01:44:11,520
mission is unfolded and what's ahead in

1762
01:44:16,149 --> 01:44:13,840
the future

1763
01:44:17,990 --> 01:44:16,159

hey thank you dan uh hey it's great to

1764
01:44:19,350 --> 01:44:18,000
be here uh representing the commercial

1765
01:44:22,070 --> 01:44:19,360
crew program

1766
01:44:25,109 --> 01:44:22,080
just what an outstanding day

1767
01:44:27,350 --> 01:44:25,119
to be part of our program you know we

1768
01:44:30,390 --> 01:44:27,360
left our contracts in 2014 for these

1769
01:44:32,550 --> 01:44:30,400
first missions and to sit here today

1770
01:44:34,229 --> 01:44:32,560
and talk about demo one and how great

1771
01:44:36,310 --> 01:44:34,239
the flight went and what we're going to

1772
01:44:37,669 --> 01:44:36,320
learn from it's just amazing i'd like to

1773
01:44:39,350 --> 01:44:37,679
congratulate

1774
01:44:41,350 --> 01:44:39,360
the spacex team

1775
01:44:43,590 --> 01:44:41,360
a phenomenal job getting the vehicles

1776
01:44:44,950 --> 01:44:43,600
ready and executing the flight our whole

1777
01:44:46,709 --> 01:44:44,960
nasa team

1778
01:44:48,390 --> 01:44:46,719
that worked the mission

1779
01:44:49,189 --> 01:44:48,400
if you just think about the enormity of

1780
01:44:50,790 --> 01:44:49,199
what

1781
01:44:52,310 --> 01:44:50,800
happened in this flight and all the prep

1782
01:44:55,669 --> 01:44:52,320
that went into it

1783
01:44:57,750 --> 01:44:55,679
getting the pad refurbished at 39a

1784
01:44:59,669 --> 01:44:57,760
getting the flight control room set up

1785
01:45:02,709 --> 01:44:59,679
getting the vehicles built getting the

1786
01:45:04,629 --> 01:45:02,719
falcon 9 ready all the analysis all the

1787
01:45:07,270 --> 01:45:04,639
mission support that went into it the

1788
01:45:09,350 --> 01:45:07,280

sims and the practice uh leading up to

1789
01:45:11,510 --> 01:45:09,360
this flight over the last year or so

1790
01:45:13,189 --> 01:45:11,520
just been a tremendous job

1791
01:45:15,270 --> 01:45:13,199
i would say one of the things that we

1792
01:45:16,950 --> 01:45:15,280
learned during this flight is the

1793
01:45:19,990 --> 01:45:16,960
the great uh relationship we have

1794
01:45:22,229 --> 01:45:20,000
between the program and spacex

1795
01:45:23,990 --> 01:45:22,239
i would say our teams work seamlessly uh

1796
01:45:26,070 --> 01:45:24,000
back and forth with spacex not only in

1797
01:45:27,750 --> 01:45:26,080
the lead up to the flight but in how we

1798
01:45:29,430 --> 01:45:27,760
manage the flight through the dragon

1799
01:45:31,510 --> 01:45:29,440
mission management team

1800
01:45:33,510 --> 01:45:31,520
and then also working with kenny todd

1801
01:45:34,950 --> 01:45:33,520
and the space station program

1802
01:45:37,669 --> 01:45:34,960
uh space station program did a

1803
01:45:39,590 --> 01:45:37,679
phenomenal job supporting our

1804
01:45:41,669 --> 01:45:39,600
our program while we were docked the

1805
01:45:43,830 --> 01:45:41,679
station on the way to station and the

1806
01:45:45,030 --> 01:45:43,840
international partnership as well so

1807
01:45:47,590 --> 01:45:45,040
really great

1808
01:45:49,270 --> 01:45:47,600
great opportunity for this mission

1809
01:45:50,470 --> 01:45:49,280
the last 24 hours have been exciting for

1810
01:45:52,070 --> 01:45:50,480
us you know we closed the hatches

1811
01:45:55,350 --> 01:45:52,080
yesterday around noon

1812
01:45:57,189 --> 01:45:55,360
got into the undock today about 1 31 a.m

1813
01:45:59,510 --> 01:45:57,199

did a few small separates to get away

1814
01:46:01,750 --> 01:45:59,520
from station if you watched that on nasa

1815
01:46:03,270 --> 01:46:01,760
tv that was that was flawless did about

1816
01:46:04,310 --> 01:46:03,280
three separates to get down below

1817
01:46:06,629 --> 01:46:04,320
station

1818
01:46:09,109 --> 01:46:06,639
executed the deorbit burn at about 6 52

1819
01:46:11,830 --> 01:46:09,119
a.m central time and then landed it just

1820
01:46:13,590 --> 01:46:11,840
a few minutes ago at 7 45.

1821
01:46:16,149 --> 01:46:13,600
the vehicle is doing well the the

1822
01:46:19,270 --> 01:46:16,159
recovery crews are out

1823
01:46:21,109 --> 01:46:19,280
there on the scene they've already

1824
01:46:23,189 --> 01:46:21,119
been around the spacecraft and made sure

1825
01:46:24,149 --> 01:46:23,199
it was secure for personnel

1826
01:46:25,990 --> 01:46:24,159
you might have seen that one of the

1827
01:46:26,870 --> 01:46:26,000
parachutes happened it was a very calm

1828
01:46:29,109 --> 01:46:26,880
day

1829
01:46:31,189 --> 01:46:29,119
with very low sea states and low winds

1830
01:46:33,750 --> 01:46:31,199
one of the shoots kind of landed on the

1831
01:46:35,590 --> 01:46:33,760
dragon capsule they already got that off

1832
01:46:37,669 --> 01:46:35,600
uh so that's going really well it'll

1833
01:46:38,950 --> 01:46:37,679
probably take 30 to minutes to maybe an

1834
01:46:41,030 --> 01:46:38,960
hour to get it

1835
01:46:42,790 --> 01:46:41,040
back on the ship

1836
01:46:44,310 --> 01:46:42,800
but then when you kind of look overall

1837
01:46:46,149 --> 01:46:44,320
at this mission it was a great dress

1838
01:46:48,550 --> 01:46:46,159

rehearsal for demo too we learned a

1839
01:46:50,310 --> 01:46:48,560
phenomenal amount in the pre-launch time

1840
01:46:51,830 --> 01:46:50,320
frame about how to load the vehicle and

1841
01:46:53,430 --> 01:46:51,840
thinking forward to how we'll put the

1842
01:46:55,030 --> 01:46:53,440
crews in the vehicle

1843
01:46:56,070 --> 01:46:55,040
you know the ascent profile for this

1844
01:46:58,550 --> 01:46:56,080
flight

1845
01:47:01,189 --> 01:46:58,560
we practice the exact profile that mike

1846
01:47:03,270 --> 01:47:01,199
hopkins and others will fly very soon

1847
01:47:04,709 --> 01:47:03,280
doug hurley and bob binkin we have the

1848
01:47:06,950 --> 01:47:04,719
abort system

1849
01:47:08,629 --> 01:47:06,960
the crew escape system and dragon

1850
01:47:10,709 --> 01:47:08,639
actually enabled for this flight and we

1851
01:47:11,990 --> 01:47:10,719
were able to to see how that worked and

1852
01:47:13,990 --> 01:47:12,000
we'll get the data back and look at

1853
01:47:15,910 --> 01:47:14,000
those triggers and how it performed

1854
01:47:17,510 --> 01:47:15,920
you know on orbit we got a lot of great

1855
01:47:19,669 --> 01:47:17,520
data on the vehicle in terms of the

1856
01:47:21,189 --> 01:47:19,679
thermal performance power performance

1857
01:47:23,590 --> 01:47:21,199
the vehicle really did better than we

1858
01:47:25,510 --> 01:47:23,600
expected and then the rendezvous was

1859
01:47:27,030 --> 01:47:25,520
phenomenal as we came in checked out

1860
01:47:28,790 --> 01:47:27,040
those sensors

1861
01:47:30,709 --> 01:47:28,800
the link to space station worked the

1862
01:47:31,430 --> 01:47:30,719
command link watching the vehicle come

1863
01:47:37,830 --> 01:47:31,440

in

1864
01:47:40,310 --> 01:47:37,840
the attached phase of course we had

1865
01:47:43,350 --> 01:47:40,320
cargo ops which will do the same thing

1866
01:47:44,870 --> 01:47:43,360
on both demo two and then the crew one

1867
01:47:47,270 --> 01:47:44,880
and other missions

1868
01:47:49,189 --> 01:47:47,280
and then we did a robotic survey of the

1869
01:47:51,189 --> 01:47:49,199
of the vehicle to look at the thermal

1870
01:47:53,669 --> 01:47:51,199
protection system and other systems and

1871
01:47:55,669 --> 01:47:53,679
and that went really well i will say one

1872
01:47:57,990 --> 01:47:55,679
thing this mission you know it was only

1873
01:48:00,390 --> 01:47:58,000
six days long it was a sprint uh from

1874
01:48:01,910 --> 01:48:00,400
start to finish and and thinking about

1875
01:48:03,270 --> 01:48:01,920
you know where we've been in operations

1876
01:48:05,030 --> 01:48:03,280
in that sprint i think kenny would

1877
01:48:07,109 --> 01:48:05,040
probably tell you the same thing it was

1878
01:48:08,470 --> 01:48:07,119
just a phenomenal job by the team and

1879
01:48:10,550 --> 01:48:08,480
then of course today you know the

1880
01:48:12,870 --> 01:48:10,560
undocking uh watching how those systems

1881
01:48:15,109 --> 01:48:12,880
performed that went flawless it's a very

1882
01:48:17,910 --> 01:48:15,119
tight sequence between undocking and the

1883
01:48:19,669 --> 01:48:17,920
orbit burn how the nose cone performed

1884
01:48:21,590 --> 01:48:19,679
how the orbit burn was executed in the

1885
01:48:23,270 --> 01:48:21,600
entry was was phenomenal

1886
01:48:25,189 --> 01:48:23,280
we did have a

1887
01:48:27,350 --> 01:48:25,199
riley on board a

1888
01:48:28,950 --> 01:48:27,360

test dummy and that's going to give us a

1889
01:48:31,510 --> 01:48:28,960
lot of important data for the

1890
01:48:33,109 --> 01:48:31,520
accelerations during both the acid phase

1891
01:48:34,709 --> 01:48:33,119
and then the entry phase under the

1892
01:48:37,189 --> 01:48:34,719
parachutes and then landing so we'll

1893
01:48:39,030 --> 01:48:37,199
collect that data and look at that

1894
01:48:40,709 --> 01:48:39,040
you know over the next few weeks uh

1895
01:48:42,790 --> 01:48:40,719
we'll be doing post slide reviews in

1896
01:48:43,750 --> 01:48:42,800
fact just next week we'll have one for

1897
01:48:45,109 --> 01:48:43,760
uh

1898
01:48:46,870 --> 01:48:45,119
for the

1899
01:48:49,030 --> 01:48:46,880
launch vehicle and the ground segment at

1900
01:48:50,950 --> 01:48:49,040
ksc we'll start reviewing that

1901
01:48:52,950 --> 01:48:50,960
and then subsequently we'll do reviews

1902
01:48:53,990 --> 01:48:52,960
uh with spacex on the orbit phase of the

1903
01:48:56,070 --> 01:48:54,000
mission

1904
01:48:58,149 --> 01:48:56,080
uh this flight really sets us up well

1905
01:48:59,750 --> 01:48:58,159
for the rest of the year uh the very

1906
01:49:01,669 --> 01:48:59,760
vehicle that's that's in the water in

1907
01:49:03,750 --> 01:49:01,679
the atlantic today will be the in-flight

1908
01:49:04,950 --> 01:49:03,760
abort vehicle and so one of the first

1909
01:49:07,270 --> 01:49:04,960
things that will happen is the vehicle

1910
01:49:09,350 --> 01:49:07,280
will come back to ksc and

1911
01:49:11,350 --> 01:49:09,360
and go over uh into the processing area

1912
01:49:12,790 --> 01:49:11,360
and start getting refurb for uh for the

1913
01:49:14,629 --> 01:49:12,800

in-flight abort test which should be in

1914
01:49:16,070 --> 01:49:14,639
the in the summer fro time frame in the

1915
01:49:17,750 --> 01:49:16,080
june time frame

1916
01:49:19,189 --> 01:49:17,760
and then uh demo two vehicles at

1917
01:49:20,470 --> 01:49:19,199
hawthorne getting built for the first

1918
01:49:22,950 --> 01:49:20,480
crude mission

1919
01:49:24,629 --> 01:49:22,960
uh that's in progress and going well

1920
01:49:25,669 --> 01:49:24,639
uh that work has continued all through

1921
01:49:27,270 --> 01:49:25,679
the flight

1922
01:49:29,189 --> 01:49:27,280
so that'll be a busy year for us for

1923
01:49:31,510 --> 01:49:29,199
spacex within flight aboard in the june

1924
01:49:33,990 --> 01:49:31,520
time frame and then demo two later in

1925
01:49:36,550 --> 01:49:34,000
the year uh with the first crude mission

1926
01:49:37,830 --> 01:49:36,560
i don't think we saw really anything

1927
01:49:39,270 --> 01:49:37,840
in the mission

1928
01:49:41,669 --> 01:49:39,280
so far and we've got to do the data

1929
01:49:43,750 --> 01:49:41,679
reviews that that you know would

1930
01:49:45,270 --> 01:49:43,760
preclude us uh having the crude mission

1931
01:49:46,229 --> 01:49:45,280
later this year

1932
01:49:47,910 --> 01:49:46,239
um

1933
01:49:49,910 --> 01:49:47,920
and then after that uh you know it's a

1934
01:49:51,990 --> 01:49:49,920
busy time in our program also

1935
01:49:53,589 --> 01:49:52,000
uh if you look in the in the april time

1936
01:49:55,189 --> 01:49:53,599
frame we're getting ready for the orbit

1937
01:49:56,709 --> 01:49:55,199
flight test for boeing

1938
01:49:58,709 --> 01:49:56,719

and that will happen very soon and so

1939
01:50:00,790 --> 01:49:58,719
our program will transition after this

1940
01:50:02,950 --> 01:50:00,800
after this mission and the data reviews

1941
01:50:05,510 --> 01:50:02,960
into preparing not only for uh in-flight

1942
01:50:06,790 --> 01:50:05,520
abort and demo two but also the orbit

1943
01:50:08,550 --> 01:50:06,800
flight test the untreated flight test

1944
01:50:10,229 --> 01:50:08,560
for boeing

1945
01:50:11,750 --> 01:50:10,239
and that will be coming up in the in the

1946
01:50:14,470 --> 01:50:11,760
april time frame

1947
01:50:16,790 --> 01:50:14,480
uh spacecraft 3 which is the boeing

1948
01:50:18,310 --> 01:50:16,800
vehicle is coming together at the

1949
01:50:20,070 --> 01:50:18,320
commercial crew processing facility down

1950
01:50:21,669 --> 01:50:20,080
in florida and they're in the middle of

1951
01:50:24,470 --> 01:50:21,679
a bunch of very critical testing right

1952
01:50:26,229 --> 01:50:24,480
now at all segundo to verify

1953
01:50:27,830 --> 01:50:26,239
uh that's the spacecraft can work

1954
01:50:29,189 --> 01:50:27,840
successfully in space

1955
01:50:30,950 --> 01:50:29,199
and then later on this year we'll have

1956
01:50:31,990 --> 01:50:30,960
the crude flight test for boeing as well

1957
01:50:33,430 --> 01:50:32,000
so

1958
01:50:34,790 --> 01:50:33,440
if you just look at all the activities

1959
01:50:36,950 --> 01:50:34,800
in commercial crew

1960
01:50:38,629 --> 01:50:36,960
it's a super busy time

1961
01:50:41,589 --> 01:50:38,639
in addition to this flight we did in the

1962
01:50:43,589 --> 01:50:41,599
last few weeks we did parachute tests

1963
01:50:45,430 --> 01:50:43,599

for spacex and boeing and so if you look

1964
01:50:47,109 --> 01:50:45,440
at all the activities to get ready for

1965
01:50:48,550 --> 01:50:47,119
flying our crews it's just a very

1966
01:50:51,750 --> 01:50:48,560
exciting time

1967
01:50:53,270 --> 01:50:51,760
uh so again congratulations to our

1968
01:50:55,109 --> 01:50:53,280
to our spacex

1969
01:50:56,390 --> 01:50:55,119
team and all the nasa people across the

1970
01:50:58,070 --> 01:50:56,400
country that worked so hard for many

1971
01:50:59,910 --> 01:50:58,080
many years on this flight

1972
01:51:02,070 --> 01:50:59,920
it really sets us up for the rest of the

1973
01:51:04,070 --> 01:51:02,080
year and it's a super exciting time to

1974
01:51:05,430 --> 01:51:04,080
be in commercial crew and i'll turn it

1975
01:51:06,709 --> 01:51:05,440
over to hopper

1976
01:51:08,790 --> 01:51:06,719
all right thanks steve

1977
01:51:10,950 --> 01:51:08,800
uh so on behalf of the astronaut office

1978
01:51:13,510 --> 01:51:10,960
and the crew i'd like to also extend our

1979
01:51:15,990 --> 01:51:13,520
congratulations to the spacex team to

1980
01:51:18,229 --> 01:51:16,000
the commercial crew team to to really

1981
01:51:20,950 --> 01:51:18,239
all of nasa and to to everyone that was

1982
01:51:22,149 --> 01:51:20,960
involved in this this major milestone on

1983
01:51:24,229 --> 01:51:22,159
returning

1984
01:51:26,390 --> 01:51:24,239
human launch and landing capabilities

1985
01:51:27,830 --> 01:51:26,400
back to us soil i think that's that's

1986
01:51:30,229 --> 01:51:27,840
very exciting

1987
01:51:32,070 --> 01:51:30,239
but as you can see on the on the video

1988
01:51:33,430 --> 01:51:32,080

of the vehicle work is still ongoing the

1989
01:51:35,750 --> 01:51:33,440
recovery

1990
01:51:37,910 --> 01:51:35,760
procedures process is still ongoing and

1991
01:51:40,470 --> 01:51:37,920
i'm personally very anxious to hear how

1992
01:51:42,470 --> 01:51:40,480
i think it's ripley is is feeling after

1993
01:51:44,950 --> 01:51:42,480
they pull her out of the capsule and get

1994
01:51:47,030 --> 01:51:44,960
her back onto the recovery vehicle uh in

1995
01:51:49,030 --> 01:51:47,040
terms of some some major takeaways from

1996
01:51:50,310 --> 01:51:49,040
uh from a crew perspective i i think one

1997
01:51:52,390 --> 01:51:50,320
of the things that

1998
01:51:54,310 --> 01:51:52,400
we're very excited about from this dm1

1999
01:51:56,950 --> 01:51:54,320
mission is for the first time we've

2000
01:51:58,470 --> 01:51:56,960
gotten to see an end-to-end test and so

2001
01:51:59,910 --> 01:51:58,480
now we've we've brought together the

2002
01:52:02,470 --> 01:51:59,920
people the hardware and all the

2003
01:52:05,030 --> 01:52:02,480
processes and procedures and gotten to

2004
01:52:07,109 --> 01:52:05,040
see how they all all work together and

2005
01:52:09,189 --> 01:52:07,119
and that's very important on this uh as

2006
01:52:11,589 --> 01:52:09,199
we as we move towards putting people on

2007
01:52:13,109 --> 01:52:11,599
board the vehicle and and as steve also

2008
01:52:14,470 --> 01:52:13,119
said of course we're very interested in

2009
01:52:16,070 --> 01:52:14,480
seeing the data

2010
01:52:18,070 --> 01:52:16,080
i suspect there's going to be some

2011
01:52:19,270 --> 01:52:18,080
lessons learned some improvements some

2012
01:52:21,030 --> 01:52:19,280
changes that we're going to have to make

2013
01:52:22,870 --> 01:52:21,040

from this that's that's all part of the

2014
01:52:25,189 --> 01:52:22,880
the testing process

2015
01:52:27,589 --> 01:52:25,199
uh in terms of what's ahead uh for the

2016
01:52:30,229 --> 01:52:27,599
crew so for all of the crew including

2017
01:52:32,550 --> 01:52:30,239
the dm2 crew bob and doug and and crew

2018
01:52:34,550 --> 01:52:32,560
one myself and victor glover and then

2019
01:52:35,910 --> 01:52:34,560
the backup crew chelle lindgren we're

2020
01:52:38,390 --> 01:52:35,920
all going to be following very closely

2021
01:52:40,310 --> 01:52:38,400
the in-flight abort test as as well as

2022
01:52:42,709 --> 01:52:40,320
the the procedures the training to get

2023
01:52:44,950 --> 01:52:42,719
ready for that dm2 mission we also have

2024
01:52:46,550 --> 01:52:44,960
a lot of verification testing uh final

2025
01:52:49,109 --> 01:52:46,560
verification testing that we'll all be

2026
01:52:51,990 --> 01:52:49,119
involved in as well as as test subjects

2027
01:52:53,910 --> 01:52:52,000
for that uh specifically for for bob and

2028
01:52:56,629 --> 01:52:53,920
doug as dm2 of course they're going to

2029
01:52:59,350 --> 01:52:56,639
start focusing even more on on that

2030
01:53:00,790 --> 01:52:59,360
training for the dm2 mission they've got

2031
01:53:02,870 --> 01:53:00,800
after this mission they've got a lot

2032
01:53:04,950 --> 01:53:02,880
less runway in front of them so it's

2033
01:53:08,390 --> 01:53:04,960
it's going to start moving i think a lot

2034
01:53:10,950 --> 01:53:08,400
quicker for the for the crew one

2035
01:53:12,950 --> 01:53:10,960
crew the team victor and i

2036
01:53:14,950 --> 01:53:12,960
and and even for chell as the backup

2037
01:53:16,550 --> 01:53:14,960
we've got a lot of training not only for

2038
01:53:19,589 --> 01:53:16,560

dragon but also

2039
01:53:21,350 --> 01:53:19,599
uh for iss our our mission is to not

2040
01:53:23,669 --> 01:53:21,360
only get up there and return safely but

2041
01:53:25,589 --> 01:53:23,679
is actually to do some work for the iss

2042
01:53:27,270 --> 01:53:25,599
program while we're there and so that

2043
01:53:29,669 --> 01:53:27,280
means we've got to do all the training

2044
01:53:31,350 --> 01:53:29,679
for uh being able to do the space walks

2045
01:53:33,430 --> 01:53:31,360
and being able to operate the robotic

2046
01:53:34,870 --> 01:53:33,440
arm and maintain the station and do that

2047
01:53:37,430 --> 01:53:34,880
critical science that's that's been

2048
01:53:39,510 --> 01:53:37,440
going on for gosh over 18 years now

2049
01:53:42,149 --> 01:53:39,520
pretty pretty amazing

2050
01:53:43,669 --> 01:53:42,159
so that's what's ahead for us i guess

2051
01:53:45,350 --> 01:53:43,679
finally i'd like to

2052
01:53:47,189 --> 01:53:45,360
just kind of emphasize that that this

2053
01:53:48,629 --> 01:53:47,199
mission this this amazing week that

2054
01:53:50,950 --> 01:53:48,639
we've had

2055
01:53:53,510 --> 01:53:50,960
is really just one small step in this

2056
01:53:54,550 --> 01:53:53,520
very methodical buildup approach that

2057
01:53:56,149 --> 01:53:54,560
we've been going through that the

2058
01:53:58,070 --> 01:53:56,159
program has laid out that the company

2059
01:53:59,830 --> 01:53:58,080
has laid out in order for us to put

2060
01:54:01,350 --> 01:53:59,840
people on board these vehicles and and

2061
01:54:03,669 --> 01:54:01,360
get them up and back to the station and

2062
01:54:05,990 --> 01:54:03,679
so again congratulations to the entire

2063
01:54:07,669 --> 01:54:06,000

team and uh over kenny

2064
01:54:09,030 --> 01:54:07,679
thanks hopper and

2065
01:54:10,709 --> 01:54:09,040
just about any conversation you're going

2066
01:54:12,390 --> 01:54:10,719
to have today with anybody around here

2067
01:54:14,390 --> 01:54:12,400
is going to start with a congratulations

2068
01:54:16,229 --> 01:54:14,400
and so i'll certainly offer mine to

2069
01:54:17,669 --> 01:54:16,239
steve stitch kathy leaders commercial

2070
01:54:19,990 --> 01:54:17,679
crew program

2071
01:54:21,830 --> 01:54:20,000
just a phenomenal effort

2072
01:54:23,189 --> 01:54:21,840
it's not easy doing what what this

2073
01:54:26,229 --> 01:54:23,199
program has had to do for the last

2074
01:54:28,149 --> 01:54:26,239
several years and and to finally see see

2075
01:54:30,390 --> 01:54:28,159
the product of that has just been been

2076
01:54:32,550 --> 01:54:30,400
incredible for the last week and and our

2077
01:54:34,629 --> 01:54:32,560
friends out at spacex benji reed arty

2078
01:54:35,750 --> 01:54:34,639
matthews the team out there uh we've

2079
01:54:38,149 --> 01:54:35,760
been working with them for the better

2080
01:54:40,950 --> 01:54:38,159
part of a decade doing uh commercial

2081
01:54:42,870 --> 01:54:40,960
cargo services and that's uh we we know

2082
01:54:44,709 --> 01:54:42,880
that team they're there is every bit

2083
01:54:47,270 --> 01:54:44,719
excited about human space flight as we

2084
01:54:49,109 --> 01:54:47,280
are and uh and their passion shows it

2085
01:54:50,709 --> 01:54:49,119
shows whenever they they launch a

2086
01:54:52,790 --> 01:54:50,719
vehicle that shows whenever they bring a

2087
01:54:53,910 --> 01:54:52,800
vehicle home there's just a lot of

2088
01:54:56,149 --> 01:54:53,920

excitement

2089
01:54:58,310 --> 01:54:56,159
around that and it's it's quite

2090
01:55:00,149 --> 01:54:58,320
invigorating for for a lot of us to to

2091
01:55:02,229 --> 01:55:00,159
see that kind of passion it really is

2092
01:55:04,709 --> 01:55:02,239
cool so anyway to benji and the team at

2093
01:55:06,390 --> 01:55:04,719
spacex certainly we we pass along our

2094
01:55:08,390 --> 01:55:06,400
congratulations from the space station

2095
01:55:10,550 --> 01:55:08,400
program and uh we'll certainly look

2096
01:55:11,669 --> 01:55:10,560
forward to seeing you guys again soon

2097
01:55:13,830 --> 01:55:11,679
uh

2098
01:55:16,149 --> 01:55:13,840
as far as as the milestones the things

2099
01:55:17,510 --> 01:55:16,159
we got to do while the the crew dragon

2100
01:55:18,790 --> 01:55:17,520
was on board one of the things from a

2101
01:55:20,709 --> 01:55:18,800
station program that we're really

2102
01:55:22,310 --> 01:55:20,719
looking to do was to check out the the

2103
01:55:24,229 --> 01:55:22,320
interface that we installed here a

2104
01:55:25,750 --> 01:55:24,239
couple of years ago on the front end of

2105
01:55:27,830 --> 01:55:25,760
pma2

2106
01:55:29,109 --> 01:55:27,840
to ensure that that our latches worked

2107
01:55:30,550 --> 01:55:29,119
properly

2108
01:55:32,229 --> 01:55:30,560
interfacing with the dragon that we were

2109
01:55:34,470 --> 01:55:32,239
able to flow flow power through the

2110
01:55:35,910 --> 01:55:34,480
interface all of that worked just

2111
01:55:37,430 --> 01:55:35,920
perfectly and so

2112
01:55:39,189 --> 01:55:37,440
for us we feel like we're in a good

2113
01:55:41,030 --> 01:55:39,199

position going forward to support the

2114
01:55:43,430 --> 01:55:41,040
commercial crew program and and that we

2115
01:55:45,350 --> 01:55:43,440
don't have anything else at least on the

2116
01:55:46,870 --> 01:55:45,360
the front end of the of the of the pma

2117
01:55:48,950 --> 01:55:46,880
too that we need to worry about going

2118
01:55:50,709 --> 01:55:48,960
forward we are later this year gonna

2119
01:55:52,870 --> 01:55:50,719
we're gonna install another docking

2120
01:55:54,790 --> 01:55:52,880
adapter uh up on the on the node two

2121
01:55:57,270 --> 01:55:54,800
zenith port which will give us two two

2122
01:55:59,510 --> 01:55:57,280
ports to to dar to dock the commercial

2123
01:56:01,589 --> 01:55:59,520
crew vehicles and so we're excited to

2124
01:56:03,350 --> 01:56:01,599
get on get on with that that activity

2125
01:56:04,390 --> 01:56:03,360
later on this year so

2126
01:56:06,390 --> 01:56:04,400
um

2127
01:56:08,870 --> 01:56:06,400
as far as as uh

2128
01:56:10,709 --> 01:56:08,880
the team i i talked to our team earlier

2129
01:56:12,790 --> 01:56:10,719
this week and i said probably in about a

2130
01:56:14,950 --> 01:56:12,800
week from now we'll we'll forget that we

2131
01:56:17,430 --> 01:56:14,960
had a a crew dragon on board just

2132
01:56:20,229 --> 01:56:17,440
because of of what uh what lies in front

2133
01:56:21,990 --> 01:56:20,239
of us and and uh and and that is that we

2134
01:56:24,470 --> 01:56:22,000
have a new crew coming up later later

2135
01:56:26,950 --> 01:56:24,480
this this coming week on thursday uh

2136
01:56:28,390 --> 01:56:26,960
we'll see the launch of 58 soyuz from

2137
01:56:30,229 --> 01:56:28,400
from baikonur

2138
01:56:31,589 --> 01:56:30,239

and so we're excited about that the team

2139
01:56:33,270 --> 01:56:31,599
is already starting to deploy there the

2140
01:56:36,070 --> 01:56:33,280
crew's there and ready to go and so

2141
01:56:38,790 --> 01:56:36,080
we're excited to to get get the crew

2142
01:56:40,870 --> 01:56:38,800
back up to to a size of six again

2143
01:56:43,189 --> 01:56:40,880
again just gives us more flexibility the

2144
01:56:44,790 --> 01:56:43,199
opportunity to do more science and and

2145
01:56:46,870 --> 01:56:44,800
work on the backlog that we have on

2146
01:56:48,390 --> 01:56:46,880
board so so we're excited about that and

2147
01:56:49,990 --> 01:56:48,400
one of the first things we're going to

2148
01:56:52,149 --> 01:56:50,000
going to be tackling as soon as we get

2149
01:56:53,430 --> 01:56:52,159
back up to a crew of six is a set of

2150
01:56:55,990 --> 01:56:53,440
evas

2151
01:56:57,669 --> 01:56:56,000
we'll call it a triple eva because like

2152
01:57:00,070 --> 01:56:57,679
it sounds it's a set of three evas we're

2153
01:57:02,950 --> 01:57:00,080
going to do three of them in about 16

2154
01:57:04,550 --> 01:57:02,960
days and so right after hatch open we're

2155
01:57:06,149 --> 01:57:04,560
going to be hard at work trying to

2156
01:57:08,310 --> 01:57:06,159
trying to put the final plans in place

2157
01:57:09,830 --> 01:57:08,320
for for those evas

2158
01:57:11,350 --> 01:57:09,840
and then shortly after that we've got a

2159
01:57:14,229 --> 01:57:11,360
couple of cargo vehicles coming up in

2160
01:57:17,350 --> 01:57:14,239
fact another spacex vehicle and also a

2161
01:57:19,430 --> 01:57:17,360
northrop grumman cygnus uh is is coming

2162
01:57:21,990 --> 01:57:19,440
on board as well uh during the month of

2163
01:57:24,229 --> 01:57:22,000

april so um there's there's a lot going

2164
01:57:26,390 --> 01:57:24,239
on again we're we're very excited about

2165
01:57:28,550 --> 01:57:26,400
what's happened this week and and next

2166
01:57:30,310 --> 01:57:28,560
week we'll go go tackle some of the the

2167
01:57:32,950 --> 01:57:30,320
stuff that's coming forward but uh at

2168
01:57:35,109 --> 01:57:32,960
least today and and for this weekend uh

2169
01:57:36,790 --> 01:57:35,119
we want to celebrate this accomplishment

2170
01:57:39,270 --> 01:57:36,800
with the with the commercial crew

2171
01:57:41,669 --> 01:57:39,280
program and and the folks from uh spacex

2172
01:57:44,390 --> 01:57:41,679
and and uh and and basking the glow of

2173
01:57:46,870 --> 01:57:44,400
that along with them and enjoy it it was

2174
01:57:49,589 --> 01:57:46,880
it was quite a quite a few days here dan

2175
01:57:52,470 --> 01:57:49,599
so with that uh we'll hand it back to

2176
01:57:56,950 --> 01:57:52,480
you

2177
01:57:59,350 --> 01:57:56,960
over there in houston

2178
01:58:00,870 --> 01:57:59,360
uh thanks for those words and now we're

2179
01:58:03,669 --> 01:58:00,880
gonna get back to the action we're

2180
01:58:05,669 --> 01:58:03,679
getting some views back of that recovery

2181
01:58:07,189 --> 01:58:05,679
of the dragon spacecraft the teams are

2182
01:58:08,870 --> 01:58:07,199
in place

2183
01:58:10,790 --> 01:58:08,880
and now we're just waiting for it to

2184
01:58:13,109 --> 01:58:10,800
make its way out of the recovery ship

2185
01:58:14,870 --> 01:58:13,119
exactly so now that dragon has splashed

2186
01:58:16,149 --> 01:58:14,880
down into the atlantic ocean the

2187
01:58:17,990 --> 01:58:16,159
recovery team

2188
01:58:19,910 --> 01:58:18,000

is going to go through a number of steps

2189
01:58:23,109 --> 01:58:19,920
as we recover the dragon spacecraft and

2190
01:58:24,550 --> 01:58:23,119
lifted onto the recovery ship now in

2191
01:58:26,149 --> 01:58:24,560
case if you're joining us well just real

2192
01:58:28,550 --> 01:58:26,159
quick you can see on your screen there a

2193
01:58:30,229 --> 01:58:28,560
live shot of dragon recovery the capsule

2194
01:58:31,189 --> 01:58:30,239
bobbing in the sea there with the dragon

2195
01:58:33,589 --> 01:58:31,199
team

2196
01:58:35,589 --> 01:58:33,599
working on those recovery operations

2197
01:58:37,589 --> 01:58:35,599
in case you are just joining us the

2198
01:58:39,910 --> 01:58:37,599
mission has gone very smoothly so far

2199
01:58:42,310 --> 01:58:39,920
today dragon successfully splashed down

2200
01:58:46,790 --> 01:58:42,320
in the atlantic ocean uh just several

2201
01:58:48,950 --> 01:58:46,800
minutes ago 5 45 am pacific 5 45 am

2202
01:58:51,669 --> 01:58:48,960
so gosh i can't believe how late in the

2203
01:58:54,470 --> 01:58:51,679
morning it is already time flies

2204
01:58:57,830 --> 01:58:54,480
and about 240 nautical miles away from

2205
01:58:59,910 --> 01:58:57,840
cape canaveral approximately six hours

2206
01:59:01,510 --> 01:58:59,920
prior to splashdown dragon that

2207
01:59:03,669 --> 01:59:01,520
autonomously undocked from the

2208
01:59:06,149 --> 01:59:03,679
international space station completed a

2209
01:59:08,310 --> 01:59:06,159
series of departure burns jettisoned its

2210
01:59:10,629 --> 01:59:08,320
trunk section and performed its final

2211
01:59:12,470 --> 01:59:10,639
burn the deorbit burn and placed itself

2212
01:59:13,430 --> 01:59:12,480
on a trajectory toward the atlantic

2213
01:59:15,750 --> 01:59:13,440

ocean

2214
01:59:17,830 --> 01:59:15,760
and this is actually a replay of that

2215
01:59:19,669 --> 01:59:17,840
final descent from just a little bit

2216
01:59:21,510 --> 01:59:19,679
earlier this morning

2217
01:59:23,510 --> 01:59:21,520
at this point dragon was under the two

2218
01:59:26,149 --> 01:59:23,520
drogue chutes and those were responsible

2219
01:59:28,229 --> 01:59:26,159
for all of that initial slowing down and

2220
01:59:29,830 --> 01:59:28,239
they also were responsible for pulling

2221
01:59:32,149 --> 01:59:29,840
out the main parachutes which you can

2222
01:59:34,229 --> 01:59:32,159
see in the replay here

2223
01:59:36,629 --> 01:59:34,239
and those four main parachutes deployed

2224
01:59:38,550 --> 01:59:36,639
successfully we heard from benji and

2225
01:59:39,350 --> 01:59:38,560
also the teams during the action that

2226
01:59:41,750 --> 01:59:39,360
they

2227
01:59:46,390 --> 01:59:41,760
went exactly as planned everything kind

2228
01:59:49,830 --> 01:59:48,229
but that all came after dragon

2229
01:59:51,910 --> 01:59:49,840
successfully re-entered the earth's

2230
01:59:54,390 --> 01:59:51,920
atmosphere and those parachutes were

2231
01:59:57,030 --> 01:59:54,400
deployed and now though we're on to the

2232
01:59:58,709 --> 01:59:57,040
final part of dragon's journey as it's

2233
02:00:01,030 --> 01:59:58,719
pretty soon going to get lifted out of

2234
02:00:03,270 --> 02:00:01,040
the water and placed onto the recovery

2235
02:00:05,910 --> 02:00:03,280
boat

2236
02:00:07,430 --> 02:00:05,920
so again this is a replay of the

2237
02:00:10,310 --> 02:00:07,440
re-entry and splashdown that we

2238
02:00:12,709 --> 02:00:10,320

witnessed live several minutes ago

2239
02:00:14,870 --> 02:00:12,719
gorgeous shot of those

2240
02:00:17,270 --> 02:00:14,880
lovely full parachutes as they are

2241
02:00:19,750 --> 02:00:17,280
slowing the dragon capsule down to the

2242
02:00:22,229 --> 02:00:19,760
atlantic ocean yeah it's already been 45

2243
02:00:23,430 --> 02:00:22,239
minutes since that happened wow it feels

2244
02:00:25,109 --> 02:00:23,440
like it's like

2245
02:00:27,750 --> 02:00:25,119
five minutes ago

2246
02:00:30,709 --> 02:00:27,760
yeah that's that splashdown was 5 45 a.m

2247
02:00:32,070 --> 02:00:30,719
pacific 8 45 a.m so a little bit later

2248
02:00:34,229 --> 02:00:32,080
in the morning over there in the east

2249
02:00:36,629 --> 02:00:34,239
coast uh when dragons splash down again

2250
02:00:40,070 --> 02:00:36,639
yeah about 200 or so stats or nautical

2251
02:00:41,669 --> 02:00:40,080
miles out from port canaveral

2252
02:00:43,669 --> 02:00:41,679
if you've been following along with our

2253
02:00:45,750 --> 02:00:43,679
mission this week you already know that

2254
02:00:48,070 --> 02:00:45,760
we don't have actual humans on board

2255
02:00:51,030 --> 02:00:48,080
just ripley our anthropomorphic test

2256
02:00:52,310 --> 02:00:51,040
device she has lots of sensors placed

2257
02:00:55,430 --> 02:00:52,320
around

2258
02:00:57,189 --> 02:00:55,440
the the body i guess you would say

2259
02:00:59,350 --> 02:00:57,199
inside the suit there's a microphone

2260
02:01:01,669 --> 02:00:59,360
inside as well yeah so this will give us

2261
02:01:04,950 --> 02:01:01,679
lots of really cool data about the

2262
02:01:07,830 --> 02:01:04,960
g-forces and what uh the test device

2263
02:01:09,510 --> 02:01:07,840

experienced during launch and docking

2264
02:01:11,830 --> 02:01:09,520
and re-entry

2265
02:01:13,510 --> 02:01:11,840
however as with all steps so far in our

2266
02:01:15,669 --> 02:01:13,520
demo one mission our teams will be

2267
02:01:17,669 --> 02:01:15,679
covering the full steps in the recovery

2268
02:01:19,510 --> 02:01:17,679
process as if it were an actual crude

2269
02:01:21,350 --> 02:01:19,520
mission in order to prepare for our

2270
02:01:23,350 --> 02:01:21,360
first time with nastra with nasa

2271
02:01:25,270 --> 02:01:23,360
astronauts on board

2272
02:01:26,310 --> 02:01:25,280
the you saw earlier that the recovery

2273
02:01:28,070 --> 02:01:26,320
fast boats

2274
02:01:28,870 --> 02:01:28,080
went very quickly to the splashdown

2275
02:01:30,870 --> 02:01:28,880
point

2276
02:01:33,830 --> 02:01:30,880
go searcher the main recovery vessel

2277
02:01:37,109 --> 02:01:33,840
followed along quickly which you can see

2278
02:01:39,189 --> 02:01:37,119
in your screen right now um wow

2279
02:01:41,189 --> 02:01:39,199
it's a picture-perfect day so

2280
02:01:43,430 --> 02:01:41,199
it's it's it's pretty great so we're

2281
02:01:45,270 --> 02:01:43,440
going to be watching as

2282
02:01:46,870 --> 02:01:45,280
the recovery vessel gets closer to the

2283
02:01:48,550 --> 02:01:46,880
dragon capsule

2284
02:01:50,310 --> 02:01:48,560
and we'll be able to see it get lifted

2285
02:01:52,950 --> 02:01:50,320
out of the out of the ocean that's a

2286
02:01:54,470 --> 02:01:52,960
beautiful shot there so our recovery

2287
02:01:56,390 --> 02:01:54,480
crew has been performing already

2288
02:01:58,229 --> 02:01:56,400

performed the safety the safety checks

2289
02:02:00,310 --> 02:01:58,239
that they do after splashdown the

2290
02:02:01,750 --> 02:02:00,320
vehicle itself saved itself as well as

2291
02:02:03,030 --> 02:02:01,760
soon as it detected that it was in the

2292
02:02:04,870 --> 02:02:03,040
water

2293
02:02:07,830 --> 02:02:04,880
and the team made sure it was safe for

2294
02:02:10,149 --> 02:02:07,840
to approach the dragon spacecraft

2295
02:02:12,629 --> 02:02:10,159
and then upon that immediate detection

2296
02:02:14,470 --> 02:02:12,639
of landing dragon automatically released

2297
02:02:16,310 --> 02:02:14,480
all those main parachutes and that just

2298
02:02:17,830 --> 02:02:16,320
prevents the wind from catching them and

2299
02:02:19,990 --> 02:02:17,840
potentially pulling or dragging the

2300
02:02:21,830 --> 02:02:20,000
spacecraft across the water and those

2301
02:02:23,910 --> 02:02:21,840
parachutes also get recovered another

2302
02:02:25,589 --> 02:02:23,920
one of the fast approach boats was

2303
02:02:27,109 --> 02:02:25,599
tasked with that immediately after

2304
02:02:28,870 --> 02:02:27,119
splashdown

2305
02:02:30,550 --> 02:02:28,880
following that success

2306
02:02:32,229 --> 02:02:30,560
that successful parachute cut away

2307
02:02:33,830 --> 02:02:32,239
dragon automatically saves any of the

2308
02:02:35,910 --> 02:02:33,840
pyrotechnics still present on the

2309
02:02:37,669 --> 02:02:35,920
vehicle and it can also automatically

2310
02:02:40,229 --> 02:02:37,679
perform a couple of additional

2311
02:02:42,070 --> 02:02:40,239
minor system configurations uh the

2312
02:02:44,070 --> 02:02:42,080
astronauts if they were on board would

2313
02:02:46,310 --> 02:02:44,080

remain seated so ripley obviously hasn't

2314
02:02:47,510 --> 02:02:46,320
gotten up right now on the boat but she

2315
02:02:48,790 --> 02:02:47,520
has not unbuckled her seat though yet

2316
02:02:50,870 --> 02:02:48,800
not unbuckled

2317
02:02:52,550 --> 02:02:50,880
yet the astronauts if they were on board

2318
02:02:55,189 --> 02:02:52,560
would remain seated and they stay in

2319
02:02:57,109 --> 02:02:55,199
their suits at this point but the dragon

2320
02:02:58,629 --> 02:02:57,119
spacecraft has air conditioning on board

2321
02:03:00,390 --> 02:02:58,639
that helps keep the temperatures in

2322
02:03:02,390 --> 02:03:00,400
check inside the spacecraft

2323
02:03:04,310 --> 02:03:02,400
and the communication system on board

2324
02:03:06,709 --> 02:03:04,320
also remains powered so the crew still

2325
02:03:08,229 --> 02:03:06,719
has their two-way communication as they

2326
02:03:09,589 --> 02:03:08,239
are just kind of sitting there in the

2327
02:03:11,189 --> 02:03:09,599
capsule waiting

2328
02:03:13,030 --> 02:03:11,199
for the teams to move in and pull them

2329
02:03:14,709 --> 02:03:13,040
up on the boat

2330
02:03:16,950 --> 02:03:14,719
if i were an astronaut inside the

2331
02:03:18,229 --> 02:03:16,960
capsule right now i would imagine this

2332
02:03:20,790 --> 02:03:18,239
point to be kind of like when you're

2333
02:03:23,030 --> 02:03:20,800
going through a car wash you know you're

2334
02:03:25,030 --> 02:03:23,040
you're safe you can talk you can you're

2335
02:03:26,790 --> 02:03:25,040
comfortable in your enclosed environment

2336
02:03:29,270 --> 02:03:26,800
but you can't open the door just yet

2337
02:03:31,030 --> 02:03:29,280
there's a lot of water yeah

2338
02:03:33,030 --> 02:03:31,040

now it'll take it took a little bit over

2339
02:03:34,629 --> 02:03:33,040
10 minutes for the recovery to complete

2340
02:03:37,270 --> 02:03:34,639
their safety checks

2341
02:03:39,830 --> 02:03:37,280
and they completed their preparation

2342
02:03:42,310 --> 02:03:39,840
activities and right now as we can see

2343
02:03:44,709 --> 02:03:42,320
they are making progress toward being

2344
02:03:46,149 --> 02:03:44,719
able to lift dragon up and onto the

2345
02:03:48,550 --> 02:03:46,159
recovery vessel

2346
02:03:50,550 --> 02:03:48,560
as part of the preparation for this lift

2347
02:03:52,709 --> 02:03:50,560
we saw earlier that a member of the

2348
02:03:54,870 --> 02:03:52,719
recover but an actual a member of the

2349
02:03:57,510 --> 02:03:54,880
recovery team actually climbed on top of

2350
02:03:59,669 --> 02:03:57,520
the capsule and that was in order to

2351
02:04:02,709 --> 02:03:59,679
attach the dragon's hoist rings and

2352
02:04:03,910 --> 02:04:02,719
connect the lifting line so a lot of

2353
02:04:05,990 --> 02:04:03,920
physical requirements for that

2354
02:04:07,669 --> 02:04:06,000
particular role i probably would not be

2355
02:04:08,790 --> 02:04:07,679
able to do it i'd fall right off most

2356
02:04:10,390 --> 02:04:08,800
likely

2357
02:04:11,589 --> 02:04:10,400
but it's really cool to be able to see

2358
02:04:13,830 --> 02:04:11,599
our recovery team who has been

2359
02:04:15,669 --> 02:04:13,840
practicing live in action here with

2360
02:04:29,510 --> 02:04:15,679
these beautiful shots from the atlantic

2361
02:04:32,870 --> 02:04:30,790
and so for now we're just going to

2362
02:04:34,629 --> 02:04:32,880
continue getting these great views from

2363
02:04:36,709 --> 02:04:34,639

the boats out there this view is

2364
02:04:37,589 --> 02:04:36,719
actually from one of the other vessels

2365
02:04:39,350 --> 02:04:37,599
that

2366
02:04:41,510 --> 02:04:39,360
traveled out to the recovery zone this

2367
02:04:43,430 --> 02:04:41,520
is from the go navigator and the

2368
02:04:45,510 --> 02:04:43,440
combined nasa teams

2369
02:04:47,270 --> 02:04:45,520
with a number of managers flight docs

2370
02:04:49,189 --> 02:04:47,280
and other personnel that will be

2371
02:04:50,709 --> 02:04:49,199
involved in kind of the game day

2372
02:04:53,030 --> 02:04:50,719
operations

2373
02:04:55,350 --> 02:04:53,040
when we have

2374
02:05:03,669 --> 02:04:55,360
a crew on board the spacecraft

2375
02:05:06,870 --> 02:05:05,350
like we've mentioned before the ship

2376
02:05:07,830 --> 02:05:06,880
that you see there

2377
02:05:10,069 --> 02:05:07,840
is

2378
02:05:12,149 --> 02:05:10,079
fully equipped for medical checkouts if

2379
02:05:13,030 --> 02:05:12,159
we did have astronauts on board dragon

2380
02:05:14,870 --> 02:05:13,040
today

2381
02:05:17,510 --> 02:05:14,880
as soon as they egress

2382
02:05:19,910 --> 02:05:17,520
from the side hatch they would be taken

2383
02:05:21,430 --> 02:05:19,920
into the medical quarters and given a

2384
02:05:23,030 --> 02:05:21,440
medical examination just to make sure

2385
02:05:24,310 --> 02:05:23,040
that everything is good and everyone's

2386
02:05:26,790 --> 02:05:24,320
in good health

2387
02:05:28,550 --> 02:05:26,800
there's a helicopter pad on top of it

2388
02:05:30,870 --> 02:05:28,560

additionally due to

2389
02:05:32,790 --> 02:05:30,880
unpredictable sea conditions whenever we

2390
02:05:35,030 --> 02:05:32,800
splash down it might take the crew a

2391
02:05:36,950 --> 02:05:35,040
couple days to get out and back from the

2392
02:05:40,069 --> 02:05:36,960
splashdown point and so the ship is also

2393
02:05:42,629 --> 02:05:40,079
capable of housing the recovery crew

2394
02:05:44,390 --> 02:05:42,639
for a couple of weeks realistically if

2395
02:05:46,870 --> 02:05:44,400
if absolutely necessary

2396
02:05:49,109 --> 02:05:46,880
obviously a long time to be on

2397
02:05:52,310 --> 02:05:49,119
on a ship in my opinion

2398
02:05:54,790 --> 02:05:52,320
but um it is it's fully equipped and

2399
02:05:58,790 --> 02:05:54,800
i've been on that ship myself and it's

2400
02:06:01,109 --> 02:05:58,800
just incredible to me as um someone that

2401
02:06:02,950 --> 02:06:01,119
keeps my eyes towards the sky and not

2402
02:06:03,750 --> 02:06:02,960
necessarily um

2403
02:06:06,709 --> 02:06:03,760
you know

2404
02:06:08,229 --> 02:06:06,719
water ocean sickness

2405
02:06:10,390 --> 02:06:08,239
it's just incredible to me that we're

2406
02:06:11,589 --> 02:06:10,400
able to have a vessel like this in our

2407
02:06:13,750 --> 02:06:11,599
fleet really

2408
02:06:15,910 --> 02:06:13,760
when you think of of the full

2409
02:06:17,589 --> 02:06:15,920
encapsulation of what a mission requires

2410
02:06:19,750 --> 02:06:17,599
it's not just going up it's coming back

2411
02:06:21,510 --> 02:06:19,760
down and back onto land safely as well

2412
02:06:47,750 --> 02:06:21,520
and this vessel is a great example of

2413
02:06:52,149 --> 02:06:49,990

and as mentioned just a little while ago

2414
02:06:54,069 --> 02:06:52,159
so this is actually a view from the go

2415
02:06:56,470 --> 02:06:54,079
navigator that's one of the two

2416
02:06:59,270 --> 02:06:56,480
ships that have traveled out to the to

2417
02:07:01,189 --> 02:06:59,280
the splashdown zone one of the nasa

2418
02:07:03,510 --> 02:07:01,199
personnel on board that ship is shane

2419
02:07:06,550 --> 02:07:03,520
kimbrough and he's actually the lead for

2420
02:07:08,229 --> 02:07:06,560
all of the various nasa recovery teams

2421
02:07:11,030 --> 02:07:08,239
and pretty much responsible for

2422
02:07:12,950 --> 02:07:11,040
overseeing all the crew's needs

2423
02:07:14,950 --> 02:07:12,960
and all their recovery all their

2424
02:07:16,470 --> 02:07:14,960
quarantine before launch he likes to say

2425
02:07:18,390 --> 02:07:16,480
they i think he told us they kind of

2426
02:07:20,950 --> 02:07:18,400
belong to him once they're once they're

2427
02:07:23,669 --> 02:07:20,960
in quarantine and getting ready so he's

2428
02:07:26,470 --> 02:07:23,679
actually joining us now via a satellite

2429
02:07:28,229 --> 02:07:26,480
phone from that ship shane thanks for

2430
02:07:31,589 --> 02:07:28,239
calling in real quick how's everything

2431
02:07:33,589 --> 02:07:31,599
looking out there with dragon recovery

2432
02:07:35,669 --> 02:07:33,599
hey dan great to talk to you from the go

2433
02:07:37,350 --> 02:07:35,679
navigator everything's going really well

2434
02:07:38,709 --> 02:07:37,360
um it was just beautiful seeing it come

2435
02:07:39,990 --> 02:07:38,719
in on the drugs and then the main

2436
02:07:41,109 --> 02:07:40,000
parachutes and then obviously the

2437
02:07:42,709 --> 02:07:41,119
splashdown

2438
02:07:44,390 --> 02:07:42,719

uh you guys are probably seeing video

2439
02:07:45,669 --> 02:07:44,400
now the ghost searcher is getting pretty

2440
02:07:47,030 --> 02:07:45,679
close to

2441
02:07:51,430 --> 02:07:47,040
getting the castle and getting it on

2442
02:07:55,830 --> 02:07:53,830
and so shane what was the trip out there

2443
02:07:58,069 --> 02:07:55,840
like i know we're kind of at a landing

2444
02:08:00,149 --> 02:07:58,079
zone a little bit further away than when

2445
02:08:02,629 --> 02:08:00,159
we have crew actually on board but how's

2446
02:08:04,149 --> 02:08:02,639
everything look so far

2447
02:08:05,669 --> 02:08:04,159
everything's been great the crew's

2448
02:08:08,629 --> 02:08:05,679
taking great care of us it was about a

2449
02:08:10,629 --> 02:08:08,639
30-hour journey to get here um to the

2450
02:08:11,750 --> 02:08:10,639
splashdown zone but uh we woke up this

2451
02:08:13,910 --> 02:08:11,760
morning knowing we were only a couple

2452
02:08:15,669 --> 02:08:13,920
hours away from the uh all the action

2453
02:08:17,589 --> 02:08:15,679
happening so that was really cool and uh

2454
02:08:22,149 --> 02:08:17,599
now it's great to be involved in the

2455
02:08:25,510 --> 02:08:23,990
that's awesome to hear uh it was one

2456
02:08:27,030 --> 02:08:25,520
thing for us to be able to watch it from

2457
02:08:28,629 --> 02:08:27,040
mission control what was it like

2458
02:08:30,709 --> 02:08:28,639
watching dragon splash down with your

2459
02:08:32,870 --> 02:08:30,719
own eyes shane

2460
02:08:34,390 --> 02:08:32,880
uh absolutely incredible everybody

2461
02:08:36,149 --> 02:08:34,400
there's a lot of excitement building on

2462
02:08:37,270 --> 02:08:36,159
the boat you know for 30 minutes or so

2463
02:08:39,589 --> 02:08:37,280

prior to

2464
02:08:42,310 --> 02:08:39,599
to entry and then uh once you know one

2465
02:08:43,910 --> 02:08:42,320
person saw that the drugs open

2466
02:08:46,550 --> 02:08:43,920
everybody's yelling and pointing and all

2467
02:08:48,390 --> 02:08:46,560
excited it was really really neat um and

2468
02:08:50,310 --> 02:08:48,400
from my perspective it looks absolutely

2469
02:08:51,589 --> 02:08:50,320
perfect i'm not sure what the date will

2470
02:08:53,270 --> 02:08:51,599
show otherwise but it looked really

2471
02:08:55,589 --> 02:08:53,280
amazing we have a beautiful day out here

2472
02:08:58,550 --> 02:08:55,599
very calm cds and good match for better

2473
02:09:01,990 --> 02:09:00,149
and so shane obviously you didn't come

2474
02:09:04,390 --> 02:09:02,000
down in this capsule today but you have

2475
02:09:06,149 --> 02:09:04,400
come down in a castle but on land

2476
02:09:08,149 --> 02:09:06,159
what's this experience being out on the

2477
02:09:10,870 --> 02:09:08,159
ocean been like how does that really

2478
02:09:13,270 --> 02:09:10,880
compare from when you touched down over

2479
02:09:14,629 --> 02:09:13,280
in kazakhstan

2480
02:09:16,069 --> 02:09:14,639
yeah good question

2481
02:09:18,229 --> 02:09:16,079
as we're sitting here talking it's been

2482
02:09:19,350 --> 02:09:18,239
what 45 50 minutes and splashdown and

2483
02:09:21,430 --> 02:09:19,360
i'm thinking you know what there's a

2484
02:09:23,750 --> 02:09:21,440
crew in there and that's a long time to

2485
02:09:25,189 --> 02:09:23,760
be waiting for to get picked up so

2486
02:09:26,629 --> 02:09:25,199
we'll tighten up that timeline a bit

2487
02:09:28,550 --> 02:09:26,639
just knowing that crew is probably not

2488
02:09:30,149 --> 02:09:28,560

going to feel very well at this point

2489
02:09:32,149 --> 02:09:30,159
and the sooner we can get you home and

2490
02:09:34,390 --> 02:09:32,159
get them on deck and then eventually

2491
02:09:38,709 --> 02:09:34,400
back on land will help their recovery

2492
02:09:41,830 --> 02:09:40,229
all right so

2493
02:09:44,470 --> 02:09:41,840
we're continuing to get these views

2494
02:09:46,390 --> 02:09:44,480
what's what's kind of ahead for

2495
02:09:48,390 --> 02:09:46,400
you and the rest of the teams i know you

2496
02:09:51,830 --> 02:09:48,400
said it's going to be about a 30-minute

2497
02:09:53,510 --> 02:09:51,840
or a 30-hour boat ride back into harbor

2498
02:09:54,550 --> 02:09:53,520
yeah that'll be probably about the same

2499
02:09:56,069 --> 02:09:54,560
going back

2500
02:09:57,669 --> 02:09:56,079
i think we'll be out here another hour

2501
02:09:59,990 --> 02:09:57,679
so maybe two hours just getting

2502
02:10:02,229 --> 02:10:00,000
everything situated in the spacex team

2503
02:10:04,229 --> 02:10:02,239
on go searcher once they give us a go

2504
02:10:05,830 --> 02:10:04,239
then we'll start heading back and forth

2505
02:10:11,350 --> 02:10:05,840
and we're supposed to arrive late

2506
02:10:14,629 --> 02:10:13,510
all right well shane we'll let you get

2507
02:10:16,390 --> 02:10:14,639
back to

2508
02:10:18,470 --> 02:10:16,400
watching all the operations i know you

2509
02:10:20,470 --> 02:10:18,480
got a job to do other than talking to us

2510
02:10:22,550 --> 02:10:20,480
but i do really appreciate you calling

2511
02:10:24,709 --> 02:10:22,560
in all the way out there in atlantic it

2512
02:10:26,950 --> 02:10:24,719
was a great splashdown and we'll see you

2513
02:10:28,550 --> 02:10:26,960

when you're back in houston

2514
02:10:29,830 --> 02:10:28,560
sounds great thank you guys and enjoy

2515
02:10:31,109 --> 02:10:29,840
the rest of the

2516
02:10:35,430 --> 02:10:31,119
scenes out here as you're getting them

2517
02:10:38,550 --> 02:10:36,310
all right

2518
02:10:40,950 --> 02:10:38,560
and again that was nasa astronaut shane

2519
02:10:43,189 --> 02:10:40,960
kimbrough he's out with the nasa teams

2520
02:10:44,870 --> 02:10:43,199
who are on a boat watching as the ghost

2521
02:10:46,069 --> 02:10:44,880
searcher gets a little bit closer looks

2522
02:10:48,069 --> 02:10:46,079
like pretty soon they're gonna start

2523
02:10:59,750 --> 02:10:48,079
reeling that dragon in and we're gonna

2524
02:11:03,430 --> 02:11:01,669
so you saw a couple of seconds ago the

2525
02:11:06,310 --> 02:11:03,440
shot on your screen of the back of the

2526
02:11:07,669 --> 02:11:06,320
boat itself um that is the cradle that

2527
02:11:09,030 --> 02:11:07,679
you saw that's what we've been referring

2528
02:11:11,350 --> 02:11:09,040
to as the nest

2529
02:11:12,629 --> 02:11:11,360
is designed specifically for the crew

2530
02:11:15,830 --> 02:11:12,639
dragon

2531
02:11:18,870 --> 02:11:15,840
design and that is exactly where once

2532
02:11:21,510 --> 02:11:18,880
the lifting arms have lifted the capsule

2533
02:11:24,310 --> 02:11:21,520
out of the water and it'll place it back

2534
02:11:26,550 --> 02:11:24,320
down in that spot and then that is

2535
02:11:28,790 --> 02:11:26,560
basically where if there were astronauts

2536
02:11:31,189 --> 02:11:28,800
on board that is the position in which

2537
02:11:33,830 --> 02:11:31,199
the they would be egressing from out of

2538
02:11:36,870 --> 02:11:35,350

looks like we're getting closer and

2539
02:11:39,750 --> 02:11:36,880
closer

2540
02:11:42,390 --> 02:11:39,760
to the capsule

2541
02:11:44,550 --> 02:11:42,400
it should be in range soon as we've

2542
02:11:46,950 --> 02:11:44,560
talked about it's expected to be about

2543
02:11:49,430 --> 02:11:46,960
an hour or a little bit less post

2544
02:11:51,109 --> 02:11:49,440
splashdown for the capsule to be back up

2545
02:11:52,390 --> 02:11:51,119
on the boat and as you kind of heard

2546
02:11:53,830 --> 02:11:52,400
shane talk about

2547
02:11:56,069 --> 02:11:53,840
really you just want to try and get the

2548
02:11:58,229 --> 02:11:56,079
crew out of there and in a more stable

2549
02:12:00,069 --> 02:11:58,239
environment as quickly as possible and

2550
02:12:01,750 --> 02:12:00,079
then you can actually start

2551
02:12:05,270 --> 02:12:01,760
take the boat and start heading back

2552
02:12:07,189 --> 02:12:05,280
into port and if you miss some of the uh

2553
02:12:09,189 --> 02:12:07,199
the data earlier in the show they are a

2554
02:12:11,109 --> 02:12:09,199
little over 200 nautical miles out to

2555
02:12:13,030 --> 02:12:11,119
sea right now which is why we're hearing

2556
02:12:15,189 --> 02:12:13,040
it's going to take them about 30 hours

2557
02:12:16,470 --> 02:12:15,199
to come back in once we have crew on

2558
02:12:18,149 --> 02:12:16,480
board that's not going to be the case

2559
02:12:20,870 --> 02:12:18,159
they're going to be in much closer to

2560
02:12:22,870 --> 02:12:20,880
land within about 20 or 24 nautical

2561
02:12:25,030 --> 02:12:22,880
miles and so that gives you the option

2562
02:12:26,550 --> 02:12:25,040
to be back in short back at shore in

2563
02:12:28,229 --> 02:12:26,560

just a couple of hours

2564
02:12:30,870 --> 02:12:28,239
but as he pointed out earlier there is a

2565
02:12:32,629 --> 02:12:30,880
helipad on that boat so if for any

2566
02:12:34,950 --> 02:12:32,639
reason they needed to get the crew back

2567
02:12:37,350 --> 02:12:34,960
much quicker they could actually airlift

2568
02:12:40,629 --> 02:12:37,360
them out and then bring them right back

2569
02:12:43,189 --> 02:12:40,639
to dry land there in florida but

2570
02:12:44,870 --> 02:12:43,199
the gap continuing to close

2571
02:12:46,950 --> 02:12:44,880
sounds like operations are definitely

2572
02:12:49,830 --> 02:12:46,960
picking up here in spacex headquarters

2573
02:12:51,350 --> 02:12:49,840
if you're starting to hear some of that

2574
02:12:53,510 --> 02:12:51,360
but everything looking great so far we

2575
02:12:56,130 --> 02:12:53,520
should have that dragon on the boat in

2576
02:13:22,950 --> 02:12:56,140
just a little bit

2577
02:16:15,550 --> 02:14:47,589
so

2578
02:18:55,349 --> 02:17:30,129
[Music]

2579
02:18:59,349 --> 02:18:57,669
so we're continuing to watch dragon's

2580
02:19:01,750 --> 02:18:59,359
recovery at this point the teams have

2581
02:19:03,669 --> 02:19:01,760
already lowered the vessels hydraulic

2582
02:19:04,950 --> 02:19:03,679
lift mechanism down into the water as

2583
02:19:07,349 --> 02:19:04,960
they're getting ready to bring that

2584
02:19:09,990 --> 02:19:07,359
dragon spacecraft up into the on-deck

2585
02:19:11,990 --> 02:19:10,000
translation system that spacex decided

2586
02:19:14,070 --> 02:19:12,000
to call the nest and dragon's gonna

2587
02:19:15,669 --> 02:19:14,080
remain in that nest during its journey

2588
02:19:18,070 --> 02:19:15,679

back to the coast where it's gonna

2589
02:19:20,150 --> 02:19:18,080
arrive at port canaveral florida and

2590
02:19:22,549 --> 02:19:20,160
we're expecting that to take about 30

2591
02:19:24,070 --> 02:19:22,559
hours or so for this mission it'll take

2592
02:19:25,509 --> 02:19:24,080
them that long to make their way back

2593
02:19:27,830 --> 02:19:25,519
because they're a little over 200

2594
02:19:29,589 --> 02:19:27,840
nautical miles out to sea but for crude

2595
02:19:31,190 --> 02:19:29,599
missions as we've said the landing zone

2596
02:19:33,509 --> 02:19:31,200
is only going to be a couple hours ride

2597
02:19:35,030 --> 02:19:33,519
away from port and that's just so spacex

2598
02:19:37,030 --> 02:19:35,040
can quickly get those returning

2599
02:19:38,709 --> 02:19:37,040
astronauts back to dry land where things

2600
02:19:40,469 --> 02:19:38,719
are a little bit stable and after you've

2601
02:19:41,990 --> 02:19:40,479
been in microgravity for about six

2602
02:19:44,629 --> 02:19:42,000
months your feet will probably

2603
02:19:46,549 --> 02:19:44,639
appreciate that uh the capsule pretty

2604
02:19:47,830 --> 02:19:46,559
soon though is gonna get lifted and set

2605
02:19:50,150 --> 02:19:47,840
into that nest and then they're going to

2606
02:19:52,630 --> 02:19:50,160
center and orient the vehicle and then

2607
02:19:54,150 --> 02:19:52,640
dragon will eventually get transloaded

2608
02:19:56,309 --> 02:19:54,160
translated into the hangar aboard the

2609
02:19:58,070 --> 02:19:56,319
ship so that the teams can open up the

2610
02:20:01,190 --> 02:19:58,080
hatch

2611
02:20:02,389 --> 02:20:01,200
and for missions with astronauts aboard

2612
02:20:04,469 --> 02:20:02,399
we're almost at the point where the

2613
02:20:06,469 --> 02:20:04,479

recovery team would be assisting the

2614
02:20:07,990 --> 02:20:06,479
crew to get out of dragon so we're

2615
02:20:10,389 --> 02:20:08,000
almost there that would happen shortly

2616
02:20:12,150 --> 02:20:10,399
after they get back onto the ship

2617
02:20:14,710 --> 02:20:12,160
in aerospace terms we call that the

2618
02:20:16,550 --> 02:20:14,720
crew's egress from the spacecraft and

2619
02:20:18,710 --> 02:20:16,560
under the typical circumstances our

2620
02:20:21,590 --> 02:20:18,720
spacex recovery team is going to be

2621
02:20:24,469 --> 02:20:21,600
helping out the crew of dragon within

2622
02:20:25,910 --> 02:20:24,479
one hour of landing

2623
02:20:28,870 --> 02:20:25,920
yeah so you can see on your screen there

2624
02:20:31,990 --> 02:20:28,880
dragon is getting closer and closer to

2625
02:20:34,469 --> 02:20:32,000
the back end of the recovery shift to

2626
02:20:36,309 --> 02:20:34,479
the recovery ship just a minute or two

2627
02:20:37,830 --> 02:20:36,319
ago we saw the crew member that was

2628
02:20:40,070 --> 02:20:37,840
responsible for attaching all the

2629
02:20:43,270 --> 02:20:40,080
appropriate rigging to the vessel jump

2630
02:20:45,830 --> 02:20:43,280
off the capsule and back into the water

2631
02:20:49,030 --> 02:20:45,840
and right now we're just waiting for

2632
02:20:52,469 --> 02:20:49,040
dragon to lift up and out of the water

2633
02:20:57,429 --> 02:20:54,710
there it goes

2634
02:21:00,070 --> 02:20:57,439
so they're facing us is what we call the

2635
02:21:02,070 --> 02:21:00,080
side hatch and that is where as dan just

2636
02:21:03,670 --> 02:21:02,080
mentioned the astronauts would if we had

2637
02:21:05,990 --> 02:21:03,680
astronauts on board today where they

2638
02:21:07,990 --> 02:21:06,000

would be exiting

2639
02:21:11,349 --> 02:21:08,000
the top hatch is what we use to connect

2640
02:21:13,670 --> 02:21:11,359
to the iss and that is currently hidden

2641
02:21:15,750 --> 02:21:13,680
underneath the nose cone

2642
02:21:19,349 --> 02:21:15,760
but like we said astronauts will be

2643
02:21:25,270 --> 02:21:21,670
and we got a beautiful shot there now

2644
02:21:26,870 --> 02:21:25,280
the hydraulic lift is coming back

2645
02:21:29,349 --> 02:21:26,880
back towards us

2646
02:21:43,990 --> 02:21:29,359
and it is preparing to lower the dragon

2647
02:21:47,990 --> 02:21:45,910
like we said we are treating this

2648
02:21:49,590 --> 02:21:48,000
demonstration mission um with the

2649
02:21:51,590 --> 02:21:49,600
recovery operations as if there were

2650
02:21:53,590 --> 02:21:51,600
actual astronauts on board

2651
02:21:55,349 --> 02:21:53,600
and of course before we were able would

2652
02:21:57,270 --> 02:21:55,359
be able to open the hatch we would have

2653
02:21:59,270 --> 02:21:57,280
to make sure that the spacecraft's cabin

2654
02:22:01,750 --> 02:21:59,280
pressure is equalized with the outside

2655
02:22:04,469 --> 02:22:01,760
environment before doing so

2656
02:22:06,550 --> 02:22:04,479
so once dragon is seated and you can

2657
02:22:08,870 --> 02:22:06,560
hear some tears behind me

2658
02:22:10,469 --> 02:22:08,880
as the remaining folks that we have here

2659
02:22:13,030 --> 02:22:10,479
on the spacex team outside of mission

2660
02:22:14,870 --> 02:22:13,040
control are cheering with the placement

2661
02:22:22,630 --> 02:22:14,880
of dragon into the nest there as you can

2662
02:22:26,790 --> 02:22:24,150
you might also notice

2663
02:22:28,469 --> 02:22:26,800

that uh the thermal protective system

2664
02:22:30,950 --> 02:22:28,479
that we have on the outside of dragon if

2665
02:22:33,590 --> 02:22:30,960
you were watching during launch was a

2666
02:22:35,270 --> 02:22:33,600
pristine white of course upon re-entry

2667
02:22:37,910 --> 02:22:35,280
like we mentioned before there was

2668
02:22:40,469 --> 02:22:37,920
plasma of course as it re-entered

2669
02:22:42,469 --> 02:22:40,479
through earth's atmosphere so we have we

2670
02:22:45,270 --> 02:22:42,479
have a lovely toasted marshmallow there

2671
02:22:47,110 --> 02:22:45,280
sitting in the nest of our recovery ship

2672
02:22:49,590 --> 02:22:47,120
uh which is i just think it's just it's

2673
02:22:50,870 --> 02:22:49,600
such a cool view now that we are we're

2674
02:22:53,349 --> 02:22:50,880
bringing the dragon down and we're

2675
02:22:55,270 --> 02:22:53,359
obviously recovering our rockets uh and

2676
02:22:57,110 --> 02:22:55,280
it's just really cool to see that that

2677
02:22:59,270 --> 02:22:57,120
evidence of return back to earth is

2678
02:23:01,429 --> 02:22:59,280
really wonderful yeah and we had

2679
02:23:03,429 --> 02:23:01,439
fantastic luck with the weather today

2680
02:23:05,510 --> 02:23:03,439
the sea states were relatively calm by

2681
02:23:07,670 --> 02:23:05,520
all reports only a couple of clouds

2682
02:23:09,510 --> 02:23:07,680
dotting the sky had great views of

2683
02:23:11,590 --> 02:23:09,520
dragon all the way down under its

2684
02:23:12,309 --> 02:23:11,600
parachutes even before its parachutes we

2685
02:23:13,190 --> 02:23:12,319
saw

2686
02:23:15,349 --> 02:23:13,200
uh

2687
02:23:16,870 --> 02:23:15,359
just after that entry interface and we

2688
02:23:19,590 --> 02:23:16,880

were getting some really cool views from

2689
02:23:22,230 --> 02:23:19,600
the wb 57 airplane

2690
02:23:24,630 --> 02:23:22,240
but with dragon back on the boat

2691
02:23:27,750 --> 02:23:24,640
that's about it for us we're just now at

2692
02:23:29,510 --> 02:23:27,760
about the end of this mission

2693
02:23:31,270 --> 02:23:29,520
so at this point as we talked about the

2694
02:23:33,190 --> 02:23:31,280
recovery personnel would assist in the

2695
02:23:35,590 --> 02:23:33,200
astronauts getting out of dragon and

2696
02:23:37,830 --> 02:23:35,600
those medical teams would be standing by

2697
02:23:39,670 --> 02:23:37,840
and there's medical evaluation rooms on

2698
02:23:41,510 --> 02:23:39,680
board but no people on board ripley

2699
02:23:43,429 --> 02:23:41,520
won't need a medical exam but they will

2700
02:23:46,070 --> 02:23:43,439
be getting all of the data back from the

2701
02:23:48,389 --> 02:23:46,080
sensors placed around ripley on that

2702
02:23:49,910 --> 02:23:48,399
anthropomorphic test device

2703
02:23:51,830 --> 02:23:49,920
on board as they get all of the

2704
02:23:53,590 --> 02:23:51,840
different g-forces that dragon was

2705
02:23:54,550 --> 02:23:53,600
exposed to the sound environment

2706
02:23:57,590 --> 02:23:54,560
everything that the crew would

2707
02:23:59,990 --> 02:23:57,600
experience ripley just experienced

2708
02:24:02,150 --> 02:24:00,000
but this mission started just about six

2709
02:24:04,630 --> 02:24:02,160
days ago with that early morning launch

2710
02:24:05,830 --> 02:24:04,640
on march 2nd we had a successful

2711
02:24:07,590 --> 02:24:05,840
approach and docking to the

2712
02:24:09,830 --> 02:24:07,600
international space station did all of

2713
02:24:11,910 --> 02:24:09,840

the demonstrations as expected for the

2714
02:24:14,150 --> 02:24:11,920
mission it was docked for the last five

2715
02:24:16,389 --> 02:24:14,160
days they tested dragons communications

2716
02:24:18,309 --> 02:24:16,399
and power systems with the space station

2717
02:24:20,630 --> 02:24:18,319
they unloaded about 400 pounds of cargo

2718
02:24:22,389 --> 02:24:20,640
and loaded 300 pounds of cargo back on

2719
02:24:24,710 --> 02:24:22,399
we had that undocking just a couple of

2720
02:24:26,710 --> 02:24:24,720
hours ago as a successful re-entry four

2721
02:24:30,150 --> 02:24:26,720
great parachutes and a splashdown in the

2722
02:24:33,349 --> 02:24:30,160
atlantic ocean at 8 45 a.m eastern time

2723
02:24:35,990 --> 02:24:33,359
5 45 a.m for us over here on the pacific

2724
02:24:38,309 --> 02:24:36,000
coast so it was really a fantastic

2725
02:24:39,910 --> 02:24:38,319
mission it's been a huge honor for me to

2726
02:24:41,750 --> 02:24:39,920
be out here at hawthorne to share this

2727
02:24:43,910 --> 02:24:41,760
with everybody and to share it with my

2728
02:24:46,309 --> 02:24:43,920
spacex counterparts out here a

2729
02:24:48,309 --> 02:24:46,319
successful mission the first successful

2730
02:24:50,550 --> 02:24:48,319
test flight of nasa's commercial crew

2731
02:24:51,429 --> 02:24:50,560
program to the international space

2732
02:24:53,590 --> 02:24:51,439
station

2733
02:24:55,030 --> 02:24:53,600
so as dan said it's been an incredible

2734
02:24:57,270 --> 02:24:55,040
honor to share this mission with the

2735
02:24:58,790 --> 02:24:57,280
public all the teams are incredibly and

2736
02:25:00,790 --> 02:24:58,800
thrilled with the success of this

2737
02:25:03,110 --> 02:25:00,800
demonstration mission which of course

2738
02:25:04,469 --> 02:25:03,120

paves the way for our first crude flight

2739
02:25:07,110 --> 02:25:04,479
later this year

2740
02:25:08,150 --> 02:25:07,120
be sure to follow along with spacex and

2741
02:25:10,150 --> 02:25:08,160
nasa

2742
02:25:12,710 --> 02:25:10,160
on our social media for updates and next

2743
02:25:47,670 --> 02:25:12,720
steps on the commercial crew program

2744
02:26:30,410 --> 02:26:23,670
do