

NASA LIVE

NASA'S SPACEX CREW-1 LAUNCH

#LAUNCHAMERICA



1
00:00:59,290 --> 00:00:56,470

[Music]

2
00:01:15,190 --> 00:00:59,300

rogers

3
00:01:15,200 --> 00:01:20,180

between countries

4
00:01:54,630 --> 00:01:42,610

[Music]

5
00:01:59,429 --> 00:01:56,870
you're looking live at the crew dragon

6
00:02:02,230 --> 00:01:59,439
spacecraft and falcon 9 rockets set to

7
00:02:04,389 --> 00:02:02,240
carry three american astronauts and one

8
00:02:07,350 --> 00:02:04,399
japanese astronaut to the international

9
00:02:09,510 --> 00:02:07,360
space station in just a few hours today

10
00:02:11,589 --> 00:02:09,520
begins the first full duration science

11
00:02:12,790 --> 00:02:11,599
mission of nasa's commercial crew

12
00:02:15,110 --> 00:02:12,800
program

13
00:02:17,430 --> 00:02:15,120

good afternoon and welcome to kennedy

14

00:02:19,750 --> 00:02:17,440

space center in florida i'm marie lewis

15

00:02:21,830 --> 00:02:19,760

with nasa public affairs and i'm kate

16

00:02:24,309 --> 00:02:21,840

tyce senior certification engineer at

17

00:02:26,869 --> 00:02:24,319

spacex joining us today is someone very

18

00:02:29,110 --> 00:02:26,879

familiar with historic launch pad 39a

19

00:02:30,710 --> 00:02:29,120

retired nasa astronaut nicole stott

20

00:02:32,790 --> 00:02:30,720

welcome nicole

21

00:02:34,470 --> 00:02:32,800

good afternoon ladies it is wonderful to

22

00:02:35,430 --> 00:02:34,480

be here with you at the kennedy space

23

00:02:37,350 --> 00:02:35,440

center

24

00:02:39,030 --> 00:02:37,360

absolutely one of my favorite places on

25

00:02:42,790 --> 00:02:39,040

the planet

26

00:02:44,710 --> 00:02:42,800

and ours too absolutely at 7 27 pm

27

00:02:47,110 --> 00:02:44,720

eastern time this evening nasa

28

00:02:49,509 --> 00:02:47,120

astronauts mike hopkins victor glover

29

00:02:51,670 --> 00:02:49,519

shannon walker and japan aerospace

30

00:02:54,229 --> 00:02:51,680

exploration agency astronaut suici

31

00:02:57,270 --> 00:02:54,239

naguchi will lift off from this historic

32

00:02:59,350 --> 00:02:57,280

launch complex 39a at nasa's kennedy

33

00:03:01,750 --> 00:02:59,360

space center and begin their six-month

34

00:03:04,229 --> 00:03:01,760

journey in orbit this mission known as

35

00:03:06,070 --> 00:03:04,239

crew one will be the first american

36

00:03:07,350 --> 00:03:06,080

launch mission with astronauts aboard

37

00:03:09,110 --> 00:03:07,360

since this

38

00:03:11,190 --> 00:03:09,120

since the demo 2 test flight this past

39

00:03:13,430 --> 00:03:11,200

summer that's right and we have teams

40

00:03:15,350 --> 00:03:13,440

across the world covering the action

41

00:03:18,070 --> 00:03:15,360

from spacex headquarters in hawthorne

42

00:03:20,470 --> 00:03:18,080

california mission control in houston

43

00:03:22,949 --> 00:03:20,480

and jaxa headquarters in japan and of

44

00:03:25,270 --> 00:03:22,959

course right here in florida

45

00:03:27,350 --> 00:03:25,280

in just a few minutes at t-minus four

46

00:03:29,589 --> 00:03:27,360

hours and five minutes nasa will turn

47

00:03:31,430 --> 00:03:29,599

the crew over to the spacex team and

48

00:03:33,509 --> 00:03:31,440

once that happens there are a series of

49

00:03:36,869 --> 00:03:33,519

key milestones to complete as we count

50

00:03:38,949 --> 00:03:36,879

down to t-zero the first one is suit up

51
00:03:41,110 --> 00:03:38,959
the suit-up room is located in nasa's

52
00:03:43,190 --> 00:03:41,120
neil armstrong operations and checkout

53
00:03:44,869 --> 00:03:43,200
building or the onc

54
00:03:46,470 --> 00:03:44,879
here the spacex team will help the

55
00:03:49,190 --> 00:03:46,480
astronauts put on their suits and

56
00:03:51,509 --> 00:03:49,200
perform some key suit checkouts after

57
00:03:53,429 --> 00:03:51,519
suit up we'll see crew walk out the

58
00:03:55,270 --> 00:03:53,439
astronauts will leave the onc building

59
00:03:58,149 --> 00:03:55,280
for final goodbyes with friends and

60
00:04:00,309 --> 00:03:58,159
family gathered outside the facility

61
00:04:02,309 --> 00:04:00,319
before they head out to the launch pad

62
00:04:04,470 --> 00:04:02,319
and following goodbyes the crew will get

63
00:04:07,830 --> 00:04:04,480

in a pair of teslas and begin the

64

00:04:09,589 --> 00:04:07,840

roughly 20 minute drive to pad 39a once

65

00:04:11,830 --> 00:04:09,599

at the pad the crew will ascend the

66

00:04:14,470 --> 00:04:11,840

fixed service structure in an elevator

67

00:04:16,390 --> 00:04:14,480

up to the 255 foot level

68

00:04:18,949 --> 00:04:16,400

then they take the stairs for the last

69

00:04:21,110 --> 00:04:18,959

10 feet or so up to the crew access arm

70

00:04:23,189 --> 00:04:21,120

and white room the white room is their

71

00:04:26,469 --> 00:04:23,199

last stop before climbing inside the

72

00:04:28,469 --> 00:04:26,479

spacecraft a process called crew ingress

73

00:04:30,550 --> 00:04:28,479

during ingress the spacex team will run

74

00:04:32,950 --> 00:04:30,560

a series of checks to ensure the suits

75

00:04:34,870 --> 00:04:32,960

seats and vehicle interactions are all

76

00:04:36,550 --> 00:04:34,880

functioning properly

77

00:04:38,390 --> 00:04:36,560

and after all the vehicle and crew

78

00:04:40,390 --> 00:04:38,400

checkouts are completed the spacex

79

00:04:43,030 --> 00:04:40,400

closeout team will close dragon side

80

00:04:45,270 --> 00:04:43,040

hatch with the crew safely inside

81

00:04:47,270 --> 00:04:45,280

at t-minus 40 minutes the crew access

82

00:04:49,350 --> 00:04:47,280

arm which is the long suspended walkway

83

00:04:51,830 --> 00:04:49,360

that the astronauts use to board dragon

84

00:04:54,230 --> 00:04:51,840

will retract away followed by arming of

85

00:04:56,230 --> 00:04:54,240

the launch escape system and once the

86

00:04:58,230 --> 00:04:56,240

arm is retracted and the launch escape

87

00:05:01,029 --> 00:04:58,240

system is armed that's when propellant

88

00:05:02,950 --> 00:05:01,039

loading on falcon 9 will begin at t

89

00:05:04,870 --> 00:05:02,960
minus five minutes dragon will be

90

00:05:07,029 --> 00:05:04,880
configured for what we call terminal

91

00:05:09,590 --> 00:05:07,039
count this is when dragons on board

92

00:05:12,550 --> 00:05:09,600
computers take control of the spacecraft

93

00:05:15,510 --> 00:05:12,560
and finally at t-0 crew dragon and

94

00:05:17,830 --> 00:05:15,520
falcon 9 will lift off from pad 39a

95

00:05:19,749 --> 00:05:17,840
roughly 12 minutes after liftoff crew

96

00:05:22,550 --> 00:05:19,759
dragon will separate from falcon 9's

97

00:05:24,230 --> 00:05:22,560
second stage enter its activation phase

98

00:05:26,230 --> 00:05:24,240
and begin using its own onboard

99

00:05:27,990 --> 00:05:26,240
propulsion system to carry the crew to

100

00:05:29,189 --> 00:05:28,000
their destination the international

101
00:05:31,749 --> 00:05:29,199
space station

102
00:05:33,749 --> 00:05:31,759
so with crew suit up about seven minutes

103
00:05:36,070 --> 00:05:33,759
or so away we want to introduce our team

104
00:05:37,909 --> 00:05:36,080
at spacex headquarters in california to

105
00:05:40,390 --> 00:05:37,919
show us what's happening on the opposite

106
00:05:42,230 --> 00:05:40,400
coast leah

107
00:05:44,550 --> 00:05:42,240
hi marie and hello from spacex

108
00:05:46,790 --> 00:05:44,560
headquarters in hawthorne california i'm

109
00:05:48,950 --> 00:05:46,800
nasa's leah cheshire and we are beyond

110
00:05:51,270 --> 00:05:48,960
excited you're joining us live for the

111
00:05:53,430 --> 00:05:51,280
first crew rotation flight of the spacex

112
00:05:54,950 --> 00:05:53,440
crew dragon spacecraft on a falcon 9

113
00:05:55,909 --> 00:05:54,960

rocket to the international space

114

00:05:58,150 --> 00:05:55,919

station

115

00:06:00,790 --> 00:05:58,160

i'm jesse anderson a lead manufacturing

116

00:06:02,469 --> 00:06:00,800

engineer here at spacex right next to us

117

00:06:04,390 --> 00:06:02,479

is mission control hawthorne where our

118

00:06:06,629 --> 00:06:04,400

teams are monitoring the vehicle

119

00:06:08,870 --> 00:06:06,639

checking in on all of its systems and

120

00:06:10,469 --> 00:06:08,880

the capsules currently go for launch

121

00:06:13,189 --> 00:06:10,479

once the crew lifts off it will take

122

00:06:15,670 --> 00:06:13,199

them about 27 and a half hours to reach

123

00:06:17,909 --> 00:06:15,680

their destination the space station with

124

00:06:20,309 --> 00:06:17,919

dragon flying autonomously the entire

125

00:06:22,309 --> 00:06:20,319

way the crew won't be doing any manual

126
00:06:24,870 --> 00:06:22,319
flight tests along the way like we saw

127
00:06:26,870 --> 00:06:24,880
during dm2 earlier this year but will

128
00:06:28,950 --> 00:06:26,880
always have the ability to take control

129
00:06:30,950 --> 00:06:28,960
of dragon if necessary

130
00:06:32,790 --> 00:06:30,960
to help make sure the crew has a safe

131
00:06:34,390 --> 00:06:32,800
journey our team in mission control will

132
00:06:37,670 --> 00:06:34,400
be monitoring their progress along the

133
00:06:39,350 --> 00:06:37,680
way on console or headset are six key

134
00:06:41,430 --> 00:06:39,360
positions who are monitoring the health

135
00:06:43,909 --> 00:06:41,440
of the vehicle and crew the mission

136
00:06:45,830 --> 00:06:43,919
director responsible for mission success

137
00:06:47,510 --> 00:06:45,840
is in charge of the room the person that

138
00:06:49,350 --> 00:06:47,520

you'll hear talking to the astronauts is

139

00:06:51,430 --> 00:06:49,360

the crew operations and resources

140

00:06:54,150 --> 00:06:51,440

engineer what we call as a reminder for

141

00:06:55,670 --> 00:06:54,160

all falcon 9 teams 55.43

142

00:06:59,830 --> 00:06:55,680

is open for

143

00:07:03,430 --> 00:07:01,510

the other positions are focused on

144

00:07:06,550 --> 00:07:03,440

things like navigation and control of

145

00:07:08,469 --> 00:07:06,560

the vehicle avs software propulsion life

146

00:07:10,870 --> 00:07:08,479

support systems and communications with

147

00:07:13,189 --> 00:07:10,880

ground segments nasa has its own team

148

00:07:14,950 --> 00:07:13,199

members in mission control houston where

149

00:07:16,950 --> 00:07:14,960

they've been preparing the space station

150

00:07:18,870 --> 00:07:16,960

for crew dragon's arrival we'll meet

151
00:07:21,029 --> 00:07:18,880
several of the key players later when we

152
00:07:23,189 --> 00:07:21,039
check in with mission control for now

153
00:07:25,270 --> 00:07:23,199
though let's go to john inspector for an

154
00:07:27,670 --> 00:07:25,280
operational update on the launch

155
00:07:29,430 --> 00:07:27,680
countdown john

156
00:07:31,749 --> 00:07:29,440
hello from spacex headquarters in

157
00:07:33,670 --> 00:07:31,759
hawthorne california as leah said i'm

158
00:07:35,990 --> 00:07:33,680
john isbrucker falcon principal

159
00:07:38,469 --> 00:07:36,000
integration engineer we're just over

160
00:07:40,550 --> 00:07:38,479
four hours to launch the major event

161
00:07:42,629 --> 00:07:40,560
getting to this point was static fire of

162
00:07:45,189 --> 00:07:42,639
the falcon 9. that was done five days

163
00:07:48,230 --> 00:07:45,199

ago the falcon 9 with the dragon capsule

164

00:07:50,070 --> 00:07:48,240

on top has remained vertical on pad 39a

165

00:07:52,469 --> 00:07:50,080

you can see on your screens we've been

166

00:07:54,629 --> 00:07:52,479

vertical since the static fire now when

167

00:07:56,469 --> 00:07:54,639

we static fired the falcon 9 we use the

168

00:07:58,710 --> 00:07:56,479

same countdown procedures we're using

169

00:08:00,790 --> 00:07:58,720

today however the engines were fired for

170

00:08:02,230 --> 00:08:00,800

only seven seconds and we obviously

171

00:08:04,390 --> 00:08:02,240

didn't allow the flight computer to

172

00:08:06,790 --> 00:08:04,400

command missile liftoff

173

00:08:09,589 --> 00:08:06,800

now following static fire we did perform

174

00:08:11,670 --> 00:08:09,599

a final dress rehearsal with the crew

175

00:08:14,230 --> 00:08:11,680

and in addition to the four astronauts

176

00:08:16,790 --> 00:08:14,240

dragon is carrying some supplies we

177

00:08:19,270 --> 00:08:16,800

loaded the time-sensitive items what we

178

00:08:22,869 --> 00:08:19,280

call the late load cargo on the dragon

179

00:08:25,270 --> 00:08:22,879

late saturday now right now at pad 39a

180

00:08:27,189 --> 00:08:25,280

falcon 9 and dragon are both powered on

181

00:08:29,189 --> 00:08:27,199

the falcon 9 launch team will perform

182

00:08:32,149 --> 00:08:29,199

final checks starting at t-minus two

183

00:08:34,469 --> 00:08:32,159

hours the dragon team has recently been

184

00:08:36,389 --> 00:08:34,479

pressurizing the propulsion system and

185

00:08:37,990 --> 00:08:36,399

they are waiting for a rival of the crew

186

00:08:39,750 --> 00:08:38,000

later today

187

00:08:41,829 --> 00:08:39,760

the astronauts did receive a weather

188

00:08:44,310 --> 00:08:41,839

briefing at t minus 4 hours and 20

189

00:08:47,350 --> 00:08:44,320

minutes conditions continue to be go at

190

00:08:50,949 --> 00:08:47,360

pad 39a the weather officer predicts a

191

00:08:53,670 --> 00:08:50,959

50 chance that rain in the flight path

192

00:08:56,230 --> 00:08:53,680

thick clouds possibly static electricity

193

00:08:57,590 --> 00:08:56,240

at ground level might be an issue but

194

00:08:59,190 --> 00:08:57,600

they're actually sounding a little

195

00:09:01,190 --> 00:08:59,200

optimistic that the weather boundary

196

00:09:03,750 --> 00:09:01,200

we've seen coming towards us may not

197

00:09:05,670 --> 00:09:03,760

make it and will stay away long enough

198

00:09:07,509 --> 00:09:05,680

for a launch today

199

00:09:09,430 --> 00:09:07,519

also around the world

200

00:09:11,829 --> 00:09:09,440

splashdown locations in case of a

201
00:09:13,350 --> 00:09:11,839
contingency are go

202
00:09:15,990 --> 00:09:13,360
now in the event of an off-nominal

203
00:09:18,230 --> 00:09:16,000
scenario such as an abort spacex and

204
00:09:20,829 --> 00:09:18,240
nasa are coordinating with the u.s coast

205
00:09:23,509 --> 00:09:20,839
guard to ensure crew safety upon

206
00:09:25,590 --> 00:09:23,519
splashdown this includes extra ships and

207
00:09:27,910 --> 00:09:25,600
air assets to patrol the 10 nautical

208
00:09:30,630 --> 00:09:27,920
mile keep out zone this is to help

209
00:09:33,110 --> 00:09:30,640
mitigate safety concerns for any boaters

210
00:09:35,110 --> 00:09:33,120
approaching the landing area

211
00:09:37,590 --> 00:09:35,120
as usual for dragonflights we have an

212
00:09:39,269 --> 00:09:37,600
instantaneous launch window that means

213
00:09:40,870 --> 00:09:39,279

we can't move the launch time we have to

214

00:09:43,829 --> 00:09:40,880

go right on the planned minute and

215

00:09:47,110 --> 00:09:43,839

second so if we need to delay there is a

216

00:09:50,150 --> 00:09:47,120

backup launch opportunity on wednesday a

217

00:09:53,750 --> 00:09:50,160

little under three days from now

218

00:09:55,750 --> 00:09:53,760

now with everything go at pad 39a let's

219

00:10:02,069 --> 00:09:55,760

head over to houston where shaniqua

220

00:10:05,350 --> 00:10:03,590

welcome to the international space

221

00:10:07,829 --> 00:10:05,360

station flight control room in houston

222

00:10:09,750 --> 00:10:07,839

texas at nasa's johnson space center i'm

223

00:10:11,350 --> 00:10:09,760

shanique riverine mission control

224

00:10:12,790 --> 00:10:11,360

houston is essentially the nerve center

225

00:10:14,550 --> 00:10:12,800

for operating the international space

226

00:10:16,710 --> 00:10:14,560

station working in tandem with our

227

00:10:18,790 --> 00:10:16,720

partner agencies and providers around

228

00:10:21,430 --> 00:10:18,800

the globe together we've ensured that

229

00:10:22,870 --> 00:10:21,440

station is ready to welcome crew one

230

00:10:24,949 --> 00:10:22,880

leading the team inside the room right

231

00:10:27,509 --> 00:10:24,959

now is flight director anthony varya

232

00:10:29,990 --> 00:10:27,519

there's a notably smaller team to see

233

00:10:31,509 --> 00:10:30,000

in the room tomorrow

234

00:10:33,990 --> 00:10:31,519

there's noticeably smaller group in the

235

00:10:36,069 --> 00:10:34,000

room right now because their crew is

236

00:10:37,590 --> 00:10:36,079

currently asleep tomorrow we'll see a

237

00:10:41,829 --> 00:10:37,600

larger

238

00:10:44,069 --> 00:10:41,839

a few hours before dragon arrives at

239

00:10:45,590 --> 00:10:44,079

station nationalist anthony varya will

240

00:10:47,269 --> 00:10:45,600

again take the flight director's chair

241

00:10:49,190 --> 00:10:47,279

to lead the team through dragon's

242

00:10:51,350 --> 00:10:49,200

approach and docking

243

00:10:53,509 --> 00:10:51,360

he'll lead the joint nasa spacex go

244

00:10:55,509 --> 00:10:53,519

no-go poles once we're in integrated

245

00:10:57,910 --> 00:10:55,519

operations with mission control

246

00:11:00,150 --> 00:10:57,920

crowds here in houston and at spacex and

247

00:11:02,230 --> 00:11:00,160

hawthorne working in sync to bring crew

248

00:11:03,750 --> 00:11:02,240

dragon to its new home in space

249

00:11:05,670 --> 00:11:03,760

a little bit later i'll go through all

250

00:11:07,430 --> 00:11:05,680

the work we've been doing in space and

251
00:11:09,509 --> 00:11:07,440
on the ground to prepare the station for

252
00:11:11,430 --> 00:11:09,519
crew one's arrival until then we'll keep

253
00:11:14,069 --> 00:11:11,440
an eye on today's countdown to launch

254
00:11:15,509 --> 00:11:14,079
and we'll check back in with you soon

255
00:11:17,590 --> 00:11:15,519
let's head back over to kennedy space

256
00:11:19,269 --> 00:11:17,600
center marie

257
00:11:21,750 --> 00:11:19,279
all right thank you shaniqua the

258
00:11:23,829 --> 00:11:21,760
astronauts will begin suiting up in just

259
00:11:25,269 --> 00:11:23,839
a few minutes and one of the nasa

260
00:11:27,670 --> 00:11:25,279
traditions they've continued is

261
00:11:29,269 --> 00:11:27,680
designing the patch for their mission so

262
00:11:30,870 --> 00:11:29,279
take a look uh crew one marks the

263
00:11:32,630 --> 00:11:30,880

beginning of sustained government

264

00:11:34,949 --> 00:11:32,640

commercial partnership missions to the

265

00:11:37,030 --> 00:11:34,959

space station and this crew dragon

266

00:11:39,190 --> 00:11:37,040

spacecraft is the focus of the patch

267

00:11:41,190 --> 00:11:39,200

here the spacecraft is flying from the

268

00:11:43,430 --> 00:11:41,200

bottom left toward the top right

269

00:11:45,430 --> 00:11:43,440

representing ascent and insertion into

270

00:11:47,430 --> 00:11:45,440

orbital flight and the crew dragon is

271

00:11:49,509 --> 00:11:47,440

superimposed on a background of stars

272

00:11:52,150 --> 00:11:49,519

and completes the outline of a dragon's

273

00:11:53,829 --> 00:11:52,160

head the letter c borders the patch

274

00:11:56,470 --> 00:11:53,839

which together with the number one in

275

00:11:58,550 --> 00:11:56,480

the foreground represent the mission

276
00:12:00,790 --> 00:11:58,560
shadows of the legacy human space flight

277
00:12:04,150 --> 00:12:00,800
programs are along the border of course

278
00:12:05,670 --> 00:12:04,160
that's shuttle apollo mercury and gemini

279
00:12:08,710 --> 00:12:05,680
to honor and recognize their

280
00:12:11,030 --> 00:12:08,720
contributions to the crew dragon capsule

281
00:12:12,790 --> 00:12:11,040
the outline of the space station is also

282
00:12:14,629 --> 00:12:12,800
on the border to acknowledge crew

283
00:12:16,550 --> 00:12:14,639
dragon's destination and its

284
00:12:18,470 --> 00:12:16,560
contribution to maintaining a human

285
00:12:20,389 --> 00:12:18,480
presence in low earth orbit for the

286
00:12:21,430 --> 00:12:20,399
united states and our international

287
00:12:22,710 --> 00:12:21,440
partners

288
00:12:25,110 --> 00:12:22,720

you might notice that there are no

289

00:12:27,110 --> 00:12:25,120

individual names or flags on the border

290

00:12:29,350 --> 00:12:27,120

because the patch honors not just the

291

00:12:31,430 --> 00:12:29,360

crew members on board but all of the

292

00:12:33,110 --> 00:12:31,440

nasa and spacex employees who have

293

00:12:36,069 --> 00:12:33,120

worked together to make this sleek and

294

00:12:38,870 --> 00:12:36,079

elegant spacecraft this pit this patch

295

00:12:40,870 --> 00:12:38,880

honors their vision service and support

296

00:12:43,590 --> 00:12:40,880

the crew one astronauts dedicate this

297

00:12:45,590 --> 00:12:43,600

patch to their families

298

00:12:48,150 --> 00:12:45,600

and you know i i have to tell you when i

299

00:12:50,470 --> 00:12:48,160

saw this patch it made me smile because

300

00:12:52,470 --> 00:12:50,480

of the the blue dragon

301

00:12:54,150 --> 00:12:52,480

one of the traditions that we have

302

00:12:55,750 --> 00:12:54,160

uh within the astronaut office and you

303

00:12:57,430 --> 00:12:55,760

know in addition to designing the

304

00:13:00,710 --> 00:12:57,440

patches for our missions

305

00:13:01,750 --> 00:13:00,720

is that the class before you gets to

306

00:13:04,069 --> 00:13:01,760

name you

307

00:13:06,550 --> 00:13:04,079

name the new class and when shannon's

308

00:13:09,110 --> 00:13:06,560

class uh came on

309

00:13:10,870 --> 00:13:09,120

our class the bugs the class of 2000 got

310

00:13:12,389 --> 00:13:10,880

to name shannon's class the class of

311

00:13:14,710 --> 00:13:12,399

2004

312

00:13:16,389 --> 00:13:14,720

and they originally though wanted to

313

00:13:19,750 --> 00:13:16,399

name themselves

314

00:13:21,670 --> 00:13:19,760

blue dragons

315

00:13:24,069 --> 00:13:21,680

we denied that though they are the

316

00:13:26,470 --> 00:13:24,079

peacocks but i thought it was kind of

317

00:13:28,310 --> 00:13:26,480

funny no coincidence maybe that um

318

00:13:30,150 --> 00:13:28,320

shannon is on this mission and that that

319

00:13:33,269 --> 00:13:30,160

patch has a nice beautiful blue dragon

320

00:13:35,990 --> 00:13:33,279

on it very serendipitous i think yeah

321

00:13:37,750 --> 00:13:36,000

all right well at uh t minus four hours

322

00:13:39,750 --> 00:13:37,760

we're actually just inside that so any

323

00:13:41,829 --> 00:13:39,760

moment now we expect to see the crew

324

00:13:43,750 --> 00:13:41,839

begin to suit up inside astronaut crew

325

00:13:45,670 --> 00:13:43,760

quarters just down the road from us

326

00:13:47,990 --> 00:13:45,680

we'll have a live look inside the suit

327

00:13:49,829 --> 00:13:48,000

up room uh with the spacex team as they

328

00:13:51,829 --> 00:13:49,839

begin to help the astronauts put on

329

00:13:54,389 --> 00:13:51,839

their spacesuits and perform key

330

00:13:57,990 --> 00:13:54,399

checkouts now the crew scheduled uh wake

331

00:13:59,350 --> 00:13:58,000

up time excuse me was 11 47 this morning

332

00:14:00,629 --> 00:13:59,360

they're probably up a little earlier

333

00:14:02,550 --> 00:14:00,639

than that but that was their scheduled

334

00:14:04,790 --> 00:14:02,560

wake-up time to adjust their sleep

335

00:14:07,269 --> 00:14:04,800

schedule in preparation for launch

336

00:14:08,949 --> 00:14:07,279

they had lunch at 12 15 and i i got to

337

00:14:11,189 --> 00:14:08,959

check my phone because i got a text

338

00:14:13,670 --> 00:14:11,199

message with what they all ate

339

00:14:17,189 --> 00:14:13,680

mike hopkins had new york steak medium

340

00:14:19,910 --> 00:14:17,199

rare with seasoned fries and dirty rice

341

00:14:22,550 --> 00:14:19,920

shannon had a juicy medium hamburger

342

00:14:24,710 --> 00:14:22,560

with no soggy bun brioche bun

343

00:14:27,110 --> 00:14:24,720

with sweet potato fries and

344

00:14:28,949 --> 00:14:27,120

arugula salad with shaved parmesan

345

00:14:29,900 --> 00:14:28,959

cheese and balsamic vinaigrette good

346

00:14:31,110 --> 00:14:29,910

choice

347

00:14:34,069 --> 00:14:31,120

[Music]

348

00:14:36,389 --> 00:14:34,079

soichi had japanese curry rice with a

349

00:14:37,509 --> 00:14:36,399

panko crusted chicken thigh and curly

350

00:14:40,389 --> 00:14:37,519

fries

351

00:14:43,350 --> 00:14:40,399

and victor had lamb chops medium with

352

00:14:45,509 --> 00:14:43,360

sweet potato mashed and same salad as

353

00:14:46,870 --> 00:14:45,519

shannon walker but no dressing i wonder

354

00:14:48,470 --> 00:14:46,880

if they had to pre-order if that was

355

00:14:50,230 --> 00:14:48,480

just on the fly right well you get

356

00:14:52,790 --> 00:14:50,240

pretty much whenever you want it because

357

00:14:55,030 --> 00:14:52,800

nicole i'll tell you what you are so

358

00:14:56,870 --> 00:14:55,040

well taken care of in crew quarters and

359

00:14:59,030 --> 00:14:56,880

food i think is at the top of their list

360

00:15:01,110 --> 00:14:59,040

for taking care of us and

361

00:15:03,350 --> 00:15:01,120

i'm sure that they they put in a

362

00:15:05,509 --> 00:15:03,360

pre-order for that but uh

363

00:15:07,269 --> 00:15:05,519

yeah that was quite the selection yeah

364

00:15:09,430 --> 00:15:07,279

all good i mean my mouth was watering

365

00:15:11,910 --> 00:15:09,440

thinking about all of that but besides

366

00:15:13,829 --> 00:15:11,920

their lunch obviously they they did some

367

00:15:16,150 --> 00:15:13,839

other things this morning right they had

368

00:15:18,150 --> 00:15:16,160

their routine daily medical checks uh

369

00:15:19,670 --> 00:15:18,160

their flight day preparation included

370

00:15:22,949 --> 00:15:19,680

reviewing the procedures on their

371

00:15:24,790 --> 00:15:22,959

tablets uh before suit up one final time

372

00:15:26,790 --> 00:15:24,800

and uh just a few minutes ago they

373

00:15:28,470 --> 00:15:26,800

listened to a weather brief

374

00:15:30,629 --> 00:15:28,480

and so again any minute now we're

375

00:15:32,949 --> 00:15:30,639

expecting to see a live view inside the

376

00:15:34,150 --> 00:15:32,959

student room

377

00:15:36,310 --> 00:15:34,160

27

378

00:15:38,710 --> 00:15:36,320

17 local time with an instantaneous

379

00:15:40,389 --> 00:15:38,720

window the crew is starting suit donning

380

00:15:41,590 --> 00:15:40,399

and preparation to begin in-grass

381

00:15:44,790 --> 00:15:41,600

activities

382

00:15:46,949 --> 00:15:44,800

vehicle gases are at meop fds checkouts

383

00:15:49,509 --> 00:15:46,959

are complete and dragon prop tanks are

384

00:15:51,350 --> 00:15:49,519

pressed in preparation for ingress

385

00:15:52,150 --> 00:15:51,360

f9 is not tracking any issues at this

386

00:15:54,230 --> 00:15:52,160

time

387

00:15:56,310 --> 00:15:54,240

upper level ground level and pad escape

388

00:15:58,069 --> 00:15:56,320

winds remain go at this time launch

389

00:16:00,389 --> 00:15:58,079

weather will be a watch item this

390

00:16:02,470 --> 00:16:00,399

evening with cumulus clouds play through

391

00:16:04,230 --> 00:16:02,480

precip and surface electric field rules

392

00:16:05,829 --> 00:16:04,240

as a primary concern

393

00:16:07,030 --> 00:16:05,839

the event of a scrub the next available

394

00:16:08,550 --> 00:16:07,040

launch attempt will be wednesday

395

00:16:10,310 --> 00:16:08,560

november 18th

396

00:16:11,910 --> 00:16:10,320

as a reminder the launch escape system

397

00:16:12,949 --> 00:16:11,920

will be armed prior to propellant load

398

00:16:15,670 --> 00:16:12,959

today

399

00:16:17,990 --> 00:16:15,680

procedure 52.911 is open in the event of

400

00:16:19,509 --> 00:16:18,000

any crew emergency or crew ingress

401
00:16:21,189 --> 00:16:19,519
through launch

402
00:16:23,430 --> 00:16:21,199
firing 4 will go into lockdown at t

403
00:16:25,269 --> 00:16:23,440
minus 45 minutes and last until

404
00:16:27,509 --> 00:16:25,279
spacecraft separation or after the

405
00:16:29,269 --> 00:16:27,519
launch escape system is disarmed

406
00:16:31,590 --> 00:16:29,279
all personnel requested to stay in their

407
00:16:36,629 --> 00:16:31,600
locations until lockdown is complete

408
00:16:42,470 --> 00:16:39,910
pokemon is uh healthy and good to go

409
00:16:44,150 --> 00:16:42,480
copy cmd any comments

410
00:16:45,990 --> 00:16:44,160
dragons looking good today we had a

411
00:16:48,230 --> 00:16:46,000
successful legal integrity test

412
00:16:49,670 --> 00:16:48,240
overnight uh dragon press just a bit

413
00:16:51,590 --> 00:16:49,680

earlier as you mentioned and we're not

414

00:16:53,110 --> 00:16:51,600

tracking any issues we're ready for crew

415

00:16:54,389 --> 00:16:53,120

ingress

416

00:16:56,150 --> 00:16:54,399

i'll be all unless there's any other

417

00:17:19,189 --> 00:16:56,160

questions this will conclude the t-minus

418

00:17:22,710 --> 00:17:21,270

okay so we're expecting to go uh to have

419

00:17:25,510 --> 00:17:22,720

a live view inside the suit-up room

420

00:17:27,510 --> 00:17:25,520

momentarily you just heard a live brief

421

00:17:29,750 --> 00:17:27,520

it sounds like there's no issues with

422

00:17:31,750 --> 00:17:29,760

falcon 9 the primary concern at this

423

00:17:33,669 --> 00:17:31,760

point is weather that's a watch item

424

00:17:35,510 --> 00:17:33,679

around the launch pad the downrange

425

00:17:36,710 --> 00:17:35,520

weather actually looks pretty good so

426

00:17:38,710 --> 00:17:36,720

we're just going to keep an eye on

427

00:17:43,350 --> 00:17:38,720

weather around the pad here's our first

428

00:17:49,110 --> 00:17:45,510

wow it is it is so exciting to see this

429

00:17:53,510 --> 00:17:51,029

yeah it's just okay so there's a look at

430

00:17:56,710 --> 00:17:53,520

uh commander that looks like my mike

431

00:18:00,710 --> 00:17:59,110

so kate walk us through um what are they

432

00:18:02,150 --> 00:18:00,720

doing in these seats and obviously

433

00:18:04,070 --> 00:18:02,160

they're they're getting some checkouts

434

00:18:05,590 --> 00:18:04,080

making sure the fit is good walk us

435

00:18:07,430 --> 00:18:05,600

through what is happening the mechanics

436

00:18:10,310 --> 00:18:07,440

of what's going on in the room yeah so

437

00:18:12,710 --> 00:18:10,320

each astronaut has an assigned crew team

438

00:18:15,190 --> 00:18:12,720

member um to make sure one they're part

439

00:18:15,990 --> 00:18:15,200

of our suit up team and that suit up

440

00:18:17,909 --> 00:18:16,000

lead

441

00:18:19,990 --> 00:18:17,919

or assigned crew member is essentially

442

00:18:21,750 --> 00:18:20,000

responsible for communicating any

443

00:18:24,870 --> 00:18:21,760

feedback making sure that we're getting

444

00:18:27,350 --> 00:18:24,880

thumbs up verbal goes that everything is

445

00:18:29,110 --> 00:18:27,360

fitting well and is comfortable

446

00:18:31,270 --> 00:18:29,120

so these suit techs like i said they're

447

00:18:33,669 --> 00:18:31,280

all assigned to each astronaut and it's

448

00:18:36,390 --> 00:18:33,679

to make sure that each astronaut is

449

00:18:38,470 --> 00:18:36,400

undergoing the same defined

450

00:18:41,350 --> 00:18:38,480

basically checkout list to make sure

451
00:18:43,590 --> 00:18:41,360
that we can proceed into the next steps

452
00:18:45,029 --> 00:18:43,600
and they're also doing stuff but this

453
00:18:47,830 --> 00:18:45,039
would have happened before the suits

454
00:18:48,870 --> 00:18:47,840
came on but those closeout excuse me the

455
00:18:53,029 --> 00:18:48,880
suit

456
00:18:54,870 --> 00:18:53,039
maybe things that we might consider

457
00:18:56,390 --> 00:18:54,880
smaller in detail but they were also

458
00:18:58,150 --> 00:18:56,400
checking to make sure that

459
00:19:00,150 --> 00:18:58,160
the astronauts weren't wearing any

460
00:19:02,789 --> 00:19:00,160
uncleared personal items so making sure

461
00:19:04,630 --> 00:19:02,799
that they didn't have any jewelry rings

462
00:19:06,310 --> 00:19:04,640
earrings the only thing that they're

463
00:19:07,990 --> 00:19:06,320

really allowed to wear is the nasa

464

00:19:10,070 --> 00:19:08,000

provided watch if they choose to wear

465

00:19:12,549 --> 00:19:10,080

one so making sure that those smaller

466

00:19:14,950 --> 00:19:12,559

things um are off before the suit gets

467

00:19:17,669 --> 00:19:14,960

put on okay and we can see shannon in

468

00:19:19,110 --> 00:19:17,679

the seat now and um tell us about these

469

00:19:22,310 --> 00:19:19,120

seats that they're sitting in nicole

470

00:19:26,870 --> 00:19:24,230

but there's a special reason for these

471

00:19:29,830 --> 00:19:26,880

these chairs yeah so these chairs these

472

00:19:31,669 --> 00:19:29,840

are uh basically gse or ground support

473

00:19:33,590 --> 00:19:31,679

equipment chairs that are

474

00:19:35,909 --> 00:19:33,600

pretty identical to this the chairs that

475

00:19:38,390 --> 00:19:35,919

they will be sitting in inside of the

476

00:19:40,470 --> 00:19:38,400

capsule so the reason that we're suiting

477

00:19:42,710 --> 00:19:40,480

them up here and doing these checkouts

478

00:19:44,789 --> 00:19:42,720

is to make sure that the umbilicals the

479

00:19:47,029 --> 00:19:44,799

the things that are in the suit that

480

00:19:49,270 --> 00:19:47,039

connect directly to the seat they they

481

00:19:51,270 --> 00:19:49,280

communicate they allow the astronauts to

482

00:19:53,350 --> 00:19:51,280

communicate and they also provide

483

00:19:54,950 --> 00:19:53,360

environmental systems so

484

00:19:56,310 --> 00:19:54,960

you know to make sure that our our

485

00:19:58,310 --> 00:19:56,320

friends are nice and comfortable during

486

00:19:59,990 --> 00:19:58,320

their ride we are pumping cool air

487

00:20:01,590 --> 00:20:00,000

through the suit so they're basically

488

00:20:03,830 --> 00:20:01,600

sitting in these chairs that are

489

00:20:05,750 --> 00:20:03,840

duplications of the chairs inside of the

490

00:20:07,510 --> 00:20:05,760

capsule to make sure that all of those

491

00:20:09,350 --> 00:20:07,520

umbilicals will get hooked up properly

492

00:20:11,350 --> 00:20:09,360

now those recliners that nicole is so

493

00:20:13,190 --> 00:20:11,360

fond of they are in the room

494

00:20:14,390 --> 00:20:13,200

i promise they're still there um you can

495

00:20:15,830 --> 00:20:14,400

you might even be able to see them in

496

00:20:18,549 --> 00:20:15,840

the background in some of these shots

497

00:20:20,630 --> 00:20:18,559

but essentially these chairs are allow

498

00:20:22,950 --> 00:20:20,640

allow us to make the essential

499

00:20:25,029 --> 00:20:22,960

checkouts prior to exiting the onc and

500

00:20:27,190 --> 00:20:25,039

nicole this must bring bring back a lot

501
00:20:30,070 --> 00:20:27,200
of fond memories for you you did this

502
00:20:31,990 --> 00:20:30,080
twice before yeah it really does and you

503
00:20:34,950 --> 00:20:32,000
know um i don't know i'm kind of living

504
00:20:36,710 --> 00:20:34,960
vicariously feeling some level of

505
00:20:38,470 --> 00:20:36,720
excitement that they might be at this

506
00:20:39,990 --> 00:20:38,480
point it's it's just really nice to see

507
00:20:42,630 --> 00:20:40,000
all four of them in there

508
00:20:44,070 --> 00:20:42,640
you know snug in their seats and uh

509
00:20:46,390 --> 00:20:44,080
getting ready to go launch to space

510
00:20:48,230 --> 00:20:46,400
today absolutely and this first

511
00:20:50,310 --> 00:20:48,240
long-duration crew to fly on a

512
00:20:52,549 --> 00:20:50,320
commercial spacecraft has a diverse

513
00:20:55,110 --> 00:20:52,559

collection of experiences they bring to

514

00:20:57,110 --> 00:20:55,120

this mission today crew dragon commander

515

00:20:59,430 --> 00:20:57,120

mike hopkins was born in lebanon

516

00:21:01,590 --> 00:20:59,440

missouri but grew up outside richland

517

00:21:05,669 --> 00:21:01,600

missouri he was selected as an astronaut

518

00:21:07,830 --> 00:21:05,679

by nasa in 2009 nas excuse me hopkins is

519

00:21:09,510 --> 00:21:07,840

a colonel in the united states air force

520

00:21:12,230 --> 00:21:09,520

and holds degrees in aerospace

521

00:21:14,630 --> 00:21:12,240

engineering he flew on the russian soyuz

522

00:21:19,750 --> 00:21:14,640

to the iss as a member of the expedition

523

00:21:21,750 --> 00:21:19,760

3738 crew logging 166 days in space

524

00:21:24,549 --> 00:21:21,760

and hopkins performed two spacewalks

525

00:21:26,470 --> 00:21:24,559

totaling almost 13 hours to change out a

526

00:21:29,270 --> 00:21:26,480

degraded pump module on the space

527

00:21:33,270 --> 00:21:29,280

station his military experience includes

528

00:21:35,430 --> 00:21:33,280

testing c-17 and c-130 aircraft

529

00:21:38,070 --> 00:21:35,440

pilot victor glover is a native of

530

00:21:41,430 --> 00:21:38,080

pomona california he was selected as an

531

00:21:43,750 --> 00:21:41,440

astronaut by nasa in 2013. glover is a

532

00:21:46,070 --> 00:21:43,760

commander in the united states navy and

533

00:21:47,909 --> 00:21:46,080

holds degrees in general engineering

534

00:21:50,470 --> 00:21:47,919

flight test engineering systems

535

00:21:52,630 --> 00:21:50,480

engineering and military operational art

536

00:21:54,789 --> 00:21:52,640

in science while this will be glover's

537

00:21:57,110 --> 00:21:54,799

first space flight he has extensive

538

00:21:59,830 --> 00:21:57,120

military test flight experience he was a

539

00:22:03,350 --> 00:21:59,840

test pilot for the fa-18 hornet the

540

00:22:06,230 --> 00:22:03,360

super hornet and the ea-18g growler he's

541

00:22:09,270 --> 00:22:06,240

accumulated 3 000 flight hours in more

542

00:22:12,870 --> 00:22:09,280

than 40 aircraft over 400 carrier

543

00:22:15,350 --> 00:22:12,880

arrested landings and 24 combat missions

544

00:22:17,669 --> 00:22:15,360

and mission specialist shannon walker is

545

00:22:20,870 --> 00:22:17,679

from houston texas she was selected as

546

00:22:23,110 --> 00:22:20,880

an astronaut by nasa in 2004

547

00:22:24,149 --> 00:22:23,120

she is a doctor of philosophy in space

548

00:22:26,230 --> 00:22:24,159

physics

549

00:22:29,750 --> 00:22:26,240

walker flew on the russian soyuz as a

550

00:22:34,149 --> 00:22:29,760

flight engineer for expeditions 24 25 on

551
00:22:36,230 --> 00:22:34,159
board the iss in space for 163 days and

552
00:22:39,590 --> 00:22:36,240
during that mission she was the robotics

553
00:22:41,029 --> 00:22:39,600
operator supporting three

554
00:22:43,669 --> 00:22:41,039
has contingency at the crew arm on

555
00:22:47,669 --> 00:22:45,590
to remove and replace a failed pump

556
00:22:49,830 --> 00:22:47,679
module on the space station shannon is

557
00:22:52,390 --> 00:22:49,840
also one of only a few dozen people to

558
00:22:54,710 --> 00:22:52,400
be both an astronaut and an aquanaut

559
00:22:56,390 --> 00:22:54,720
having spent 13 days underwater during

560
00:22:59,510 --> 00:22:56,400
nasa's extreme

561
00:23:01,270 --> 00:22:59,520
environments mission operations 15 aptly

562
00:23:02,950 --> 00:23:01,280
called nemo 15

563
00:23:05,270 --> 00:23:02,960

and during the mission she lived inside

564

00:23:07,590 --> 00:23:05,280

the world's only underwater research

565

00:23:09,830 --> 00:23:07,600

station aquarius which sits 60 feet

566

00:23:12,230 --> 00:23:09,840

beneath the ocean surface and just down

567

00:23:13,750 --> 00:23:12,240

the road off the coast of key largo and

568

00:23:15,669 --> 00:23:13,760

having been blessed with this experience

569

00:23:17,830 --> 00:23:15,679

myself i can attest that the nemo

570

00:23:20,630 --> 00:23:17,840

missions are absolutely the best analog

571

00:23:22,710 --> 00:23:20,640

to living and working in space

572

00:23:25,590 --> 00:23:22,720

mission specialist suichi naguchi is

573

00:23:27,510 --> 00:23:25,600

from yokohama kananagwa japan he was

574

00:23:29,110 --> 00:23:27,520

selected as an astronaut by japan in

575

00:23:30,870 --> 00:23:29,120

1996.

576
00:23:32,310 --> 00:23:30,880
he has degrees in aeronautical

577
00:23:34,789 --> 00:23:32,320
engineering and is a doctor of

578
00:23:38,270 --> 00:23:34,799
philosophy in advanced interdisciplinary

579
00:23:40,710 --> 00:23:38,280
studies gucci has longed a total of

580
00:23:42,269 --> 00:23:40,720
177 days in space

581
00:23:44,950 --> 00:23:42,279
having flown on

582
00:23:47,269 --> 00:23:44,960
sts-114 on the space shuttle discovery

583
00:23:50,390 --> 00:23:47,279
and on the russian soyuz as a member of

584
00:23:53,350 --> 00:23:50,400
the expedition 2223 crew

585
00:23:55,750 --> 00:23:53,360
while on sts-114 he became the first

586
00:23:57,510 --> 00:23:55,760
japanese astronaut to perform spacewalks

587
00:23:59,430 --> 00:23:57,520
on the international space station

588
00:24:02,230 --> 00:23:59,440

completing three of those spacewalks

589

00:24:03,990 --> 00:24:02,240

totaling 20 hours each of these four

590

00:24:06,549 --> 00:24:04,000

crew members will serve as flight

591

00:24:07,990 --> 00:24:06,559

engineers for expedition 64 once they

592

00:24:10,870 --> 00:24:08,000

arrive at the international space

593

00:24:12,470 --> 00:24:10,880

station and we will be sure to be give

594

00:24:14,710 --> 00:24:12,480

we will continue to give you a close

595

00:24:16,950 --> 00:24:14,720

look at each of them as we continue to

596

00:24:18,230 --> 00:24:16,960

approach our t zero time

597

00:24:19,750 --> 00:24:18,240

you know it's interesting i think as we

598

00:24:22,230 --> 00:24:19,760

introduce the crew members kind of all

599

00:24:24,789 --> 00:24:22,240

these little small world brings it back

600

00:24:27,990 --> 00:24:24,799

kind of connections and yes the wiichi

601
00:24:29,669 --> 00:24:28,000
was on sts-114 which was a return to

602
00:24:33,590 --> 00:24:29,679
flight you know first shuttle flight

603
00:24:37,590 --> 00:24:33,600
after uh columbia and one of his

604
00:24:39,510 --> 00:24:37,600
crewmates on sts-114 is uh shannon's

605
00:24:40,549 --> 00:24:39,520
husband andy thomas who is also an

606
00:24:43,430 --> 00:24:40,559
astronaut

607
00:24:46,549 --> 00:24:43,440
it is it's a it's a small world yeah for

608
00:24:48,470 --> 00:24:46,559
sure yeah and you know we heard a lot

609
00:24:51,269 --> 00:24:48,480
about their individual experiences

610
00:24:53,510 --> 00:24:51,279
nicole how important is it to have um a

611
00:24:56,390 --> 00:24:53,520
group of a group of astronauts on a

612
00:24:57,909 --> 00:24:56,400
mission together that that do have um

613
00:24:59,750 --> 00:24:57,919

who have been through so many different

614

00:25:01,190 --> 00:24:59,760

things of course this will be victor's

615

00:25:04,310 --> 00:25:01,200

first space flight i mean what's your

616

00:25:06,310 --> 00:25:04,320

perspective on that um well i think it

617

00:25:08,070 --> 00:25:06,320

just in general we've seen across many

618

00:25:10,549 --> 00:25:08,080

different industries but certainly nasa

619

00:25:12,870 --> 00:25:10,559

i think kind of exemplifies this

620

00:25:15,350 --> 00:25:12,880

uh you know fact that when we bring

621

00:25:17,350 --> 00:25:15,360

different backgrounds together we have a

622

00:25:19,350 --> 00:25:17,360

more successful mission and we can look

623

00:25:20,950 --> 00:25:19,360

at solving problems in different ways

624

00:25:23,350 --> 00:25:20,960

and the international space station

625

00:25:25,269 --> 00:25:23,360

program you know without even looking at

626

00:25:27,990 --> 00:25:25,279

the crew members here today has brought

627

00:25:30,470 --> 00:25:28,000

together what 15 different countries

628

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

five international space agencies

629

00:25:33,909 --> 00:25:32,240

all working peacefully successfully for

630

00:25:35,669 --> 00:25:33,919

this last 20 years i think it's a

631

00:25:37,269 --> 00:25:35,679

perfect example of how when we bring

632

00:25:40,390 --> 00:25:37,279

these different experiences together we

633

00:25:42,230 --> 00:25:40,400

have real success yeah continued proof

634

00:25:44,070 --> 00:25:42,240

um it's also worth noting that even

635

00:25:46,470 --> 00:25:44,080

though this is the second crew to suit

636

00:25:48,789 --> 00:25:46,480

up for a crew dragon space flight they

637

00:25:50,950 --> 00:25:48,799

will accomplish several firsts

638

00:25:53,750 --> 00:25:50,960

this will be the first four person crew

639

00:25:56,230 --> 00:25:53,760

ever on any capsule and on a commercial

640

00:25:58,310 --> 00:25:56,240

spacecraft at that walker will be the

641

00:26:00,549 --> 00:25:58,320

first woman on a commercial orbital

642

00:26:02,390 --> 00:26:00,559

space flight naguchi is the first

643

00:26:04,950 --> 00:26:02,400

international partner crew member on

644

00:26:07,110 --> 00:26:04,960

crew dragon he will also be the first

645

00:26:09,430 --> 00:26:07,120

international partner astronaut to fly

646

00:26:10,470 --> 00:26:09,440

aboard three different types of orbital

647

00:26:12,549 --> 00:26:10,480

spacecraft

648

00:26:15,350 --> 00:26:12,559

those being the us space shuttle the

649

00:26:17,830 --> 00:26:15,360

russian soyuz and now third the spacex

650

00:26:20,070 --> 00:26:17,840

crew dragon glover will be the first

651
00:26:22,390 --> 00:26:20,080
black astronaut to fly on a commercial

652
00:26:24,630 --> 00:26:22,400
spacecraft and the first black long

653
00:26:26,470 --> 00:26:24,640
duration crew member to live aboard the

654
00:26:28,230 --> 00:26:26,480
international space station

655
00:26:30,070 --> 00:26:28,240
hopkins will be the first flight test

656
00:26:31,750 --> 00:26:30,080
engineer to command an american

657
00:26:35,029 --> 00:26:31,760
spacecraft so

658
00:26:36,630 --> 00:26:35,039
making history on many fronts today

659
00:26:40,230 --> 00:26:36,640
yeah so just checking back in with the

660
00:26:42,149 --> 00:26:40,240
crew there we see them lifting the visor

661
00:26:43,990 --> 00:26:42,159
what they were doing just before they

662
00:26:45,830 --> 00:26:44,000
were actually pressurizing the suit to

663
00:26:48,310 --> 00:26:45,840

make sure that everything was fitting

664

00:26:51,190 --> 00:26:48,320

properly and making sure all the seals

665

00:26:54,070 --> 00:26:51,200

uh were in place making sure so there

666

00:26:55,510 --> 00:26:54,080

the the spacesuits are custom fitted for

667

00:26:57,990 --> 00:26:55,520

each astronaut they are specially

668

00:27:00,310 --> 00:26:58,000

designed to fit uh their specific bodies

669

00:27:02,310 --> 00:27:00,320

so there's absolutely no chance that you

670

00:27:04,149 --> 00:27:02,320

can put someone else's on and and you

671

00:27:05,510 --> 00:27:04,159

can't mix them up um the same goes for

672

00:27:07,990 --> 00:27:05,520

their seat assignments inside the

673

00:27:10,630 --> 00:27:08,000

capsule as well those are also assigned

674

00:27:12,310 --> 00:27:10,640

but these suits utilize zippers in

675

00:27:13,750 --> 00:27:12,320

certain places to help make sure and so

676

00:27:16,149 --> 00:27:13,760

some of what we're what we saw before

677

00:27:18,310 --> 00:27:16,159

was making sure the zippers are fully uh

678

00:27:20,630 --> 00:27:18,320

closed uh in in place and making sure

679

00:27:21,430 --> 00:27:20,640

that we can apply pressure within the

680

00:27:23,830 --> 00:27:21,440

suit

681

00:27:26,149 --> 00:27:23,840

for again environmental controls and it

682

00:27:28,630 --> 00:27:26,159

also allows us to maintain environment

683

00:27:32,230 --> 00:27:28,640

in the unlikely event of cabin

684

00:27:36,470 --> 00:27:34,149

so it's safe to say that this mission

685

00:27:38,389 --> 00:27:36,480

certainly represents a lot that has been

686

00:27:40,630 --> 00:27:38,399

accomplished this year it's kind of

687

00:27:42,710 --> 00:27:40,640

crazy to think that demo two

688

00:27:45,430 --> 00:27:42,720

lifted off and and splashed down just

689

00:27:48,710 --> 00:27:45,440

earlier um years of cooperation with the

690

00:27:50,470 --> 00:27:48,720

cargo program the cargo resupply program

691

00:27:52,870 --> 00:27:50,480

with nasa going to the international

692

00:27:55,029 --> 00:27:52,880

space station then developing developing

693

00:27:58,230 --> 00:27:55,039

this crew system that we see here

694

00:27:59,990 --> 00:27:58,240

we had 22 trips to station so far to

695

00:28:01,590 --> 00:28:00,000

date and nine of those were have

696

00:28:04,230 --> 00:28:01,600

actually been completed on a reused

697

00:28:05,909 --> 00:28:04,240

dragon so that's pretty exciting

698

00:28:07,510 --> 00:28:05,919

like i mentioned we've we've had a lot

699

00:28:09,990 --> 00:28:07,520

of progress this year

700

00:28:12,389 --> 00:28:10,000

the in-flight test abort test was

701

00:28:15,750 --> 00:28:12,399

completed in january and then like i

702

00:28:18,470 --> 00:28:15,760

said demo 2 back in may lifted off in

703

00:28:20,070 --> 00:28:18,480

may and splashed down in august

704

00:28:22,070 --> 00:28:20,080

nicole were you able to follow along

705

00:28:23,269 --> 00:28:22,080

with that yeah absolutely i think you

706

00:28:24,549 --> 00:28:23,279

know just because you retire from the

707

00:28:27,110 --> 00:28:24,559

astronaut office doesn't mean you

708

00:28:27,909 --> 00:28:27,120

completely separate yourself you know

709

00:28:30,389 --> 00:28:27,919

and

710

00:28:33,110 --> 00:28:30,399

um yeah i made a point of following

711

00:28:35,430 --> 00:28:33,120

along uh a lot of living vicariously

712

00:28:37,669 --> 00:28:35,440

through bob and doug for sure you know

713

00:28:39,269 --> 00:28:37,679

just like today is watching these four

714

00:28:40,950 --> 00:28:39,279

and you know what's interesting to me is

715

00:28:43,669 --> 00:28:40,960

bob and doug were in my astronaut class

716

00:28:45,909 --> 00:28:43,679

so it was like watching family and um

717

00:28:48,070 --> 00:28:45,919

and pretty special to see when

718

00:28:49,830 --> 00:28:48,080

when megan and karen there

719

00:28:51,350 --> 00:28:49,840

you know their wives were able to to be

720

00:28:54,549 --> 00:28:51,360

out there and both of them are also in

721

00:29:00,389 --> 00:28:57,830

yeah okay so uh while there are a lot of

722

00:29:02,070 --> 00:29:00,399

firsts that we have accomplished will be

723

00:29:04,230 --> 00:29:02,080

accomplishing on this mission for mike

724

00:29:06,870 --> 00:29:04,240

and victor the most important moment so

725

00:29:09,110 --> 00:29:06,880

far was when suici and shannon were

726

00:29:11,590 --> 00:29:09,120

assigned to their crew mike and victor

727

00:29:12,470 --> 00:29:11,600

had been training with us at spacex for

728

00:29:14,870 --> 00:29:12,480

a while

729

00:29:17,909 --> 00:29:14,880

along with bob and doug and so when they

730

00:29:20,630 --> 00:29:17,919

had their full one uh assignment uh it

731

00:29:22,470 --> 00:29:20,640

was a big deal the four-member crew

732

00:29:24,149 --> 00:29:22,480

starting training together as a unit

733

00:29:26,310 --> 00:29:24,159

earlier this year yeah i remember

734

00:29:28,149 --> 00:29:26,320

shannon saying it was uh friday she was

735

00:29:29,830 --> 00:29:28,159

a management astronaut and on monday she

736

00:29:31,990 --> 00:29:29,840

was training for this flight

737

00:29:34,470 --> 00:29:32,000

so it was a really exciting time for her

738

00:29:36,950 --> 00:29:34,480

i know and while training to fly a board

739

00:29:38,789 --> 00:29:36,960

dragon is serious business the crew was

740

00:29:40,549 --> 00:29:38,799

able to have a little fun along the way

741

00:29:42,310 --> 00:29:40,559

and get to know each other better

742

00:29:44,389 --> 00:29:42,320

shannon told us that in some ways the

743

00:29:47,669 --> 00:29:44,399

pandemic actually made it easier for

744

00:29:50,070 --> 00:29:47,679

them all to bond once covid hit nasa and

745

00:29:51,590 --> 00:29:50,080

spacex had to find ways to make it safe

746

00:29:53,750 --> 00:29:51,600

for the crew to travel and you can hear

747

00:29:55,990 --> 00:29:53,760

the helo flying above us as they get

748

00:29:58,389 --> 00:29:56,000

ready to depart the building and ride

749

00:30:00,230 --> 00:29:58,399

out to the pad the crew ended up

750

00:30:02,230 --> 00:30:00,240

traveling as a unit and even lived

751
00:30:04,710 --> 00:30:02,240
together in a house while they were in

752
00:30:06,389 --> 00:30:04,720
hawthorne instead of staying in a hotel

753
00:30:08,789 --> 00:30:06,399
and at the end of each day they'd all

754
00:30:11,029 --> 00:30:08,799
have dinner together so spending so much

755
00:30:13,110 --> 00:30:11,039
time in each of each other's company as

756
00:30:15,430 --> 00:30:13,120
you can imagine allowed them uh to warm

757
00:30:16,950 --> 00:30:15,440
up to to each other much faster and

758
00:30:18,230 --> 00:30:16,960
obviously get to know each other better

759
00:30:19,750 --> 00:30:18,240
than if it were under normal

760
00:30:22,389 --> 00:30:19,760
circumstances

761
00:30:24,230 --> 00:30:22,399
the crew also told us that the emergency

762
00:30:26,310 --> 00:30:24,240
trainings that they underwent also

763
00:30:28,549 --> 00:30:26,320

brought them closer together training

764

00:30:30,950 --> 00:30:28,559

for emergency scenarios is typically

765

00:30:32,870 --> 00:30:30,960

very stressful and the crew has to

766

00:30:35,029 --> 00:30:32,880

approach each exercise with an

767

00:30:36,950 --> 00:30:35,039

exceptional amount of teamwork

768

00:30:39,350 --> 00:30:36,960

at the end of these training days

769

00:30:41,669 --> 00:30:39,360

everyone was always a bit sweaty but

770

00:30:43,990 --> 00:30:41,679

mostly smiles as they ate and debriefed

771

00:30:45,830 --> 00:30:44,000

around a conference room table for mike

772

00:30:47,350 --> 00:30:45,840

he said that those were some of his

773

00:30:49,269 --> 00:30:47,360

favorite moments sitting around the

774

00:30:51,190 --> 00:30:49,279

table sharing stories and laughs with

775

00:30:53,269 --> 00:30:51,200

each other

776

00:30:54,710 --> 00:30:53,279

yeah and i know they've all they've each

777

00:30:57,190 --> 00:30:54,720

talked about how it doesn't feel like

778

00:30:58,549 --> 00:30:57,200

work it's it's like fun and you know i

779

00:31:00,389 --> 00:30:58,559

don't want to call it play because it's

780

00:31:02,870 --> 00:31:00,399

serious business but they just they're

781

00:31:04,630 --> 00:31:02,880

having a blast with this um it's clear

782

00:31:06,870 --> 00:31:04,640

that this crew has enjoyed the journey

783

00:31:08,870 --> 00:31:06,880

with each other so far and it's going to

784

00:31:10,789 --> 00:31:08,880

be so exciting to see them lift off from

785

00:31:13,269 --> 00:31:10,799

launch pad 39a

786

00:31:15,990 --> 00:31:13,279

in just under four hours we are at t

787

00:31:20,070 --> 00:31:16,000

minus three hours 41 minutes and

788

00:31:23,830 --> 00:31:21,830

and nicole as you see uh the four of

789

00:31:25,750 --> 00:31:23,840

them there it looks like they're nearing

790

00:31:27,990 --> 00:31:25,760

the end of the suit up process uh not

791

00:31:30,230 --> 00:31:28,000

ready to leave the room quite yet but uh

792

00:31:31,830 --> 00:31:30,240

what's their headspace like right now

793

00:31:33,590 --> 00:31:31,840

well i think it's probably you know a

794

00:31:35,509 --> 00:31:33,600

little bit of a balance between holy

795

00:31:37,350 --> 00:31:35,519

moly i'm really here about to go you

796

00:31:38,310 --> 00:31:37,360

know walk to a launch pad to go to space

797

00:31:40,149 --> 00:31:38,320

today

798

00:31:46,070 --> 00:31:40,159

and just and then thinking about what

799

00:31:49,350 --> 00:31:47,350

and then and then thinking about what

800

00:31:52,149 --> 00:31:49,360

they you know need to do is they get

801
00:31:53,029 --> 00:31:52,159
strapped into to the spacecraft but

802
00:31:54,870 --> 00:31:53,039
um

803
00:31:55,909 --> 00:31:54,880
you know victor with his first flight i

804
00:31:56,830 --> 00:31:55,919
imagine

805
00:31:58,710 --> 00:31:56,840
you know there's a little bit of a

806
00:32:00,149 --> 00:31:58,720
hypersensitivity too you know you coming

807
00:32:02,310 --> 00:32:00,159
into this room this is this is a

808
00:32:03,590 --> 00:32:02,320
historic room itself the suit up room

809
00:32:06,230 --> 00:32:03,600
there's a lot there's like an aura

810
00:32:08,230 --> 00:32:06,240
there's this awe about it and

811
00:32:09,990 --> 00:32:08,240
you know i i imagine he's you know

812
00:32:13,190 --> 00:32:10,000
trying to take everything he possibly

813
00:32:14,470 --> 00:32:13,200

can in and um you know to remember it

814

00:32:17,430 --> 00:32:14,480

he'll be thankful for the pictures and

815

00:32:18,950 --> 00:32:17,440

videos like we all are you know for sure

816

00:32:20,549 --> 00:32:18,960

but yeah

817

00:32:22,789 --> 00:32:20,559

and and the people that they're there

818

00:32:25,110 --> 00:32:22,799

with you know like kate mentioned this

819

00:32:27,110 --> 00:32:25,120

this suit up team you get to know these

820

00:32:28,870 --> 00:32:27,120

people i mean they're along with you for

821

00:32:30,070 --> 00:32:28,880

you know for the journey in general you

822

00:32:31,750 --> 00:32:30,080

know training and then all the way out

823

00:32:33,190 --> 00:32:31,760

to the pad and

824

00:32:35,509 --> 00:32:33,200

um so you feel like you're there with

825

00:32:37,029 --> 00:32:35,519

family as well and and you want to you

826

00:32:38,310 --> 00:32:37,039

want them to feel like they're part of

827

00:32:40,149 --> 00:32:38,320

the experience

828

00:32:41,269 --> 00:32:40,159

the excitement that you're having too

829

00:32:43,669 --> 00:32:41,279

about it

830

00:32:45,669 --> 00:32:43,679

sure thanks nicole

831

00:32:47,830 --> 00:32:45,679

we've got about 15 minutes approximately

832

00:32:49,509 --> 00:32:47,840

until the crew leaves this suit up room

833

00:32:53,029 --> 00:32:49,519

so let's check in with john inspector

834

00:32:55,590 --> 00:32:53,039

for another operation update john

835

00:32:58,310 --> 00:32:55,600

thanks marie we're coming up on t minus

836

00:33:00,630 --> 00:32:58,320

3 hours and 40 minutes and all continues

837

00:33:03,029 --> 00:33:00,640

to go well for tonight's launch as we

838

00:33:06,149 --> 00:33:03,039

wait for the crew to walk out of the

839

00:33:07,990 --> 00:33:06,159

building now the area around pad 39a was

840

00:33:10,149 --> 00:33:08,000

cleared of personnel at t-minus eight

841

00:33:12,070 --> 00:33:10,159

hours the only people remaining on the

842

00:33:14,070 --> 00:33:12,080

pad right now are the ones needed for

843

00:33:16,230 --> 00:33:14,080

ingress of the astronauts and we'll be

844

00:33:18,230 --> 00:33:16,240

covering crew arrival at the pad and

845

00:33:20,149 --> 00:33:18,240

entry into the spacecraft

846

00:33:23,029 --> 00:33:20,159

now on the launch pad as you can see

847

00:33:24,710 --> 00:33:23,039

falcon 9 is powered on engine and stage

848

00:33:27,190 --> 00:33:24,720

checkouts were performed several hours

849

00:33:29,750 --> 00:33:27,200

ago we're currently monitoring telemetry

850

00:33:31,430 --> 00:33:29,760

and pressurizing gas storage vessels the

851
00:33:33,350 --> 00:33:31,440
good news is the launch director and the

852
00:33:35,269 --> 00:33:33,360
chief engineer reported in the t-minus

853
00:33:38,230 --> 00:33:35,279
four hour briefing there's nothing

854
00:33:40,149 --> 00:33:38,240
significant to report on the rocket now

855
00:33:42,389 --> 00:33:40,159
on top of the falcon 9 in your picture

856
00:33:45,110 --> 00:33:42,399
at the very top the dragon spacecraft

857
00:33:47,029 --> 00:33:45,120
that capsule is ready for the crew

858
00:33:49,350 --> 00:33:47,039
functional checkouts were performed in

859
00:33:51,509 --> 00:33:49,360
preparation for the crew's arrival most

860
00:33:53,909 --> 00:33:51,519
recently the dragon propellant system

861
00:33:55,909 --> 00:33:53,919
was pressurized to final flight pressure

862
00:33:57,269 --> 00:33:55,919
about 40 minutes ago

863
00:34:00,870 --> 00:33:57,279

and also as the mission director

864

00:34:02,870 --> 00:34:00,880

reported all spacecraft systems are go

865

00:34:04,789 --> 00:34:02,880

good news is the launch range is ready

866

00:34:06,870 --> 00:34:04,799

to support they're green and go working

867

00:34:08,389 --> 00:34:06,880

no issues at this time

868

00:34:10,389 --> 00:34:08,399

and finally on the weather we're getting

869

00:34:12,470 --> 00:34:10,399

ready to release the first of several

870

00:34:14,629 --> 00:34:12,480

weather balloons in the last three and a

871

00:34:16,230 --> 00:34:14,639

half hours of the countdown so while

872

00:34:18,230 --> 00:34:16,240

we're waiting for those results to give

873

00:34:20,550 --> 00:34:18,240

us a better idea on the upper altitude

874

00:34:22,710 --> 00:34:20,560

winds we are still anticipating

875

00:34:24,310 --> 00:34:22,720

acceptable weather for launch

876

00:34:26,230 --> 00:34:24,320

so things are looking good with both

877

00:34:28,149 --> 00:34:26,240

falcon and dragon and the weather is

878

00:34:30,629 --> 00:34:28,159

cooperating right now as we count down

879

00:34:33,030 --> 00:34:30,639

to liftoff as we get ready for the crew

880

00:34:35,589 --> 00:34:33,040

to walk out let's go back to our team at

881

00:34:37,909 --> 00:34:35,599

kennedy space center

882

00:34:40,149 --> 00:34:37,919

all right thank you john uh looking back

883

00:34:42,149 --> 00:34:40,159

live inside the room again hilo's flying

884

00:34:44,389 --> 00:34:42,159

overhead everybody is getting ready for

885

00:34:46,389 --> 00:34:44,399

this crew to make their way just behind

886

00:34:49,510 --> 00:34:46,399

us on their way out to the launch pad it

887

00:34:51,829 --> 00:34:49,520

is now t minus 3 hours and 38 minutes

888

00:34:54,550 --> 00:34:51,839

here at kennedy space center in florida

889

00:34:57,030 --> 00:34:54,560

the crew ate lunch at about 12 15 and

890

00:34:59,109 --> 00:34:57,040

listened to a weather brief again the

891

00:35:01,270 --> 00:34:59,119

main watch item right now is weather

892

00:35:03,589 --> 00:35:01,280

around the launch pad we just watched

893

00:35:05,990 --> 00:35:03,599

the suit text from spacex fit each crew

894

00:35:08,550 --> 00:35:06,000

member into their own custom space suit

895

00:35:11,190 --> 00:35:08,560

inside the crew quarters and in just a

896

00:35:14,069 --> 00:35:11,200

few minutes at t minus three hours and

897

00:35:16,150 --> 00:35:14,079

25 minutes give or take the crew will be

898

00:35:18,470 --> 00:35:16,160

making their way out of this famed suit

899

00:35:20,710 --> 00:35:18,480

up room down the hallway into an

900

00:35:22,790 --> 00:35:20,720

elevator down to the first floor and

901
00:35:24,950 --> 00:35:22,800
then finally they will make that famous

902
00:35:26,790 --> 00:35:24,960
walk outside to see their families and a

903
00:35:33,270 --> 00:35:26,800
small group of well-wishers before they

904
00:35:37,910 --> 00:35:34,870
and there are three teslas waiting to

905
00:35:40,069 --> 00:35:37,920
drive the crew out to launch complex 39a

906
00:35:42,470 --> 00:35:40,079
riding in the first car will be suit

907
00:35:44,710 --> 00:35:42,480
techs and the closeout lead and in the

908
00:35:47,829 --> 00:35:44,720
second tesla mike and shannon will be

909
00:35:50,470 --> 00:35:47,839
sharing a ride with the flight surgeon

910
00:35:53,670 --> 00:35:50,480
and in the third vehicle we'll have

911
00:35:55,670 --> 00:35:53,680
victor suici and another closeout lead

912
00:35:57,349 --> 00:35:55,680
we will be following that convoy live

913
00:35:59,589 --> 00:35:57,359

every step of the way getting you as

914

00:36:01,430 --> 00:35:59,599

close as possible without actually being

915

00:36:02,470 --> 00:36:01,440

without actually being in the car with

916

00:36:04,150 --> 00:36:02,480

them

917

00:36:05,829 --> 00:36:04,160

so i want to point out you see you might

918

00:36:07,109 --> 00:36:05,839

notice there on the front windshield of

919

00:36:09,670 --> 00:36:07,119

that tesla there were a couple of

920

00:36:12,150 --> 00:36:09,680

stickers um the two teslas that were

921

00:36:14,390 --> 00:36:12,160

utilized in our previous crew missions

922

00:36:16,310 --> 00:36:14,400

have those stickers designating that um

923

00:36:17,990 --> 00:36:16,320

the first car will be the one

924

00:36:18,930 --> 00:36:18,000

that lacks those stickers so we have a

925

00:36:20,230 --> 00:36:18,940

little bit of

926

00:36:22,470 --> 00:36:20,240

[Music]

927

00:36:24,069 --> 00:36:22,480

a wink there to our previous uh previous

928

00:36:26,470 --> 00:36:24,079

crew members that will be taking the

929

00:36:28,069 --> 00:36:26,480

ride

930

00:36:29,510 --> 00:36:28,079

very cool and one other thing that i

931

00:36:31,430 --> 00:36:29,520

think is really interesting you will

932

00:36:33,510 --> 00:36:31,440

only get a quick glance of it when the

933

00:36:35,670 --> 00:36:33,520

crew is getting into the elevator before

934

00:36:37,829 --> 00:36:35,680

they go downstairs but if you look

935

00:36:39,589 --> 00:36:37,839

closely you'll see um when they get into

936

00:36:41,990 --> 00:36:39,599

the elevator there will be a poster

937

00:36:44,069 --> 00:36:42,000

there with a bunch of signatures on it

938

00:36:47,270 --> 00:36:44,079

and those are signatures of

939

00:36:50,470 --> 00:36:47,280

individual people in the nasa and spacex

940

00:36:52,230 --> 00:36:50,480

teams that have worked to make this ride

941

00:36:54,870 --> 00:36:52,240

as safe as possible

942

00:36:56,790 --> 00:36:54,880

these folks take take it very seriously

943

00:36:58,790 --> 00:36:56,800

that the crew's lives are uh are in

944

00:37:00,390 --> 00:36:58,800

their hands and so it's really special

945

00:37:01,750 --> 00:37:00,400

for the crew to see their signatures on

946

00:37:04,710 --> 00:37:01,760

the elevator when they step in those

947

00:37:06,630 --> 00:37:04,720

doors and we do pay attention um there's

948

00:37:09,990 --> 00:37:06,640

there was something similar to that for

949

00:37:12,710 --> 00:37:10,000

shuttle and um i i hope everyone that

950

00:37:14,470 --> 00:37:12,720

signs those you know those those murals

951
00:37:17,270 --> 00:37:14,480
understands that the crew really takes

952
00:37:19,030 --> 00:37:17,280
that seriously and um and is looking for

953
00:37:21,030 --> 00:37:19,040
it as well that's really cool we also

954
00:37:22,710 --> 00:37:21,040
happen to be uh celebrating 20 years of

955
00:37:24,790 --> 00:37:22,720
continuous human presence on the

956
00:37:26,710 --> 00:37:24,800
international space station the very

957
00:37:29,349 --> 00:37:26,720
first expedition mission launched in

958
00:37:31,270 --> 00:37:29,359
october 2000 delivering american

959
00:37:33,750 --> 00:37:31,280
astronaut bill shepard and russian

960
00:37:35,829 --> 00:37:33,760
cosmonauts sergey krikalev and yuri

961
00:37:38,550 --> 00:37:35,839
gidzienko to the international space

962
00:37:40,150 --> 00:37:38,560
station 20 novembers ago a nasa

963
00:37:41,829 --> 00:37:40,160

contingent was at the launch site in

964

00:37:44,230 --> 00:37:41,839

baikonur and at the russian mission

965

00:37:46,069 --> 00:37:44,240

control center in koralev just outside

966

00:37:48,390 --> 00:37:46,079

moscow including one of our own

967

00:37:51,030 --> 00:37:48,400

broadcasting the launch on that historic

968

00:37:53,990 --> 00:37:51,040

day

969

00:37:54,870 --> 00:37:54,000

ignition minus 10 seconds 9

970

00:37:55,910 --> 00:37:54,880

8

971

00:37:58,150 --> 00:37:55,920

7

972

00:38:00,710 --> 00:37:58,160

6. we have engine start

973

00:38:07,589 --> 00:38:00,720

4 3 2

974

00:38:10,870 --> 00:38:09,510

liftoff of the soyuz rocket beginning

975

00:38:13,030 --> 00:38:10,880

the first expedition to the

976
00:38:14,790 --> 00:38:13,040
international space station and setting

977
00:38:18,390 --> 00:38:14,800
the stage for permanent human presence

978
00:38:22,310 --> 00:38:20,390
we want to introduce you now to kyle

979
00:38:24,550 --> 00:38:22,320
herring the nasa public affairs officer

980
00:38:25,990 --> 00:38:24,560
whose voice you just heard

981
00:38:28,069 --> 00:38:26,000
uh kyle

982
00:38:29,910 --> 00:38:28,079
kyle there you are you launched uh you

983
00:38:32,630 --> 00:38:29,920
called the launch that day i was october

984
00:38:34,630 --> 00:38:32,640
31st 2000 i know you've been involved in

985
00:38:36,870 --> 00:38:34,640
human space flight and missions way

986
00:38:39,030 --> 00:38:36,880
before that and ever since now as we're

987
00:38:41,349 --> 00:38:39,040
about to launch long-duration human

988
00:38:44,230 --> 00:38:41,359

human missions to the space station from

989

00:38:46,069 --> 00:38:44,240

u.s soil on a commercial spacecraft this

990

00:38:48,230 --> 00:38:46,079

time what do you remember about the day

991

00:38:49,589 --> 00:38:48,240

it all began

992

00:38:51,750 --> 00:38:49,599

20 years ago

993

00:38:53,829 --> 00:38:51,760

it's hard to believe actually

994

00:38:55,670 --> 00:38:53,839

i remember almost everything about that

995

00:38:57,829 --> 00:38:55,680

day

996

00:39:01,750 --> 00:38:57,839

and then again it was almost in real

997

00:39:04,310 --> 00:39:01,760

time like a blur it was such a huge team

998

00:39:06,790 --> 00:39:04,320

that that put that launch not only the

999

00:39:08,310 --> 00:39:06,800

broadcast but obviously the the mission

1000

00:39:11,109 --> 00:39:08,320

together

1001
00:39:12,230 --> 00:39:11,119
i was tied to houston with a just a

1002
00:39:13,349 --> 00:39:12,240
phone line

1003
00:39:15,510 --> 00:39:13,359
and

1004
00:39:17,910 --> 00:39:15,520
that broadcast still serves as kind of

1005
00:39:20,790 --> 00:39:17,920
the template that we use for soyuz crude

1006
00:39:22,870 --> 00:39:20,800
launches to this day

1007
00:39:25,510 --> 00:39:22,880
i was tucked behind the russian mission

1008
00:39:27,270 --> 00:39:25,520
control center uh the floor where the

1009
00:39:29,190 --> 00:39:27,280
russian flight control team that

1010
00:39:30,950 --> 00:39:29,200
monitors the international space station

1011
00:39:33,589 --> 00:39:30,960
the russian segment

1012
00:39:36,150 --> 00:39:33,599
i was adjacent to a nasa support team

1013
00:39:38,870 --> 00:39:36,160

called the houston support group which

1014

00:39:40,710 --> 00:39:38,880

is a team of nasa houston flight direct

1015

00:39:42,470 --> 00:39:40,720

flight controllers with a flight

1016

00:39:45,190 --> 00:39:42,480

director at the helm of that team as

1017

00:39:46,950 --> 00:39:45,200

well um above us was a balcony that

1018

00:39:47,910 --> 00:39:46,960

overlooked that flight control room

1019

00:39:51,270 --> 00:39:47,920

floor

1020

00:39:53,750 --> 00:39:51,280

and uh i remember that the adrenaline

1021

00:39:56,069 --> 00:39:53,760

kind of built as the hour passed by for

1022

00:39:59,109 --> 00:39:56,079

the broadcast but everybody's you know

1023

00:40:01,109 --> 00:39:59,119

kind of doing a job and and

1024

00:40:03,270 --> 00:40:01,119

it was a pretty amazing day and after

1025

00:40:05,430 --> 00:40:03,280

liftoff you know there's really no

1026

00:40:07,109 --> 00:40:05,440

script at that point you just follow the

1027

00:40:08,950 --> 00:40:07,119

milestones

1028

00:40:11,109 --> 00:40:08,960

and kyle how does the accomplishment of

1029

00:40:13,750 --> 00:40:11,119

expedition one compared to what we're

1030

00:40:15,510 --> 00:40:13,760

watching right now

1031

00:40:18,950 --> 00:40:15,520

you know it's similar and different at

1032

00:40:21,430 --> 00:40:18,960

the same time expedition one was was the

1033

00:40:23,430 --> 00:40:21,440

pathfinder increment

1034

00:40:25,190 --> 00:40:23,440

even before launch there was years of

1035

00:40:27,270 --> 00:40:25,200

work that

1036

00:40:28,870 --> 00:40:27,280

was done to ensure that they would have

1037

00:40:29,910 --> 00:40:28,880

a safe

1038

00:40:31,589 --> 00:40:29,920

and home

1039

00:40:34,550 --> 00:40:31,599

work environment if you will on the

1040

00:40:37,990 --> 00:40:34,560

station in which to live and operate

1041

00:40:40,309 --> 00:40:38,000

after 136 days on the station expedition

1042

00:40:43,270 --> 00:40:40,319

one handed to expedition 2 which had

1043

00:40:44,150 --> 00:40:43,280

arrived via a space shuttle flight

1044

00:40:46,230 --> 00:40:44,160

and

1045

00:40:49,670 --> 00:40:46,240

that kind of established the template

1046

00:40:52,390 --> 00:40:49,680

for all of the crew rotations and the

1047

00:40:54,870 --> 00:40:52,400

augmentations that we've done for iss

1048

00:40:57,670 --> 00:40:54,880

increments and it's been pretty much

1049

00:40:58,630 --> 00:40:57,680

seamless ever since and you know by the

1050

00:41:00,870 --> 00:40:58,640

way the

1051
00:41:01,829 --> 00:41:00,880
assembly continued around those folks

1052
00:41:03,990 --> 00:41:01,839
while they

1053
00:41:07,910 --> 00:41:04,000
uh continuously worked and lived on

1054
00:41:12,470 --> 00:41:09,750
and kyle i just want to acknowledge we

1055
00:41:14,710 --> 00:41:12,480
have nasa administrator jim breidenstein

1056
00:41:15,829 --> 00:41:14,720
and spacex leadership gwen shotwell in

1057
00:41:17,829 --> 00:41:15,839
the room now

1058
00:41:20,069 --> 00:41:17,839
to greet the crew of course from a safe

1059
00:41:22,069 --> 00:41:20,079
distance and with their masks on as the

1060
00:41:23,829 --> 00:41:22,079
crew prepares for walk out

1061
00:41:25,510 --> 00:41:23,839
but last question for you you've been

1062
00:41:27,829 --> 00:41:25,520
involved in commercial crew since the

1063
00:41:30,230 --> 00:41:27,839

beginning of the program and i know you

1064

00:41:32,230 --> 00:41:30,240

also know these astronauts well what's

1065

00:41:33,910 --> 00:41:32,240

it like seeing them suit up knowing that

1066

00:41:35,910 --> 00:41:33,920

they will continue to carry the torch

1067

00:41:38,150 --> 00:41:35,920

that was lit 20 years ago

1068

00:41:40,870 --> 00:41:38,160

yeah oh these uh these four astronauts

1069

00:41:43,030 --> 00:41:40,880

are very uh familiar to me i've been

1070

00:41:46,230 --> 00:41:43,040

at the johnson space center with nasa

1071

00:41:47,910 --> 00:41:46,240

for more than 33 years now

1072

00:41:49,030 --> 00:41:47,920

it's really rewarding to see their

1073

00:41:51,670 --> 00:41:49,040

training

1074

00:41:54,150 --> 00:41:51,680

and their hard work come to fruition

1075

00:41:55,990 --> 00:41:54,160

um everything that they have trained for

1076

00:41:58,150 --> 00:41:56,000

makes today

1077

00:42:00,790 --> 00:41:58,160

probably seem like another training day

1078

00:42:03,270 --> 00:42:00,800

to them i know that their adrenaline and

1079

00:42:05,589 --> 00:42:03,280

their excitement builds the closer they

1080

00:42:09,270 --> 00:42:05,599

get to the reality of heading out to

1081

00:42:11,670 --> 00:42:09,280

that launch pad in just a short while

1082

00:42:14,790 --> 00:42:11,680

you know the commercial crew program was

1083

00:42:17,670 --> 00:42:14,800

established for this moment

1084

00:42:20,390 --> 00:42:17,680

this flight puts the human aspect of uh

1085

00:42:21,589 --> 00:42:20,400

the commercial space flight industry on

1086

00:42:23,829 --> 00:42:21,599

display

1087

00:42:25,589 --> 00:42:23,839

continuously you know for the next six

1088

00:42:28,950 --> 00:42:25,599

months while they're up there and even

1089

00:42:31,030 --> 00:42:28,960

after that um tonight engineers that are

1090

00:42:32,550 --> 00:42:31,040

here on the ground who made this day

1091

00:42:34,230 --> 00:42:32,560

possible

1092

00:42:35,750 --> 00:42:34,240

they're going to pause and enjoy this

1093

00:42:37,349 --> 00:42:35,760

moment and then they're going to put

1094

00:42:39,030 --> 00:42:37,359

their heads back down and start

1095

00:42:41,190 --> 00:42:39,040

continually working toward the next

1096

00:42:43,190 --> 00:42:41,200

flights so you know it's

1097

00:42:45,589 --> 00:42:43,200

it's just going to keep building and

1098

00:42:48,230 --> 00:42:45,599

building as we continue to rotate and

1099

00:42:51,109 --> 00:42:48,240

augment these expeditions

1100

00:42:52,470 --> 00:42:51,119

you know nasa enjoys and recognizes its

1101
00:42:54,390 --> 00:42:52,480
history

1102
00:42:56,390 --> 00:42:54,400
the station's been built and sustained

1103
00:42:58,950 --> 00:42:56,400
by what i kind of referred to as

1104
00:43:01,190 --> 00:42:58,960
stepping stones and bridges

1105
00:43:03,910 --> 00:43:01,200
all the missions before and those since

1106
00:43:05,510 --> 00:43:03,920
and those that are going to come

1107
00:43:08,230 --> 00:43:05,520
will enable the research that's going to

1108
00:43:09,990 --> 00:43:08,240
continue seamlessly on the on the

1109
00:43:13,750 --> 00:43:10,000
international space station as nasa

1110
00:43:15,750 --> 00:43:13,760
moves forward beyond low earth orbit

1111
00:43:17,030 --> 00:43:15,760
all right kyle herring thank you so much

1112
00:43:18,470 --> 00:43:17,040
for joining us we appreciate your

1113
00:43:19,829 --> 00:43:18,480

perspective

1114

00:43:21,109 --> 00:43:19,839

thanks

1115

00:43:22,710 --> 00:43:21,119

we're going to turn our attention back

1116

00:43:24,710 --> 00:43:22,720

to the room we could see the nasa

1117

00:43:26,630 --> 00:43:24,720

administrator and gwen shotwell of

1118

00:43:28,870 --> 00:43:26,640

spacex they're taking selfies with the

1119

00:43:30,069 --> 00:43:28,880

crew in there uh nicole i know you

1120

00:43:32,069 --> 00:43:30,079

probably didn't have you probably

1121

00:43:34,390 --> 00:43:32,079

weren't taking selfies um in the shuttle

1122

00:43:36,790 --> 00:43:34,400

days technology's come a long way since

1123

00:43:40,390 --> 00:43:38,230

we did selfies and you didn't know if

1124

00:43:41,910 --> 00:43:40,400

you got it or not yeah okay but it would

1125

00:43:43,589 --> 00:43:41,920

this was a really special time because

1126

00:43:44,870 --> 00:43:43,599

there are there are people in that room

1127

00:43:46,470 --> 00:43:44,880

like i mentioned before that you want to

1128

00:43:49,030 --> 00:43:46,480

share it with we saw them doing pictures

1129

00:43:51,270 --> 00:43:49,040

with all of the the suit up team as well

1130

00:43:53,270 --> 00:43:51,280

and um it's it's it's nice when the

1131

00:43:55,190 --> 00:43:53,280

administrator and and your leadership

1132

00:43:57,270 --> 00:43:55,200

come by comes by to wish you on your on

1133

00:43:59,270 --> 00:43:57,280

your way too so i would also definitely

1134

00:44:01,430 --> 00:43:59,280

be taking selfies yeah if i were in that

1135

00:44:03,990 --> 00:44:01,440

room for sure now we're about 15 minutes

1136

00:44:05,190 --> 00:44:04,000

away from uh the crew walkout happening

1137

00:44:06,710 --> 00:44:05,200

but i just want to draw a little bit of

1138

00:44:08,710 --> 00:44:06,720

attention to the preparations that are

1139

00:44:10,790 --> 00:44:08,720

going on inside the capsule

1140

00:44:12,790 --> 00:44:10,800

while the crew members are donning their

1141

00:44:14,470 --> 00:44:12,800

suits we have what we call the advanced

1142

00:44:16,870 --> 00:44:14,480

team we heard a couple call-outs for the

1143

00:44:18,309 --> 00:44:16,880

advanced team a little while ago but

1144

00:44:20,630 --> 00:44:18,319

essentially the advanced team are the

1145

00:44:22,309 --> 00:44:20,640

people that are now out at the pad doing

1146

00:44:24,790 --> 00:44:22,319

things like opening that hatch i did get

1147

00:44:26,950 --> 00:44:24,800

confirmation that the side hatch is open

1148

00:44:28,470 --> 00:44:26,960

we wait as long as possible to do that

1149

00:44:30,230 --> 00:44:28,480

so that we make sure that the

1150

00:44:32,069 --> 00:44:30,240

environmental state you know humidity

1151

00:44:34,230 --> 00:44:32,079

bugs out here in florida we want to keep

1152

00:44:36,710 --> 00:44:34,240

all those environmental things out so

1153

00:44:38,230 --> 00:44:36,720

that hatch side hatch is now open um and

1154

00:44:39,910 --> 00:44:38,240

that advanced team is also doing stuff

1155

00:44:41,589 --> 00:44:39,920

like making sure the cabin lights are on

1156

00:44:43,109 --> 00:44:41,599

making sure that the individual task

1157

00:44:45,829 --> 00:44:43,119

lights that the astronauts can use

1158

00:44:47,190 --> 00:44:45,839

during flight are functional um and yeah

1159

00:44:50,790 --> 00:44:47,200

making sure that the cabin is ready to

1160

00:44:56,710 --> 00:44:50,800

go in preparation for the crew's arrival

1161

00:45:01,589 --> 00:44:58,470

so like i mentioned yeah there's a shot

1162

00:45:04,309 --> 00:45:01,599

of falcon 9 live from the pad at 39a now

1163

00:45:06,150 --> 00:45:04,319

like i said that that side hatch is open

1164

00:45:08,069 --> 00:45:06,160

the advanced team is making the final

1165

00:45:10,550 --> 00:45:08,079

preparations inside the cabin getting

1166

00:45:12,710 --> 00:45:10,560

ready for the crew to begin their

1167

00:45:15,270 --> 00:45:12,720

journey out to the pad

1168

00:45:17,510 --> 00:45:15,280

and launch weather today is 50 percent

1169

00:45:19,910 --> 00:45:17,520

go that was the the weather at last

1170

00:45:21,910 --> 00:45:19,920

check um it's actually looking really

1171

00:45:24,470 --> 00:45:21,920

good downrange so things look a little

1172

00:45:27,270 --> 00:45:24,480

iffy around the pad as we get closer to

1173

00:45:30,150 --> 00:45:27,280

t0 of 727 this evening

1174

00:45:32,230 --> 00:45:30,160

but if we can if we can make it past the

1175

00:45:35,109 --> 00:45:32,240

immediate area it looks it looks very

1176

00:45:37,109 --> 00:45:35,119

good for abort conditions and um i heard

1177

00:45:39,589 --> 00:45:37,119

earlier that the forecast for wednesday

1178

00:45:42,230 --> 00:45:39,599

which is obviously the the backup day

1179

00:45:44,390 --> 00:45:42,240

if we don't make it today the weather in

1180

00:45:46,870 --> 00:45:44,400

the immediate area looks really good but

1181

00:45:50,390 --> 00:45:46,880

the downrange weather is is problematic

1182

00:45:53,510 --> 00:45:50,400

so um we had 50 50 odds i think on demo

1183

00:45:55,430 --> 00:45:53,520

two launch day so uh hopefully the odds

1184

00:45:56,630 --> 00:45:55,440

will will tip in our favor at just the

1185

00:45:58,470 --> 00:45:56,640

right moment because this is an

1186

00:45:59,750 --> 00:45:58,480

instantaneous launch i just received the

1187

00:46:02,309 --> 00:45:59,760

most recent weather briefing a few

1188

00:46:03,990 --> 00:46:02,319

minutes ago we're still at 50 50 so not

1189

00:46:06,309 --> 00:46:04,000

better but not worse

1190

00:46:08,470 --> 00:46:06,319

okay and again it should be um just a

1191

00:46:10,150 --> 00:46:08,480

couple of minutes before the crew

1192

00:46:13,030 --> 00:46:10,160

departs that room and i think we're

1193

00:46:14,710 --> 00:46:13,040

going to get another look inside there

1194

00:46:16,790 --> 00:46:14,720

again we do have if we could i don't

1195

00:46:19,030 --> 00:46:16,800

know if we could take a look outside of

1196

00:46:21,349 --> 00:46:19,040

the operations and checkout building but

1197

00:46:23,829 --> 00:46:21,359

we have a convoy stationed out there

1198

00:46:27,030 --> 00:46:23,839

ready to take the crew there there's a

1199

00:46:29,589 --> 00:46:27,040

look um and again there there are three

1200

00:46:32,150 --> 00:46:29,599

teslas the crew will be split up two and

1201

00:46:33,829 --> 00:46:32,160

two in the in the second and third tesla

1202

00:46:35,750 --> 00:46:33,839

is that right exactly yeah that first

1203

00:46:38,470 --> 00:46:35,760

tesla will have one of our closeout

1204

00:46:40,870 --> 00:46:38,480

leads as well as two suit technicians uh

1205

00:46:42,870 --> 00:46:40,880

so we ensure that the whole suit up crew

1206

00:46:44,550 --> 00:46:42,880

also transports out to the pad along

1207

00:46:47,030 --> 00:46:44,560

with our astronauts

1208

00:46:49,190 --> 00:46:47,040

car two will have commander mike hopkins

1209

00:46:51,750 --> 00:46:49,200

as well as mission specialist shannon

1210

00:46:53,190 --> 00:46:51,760

walker as well as our flight surgeon uh

1211

00:46:54,829 --> 00:46:53,200

and then car three will have pilot

1212

00:46:57,030 --> 00:46:54,839

victor glover and mission specialist

1213

00:46:59,430 --> 00:46:57,040

suici niguchi as well as the second

1214

00:47:00,950 --> 00:46:59,440

closeout lead so yeah quite the quite

1215

00:47:02,790 --> 00:47:00,960

the cohort that will be making the ride

1216

00:47:04,550 --> 00:47:02,800

out to the pad there's also something

1217

00:47:05,910 --> 00:47:04,560

else special that we want to mention

1218

00:47:08,470 --> 00:47:05,920

there's a mural you might have caught a

1219

00:47:10,470 --> 00:47:08,480

glimpse of it in that earlier shot

1220

00:47:12,309 --> 00:47:10,480

but there is a special mural that was

1221

00:47:13,510 --> 00:47:12,319

commissioned in honor of the crew one

1222

00:47:18,470 --> 00:47:13,520

astronaut so i'm not sure if we could

1223

00:47:23,750 --> 00:47:20,870

there it is um the mural was titled is

1224

00:47:25,750 --> 00:47:23,760

titled aspirants um the kids represent

1225

00:47:28,230 --> 00:47:25,760

the range of ethnicities across the

1226

00:47:29,990 --> 00:47:28,240

united states and the world and that

1227

00:47:31,990 --> 00:47:30,000

they look toward the future that the

1228

00:47:34,790 --> 00:47:32,000

crew one mission might bring

1229

00:47:37,829 --> 00:47:34,800

the artist brent dahono hinted that the

1230

00:47:42,549 --> 00:47:37,839

dragon represents an immense prehistoric

1231

00:47:45,109 --> 00:47:43,760

shannon will be happy

1232

00:47:46,630 --> 00:47:45,119

[Laughter]

1233

00:47:48,630 --> 00:47:46,640

yeah nicole i know you've got a special

1234

00:47:50,309 --> 00:47:48,640

appreciation for art

1235

00:47:51,990 --> 00:47:50,319

yeah i'm really when i look at something

1236

00:47:53,670 --> 00:47:52,000

like this i think it's so special

1237

00:47:55,270 --> 00:47:53,680

because um

1238

00:47:57,829 --> 00:47:55,280

it allows us to communicate with other

1239

00:47:59,829 --> 00:47:57,839

audiences right to bring a little more

1240

00:48:01,910 --> 00:47:59,839

of that on wonder into the whole space

1241

00:48:03,190 --> 00:48:01,920

exploration thing through

1242

00:48:04,950 --> 00:48:03,200

something like a mural where we're

1243

00:48:29,829 --> 00:48:04,960

looking out to space and towards our

1244

00:48:33,589 --> 00:48:31,829

okay so again we're standing by outside

1245

00:48:35,349 --> 00:48:33,599

the neil armstrong operations in

1246

00:48:37,030 --> 00:48:35,359

checkout building

1247

00:48:39,270 --> 00:48:37,040

crew donning

1248

00:48:40,950 --> 00:48:39,280

donning their suits is complete

1249

00:48:42,870 --> 00:48:40,960

they should be making their way out of

1250

00:48:44,710 --> 00:48:42,880

the room momentarily

1251
00:48:46,950 --> 00:48:44,720
they probably just a few moments ago

1252
00:48:49,270 --> 00:48:46,960
finished up playing uh the

1253
00:48:51,030 --> 00:48:49,280
the mysterious card game

1254
00:48:52,390 --> 00:48:51,040
nicole knows about another one of these

1255
00:48:54,309 --> 00:48:52,400
traditions and yeah you know the

1256
00:48:56,630 --> 00:48:54,319
commander has to beat the uh chief of

1257
00:48:57,910 --> 00:48:56,640
the astronaut office in a game of 21

1258
00:49:03,670 --> 00:48:57,920
before you can leave the room so maybe

1259
00:49:08,710 --> 00:49:05,670
and we've got our resident social media

1260
00:49:09,510 --> 00:49:08,720
guru here tahira allen uh tahira as

1261
00:49:11,349 --> 00:49:09,520
we're

1262
00:49:13,589 --> 00:49:11,359
waiting for the crew to walk out um what

1263
00:49:15,430 --> 00:49:13,599

are folks talking about online

1264

00:49:17,510 --> 00:49:15,440

thanks marie so before i get into the

1265

00:49:20,790 --> 00:49:17,520

conversation i want to note there are

1266

00:49:22,390 --> 00:49:20,800

already two over 200 000 people tuning

1267

00:49:24,390 --> 00:49:22,400

in to the show right now across all of

1268

00:49:26,309 --> 00:49:24,400

our social platforms and i've been

1269

00:49:28,390 --> 00:49:26,319

monitoring the conversation all week

1270

00:49:30,309 --> 00:49:28,400

looking at our hashtag launchamerica and

1271

00:49:31,270 --> 00:49:30,319

that alone is up to thirty eight

1272

00:49:37,829 --> 00:49:31,280

thousand

1273

00:49:41,030 --> 00:49:39,750

quite peppy there yeah so cool they're

1274

00:49:42,230 --> 00:49:41,040

looking for people they're looking for

1275

00:49:44,230 --> 00:49:42,240

the people that have helped them all

1276
00:49:57,109 --> 00:49:44,240
along the way too and want to make eye

1277
00:50:01,349 --> 00:49:59,750
and behind them is that the banner that

1278
00:50:02,950 --> 00:50:01,359
i talked about that you couldn't really

1279
00:50:04,069 --> 00:50:02,960
see it that well but that banner behind

1280
00:50:06,790 --> 00:50:04,079
them in the elevator holds the

1281
00:50:08,950 --> 00:50:06,800
signatures of many of the team members

1282
00:50:11,589 --> 00:50:08,960
who worked so hard to make sure that

1283
00:50:17,589 --> 00:50:11,599
this spacecraft and rocket is as safe as

1284
00:50:21,349 --> 00:50:19,349
okay so we're just moments away from

1285
00:50:23,349 --> 00:50:21,359
seeing the first multinational crew

1286
00:50:25,430 --> 00:50:23,359
dragon crew exit the operations and

1287
00:50:27,829 --> 00:50:25,440
checkout building outside here but

1288
00:50:30,150 --> 00:50:27,839

before we do we will pause for

1289

00:50:35,270 --> 00:50:30,160

america's national anthem performed by

1290

00:50:40,309 --> 00:50:36,150

oh

1291

00:50:45,510 --> 00:50:40,319

say can you see

1292

00:50:47,069 --> 00:50:45,520

by the dawn's early light

1293

00:50:48,950 --> 00:50:47,079

what so

1294

00:50:51,109 --> 00:50:48,960

proudly we

1295

00:50:52,829 --> 00:50:51,119

have

1296

00:50:56,390 --> 00:50:52,839

at the

1297

00:51:01,190 --> 00:50:56,400

twilight's last gleaming

1298

00:51:03,390 --> 00:51:01,200

whose broad stripes and bright stars

1299

00:51:06,390 --> 00:51:03,400

through the

1300

00:51:07,950 --> 00:51:06,400

perilous fight

1301
00:51:09,950 --> 00:51:07,960
or the

1302
00:51:11,670 --> 00:51:09,960
ramparts we

1303
00:51:15,030 --> 00:51:11,680
watched

1304
00:51:17,670 --> 00:51:15,040
were so gallantly

1305
00:51:23,030 --> 00:51:17,680
streaming

1306
00:51:24,750 --> 00:51:23,040
and the rockets reggae

1307
00:51:28,470 --> 00:51:24,760
the bombs

1308
00:51:30,710 --> 00:51:28,480
bursting in air

1309
00:51:31,910 --> 00:51:30,720
gave proof

1310
00:51:33,829 --> 00:51:31,920
through the

1311
00:51:35,670 --> 00:51:33,839
night

1312
00:51:36,470 --> 00:51:35,680
that our flag

1313
00:51:39,190 --> 00:51:36,480

was

1314

00:51:40,790 --> 00:51:39,200

still there

1315

00:51:45,710 --> 00:51:40,800

oh see

1316

00:51:45,720 --> 00:51:51,990

banner yet we

1317

00:51:59,109 --> 00:51:54,710

or the land

1318

00:52:06,380 --> 00:52:01,670

and the home

1319

00:52:11,270 --> 00:52:09,349

[Music]

1320

00:52:13,910 --> 00:52:11,280

special thanks to travis tripp for that

1321

00:52:15,589 --> 00:52:13,920

beautiful uh rendition of america's

1322

00:52:17,270 --> 00:52:15,599

national anthem

1323

00:52:19,109 --> 00:52:17,280

we are now just standing by this is a

1324

00:52:21,589 --> 00:52:19,119

view outside the neil armstrong

1325

00:52:23,750 --> 00:52:21,599

operations and checkout building

1326

00:52:25,270 --> 00:52:23,760

inside here is the historic astronaut

1327

00:52:26,710 --> 00:52:25,280

crew quarters and suit-up room there's a

1328

00:52:31,109 --> 00:52:26,720

look at the doors that the crew will be

1329

00:52:34,069 --> 00:52:32,630

and you'll see stickers around that door

1330

00:52:36,230 --> 00:52:34,079

i think the crew actually did put their

1331

00:52:50,230 --> 00:52:36,240

mission sticker up over the

1332

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

as we zoom in there you can see along

1333

00:52:56,710 --> 00:52:54,480

the door frame even more stickers i

1334

00:52:58,150 --> 00:52:56,720

believe there's one sticker from every

1335

00:53:00,230 --> 00:52:58,160

mission

1336

00:53:02,309 --> 00:53:00,240

but i did notice that there was just

1337

00:53:04,470 --> 00:53:02,319

enough room to put the crew one sticker

1338

00:53:06,790 --> 00:53:04,480

up on top

1339

00:53:09,270 --> 00:53:06,800

ah here they come here they come the

1340

00:53:11,510 --> 00:53:09,280

crew won astronauts now beginning their

1341

00:53:13,750 --> 00:53:11,520

journey to the launch pad ahead of this

1342

00:53:34,390 --> 00:53:13,760

historic mission to the international

1343

00:53:38,950 --> 00:53:36,790

outside the onc building we have friends

1344

00:53:39,670 --> 00:53:38,960

and family gathered there to

1345

00:53:42,150 --> 00:53:39,680

for

1346

00:53:44,309 --> 00:53:42,160

final goodbyes prior to liftoff with our

1347

00:53:46,630 --> 00:53:44,319

astronauts and that's a very different

1348

00:53:48,230 --> 00:53:46,640

thing to the shuttle days um

1349

00:53:49,430 --> 00:53:48,240

the last time we saw our families would

1350

00:53:51,270 --> 00:53:49,440

have been at what we call the wave

1351
00:53:52,790 --> 00:53:51,280
across the ditch you know the day before

1352
00:53:54,069 --> 00:53:52,800
launch and

1353
00:53:56,309 --> 00:53:54,079
and typically

1354
00:53:58,390 --> 00:53:56,319
for shuttle launches you would have um

1355
00:54:00,390 --> 00:53:58,400
employees and you know people that would

1356
00:54:02,549 --> 00:54:00,400
come out to to wish us well i think it's

1357
00:54:04,309 --> 00:54:02,559
a very special thing that the cruise

1358
00:54:05,990 --> 00:54:04,319
families get that up close and personal

1359
00:54:08,390 --> 00:54:06,000
right before they get into the

1360
00:54:09,910 --> 00:54:08,400
crew transport vehicles to the pad now

1361
00:54:12,470 --> 00:54:09,920
you notice everyone keeping is a safe

1362
00:54:14,870 --> 00:54:12,480
distance here um but that distance would

1363
00:54:19,190 --> 00:54:14,880

be enforced regardless of whether coven

1364

00:54:20,470 --> 00:54:19,200

19 was a a factor in in what's going on

1365

00:54:25,430 --> 00:54:20,480

that would you know that distance is

1366

00:54:30,309 --> 00:54:27,670

like i mentioned before there are three

1367

00:54:31,750 --> 00:54:30,319

teslas that will be taking our crew out

1368

00:54:33,750 --> 00:54:31,760

in the first car we will have a

1369

00:54:35,270 --> 00:54:33,760

close-out lead as well as a couple of

1370

00:54:39,109 --> 00:54:35,280

suit technicians

1371

00:54:41,190 --> 00:54:39,119

uh the second car will be mike hawkins

1372

00:54:42,230 --> 00:54:41,200

and shannon walker as well as our flight

1373

00:54:44,710 --> 00:54:42,240

surgeon

1374

00:54:47,270 --> 00:54:44,720

and then the last car we will have

1375

00:54:51,349 --> 00:54:47,280

victor glover and suici niguchi as well

1376

00:54:56,309 --> 00:54:53,510

so like i mentioned before this the

1377

00:54:58,789 --> 00:54:56,319

suits are assigned the seats in the

1378

00:55:00,630 --> 00:54:58,799

capsule are assigned

1379

00:55:02,309 --> 00:55:00,640

as well as the seats in the teslas

1380

00:55:11,990 --> 00:55:02,319

there's no fire drills happening here

1381

00:55:15,349 --> 00:55:13,270

you can hear just some ambient

1382

00:55:23,760 --> 00:55:15,359

conversations uh between the crew and

1383

00:55:23,770 --> 00:55:29,750

[Applause]

1384

00:55:33,990 --> 00:55:31,990

such a special moment for them to have

1385

00:55:36,309 --> 00:55:34,000

gary this crew has said a couple of

1386

00:55:44,150 --> 00:55:36,319

times that suici is the funniest one of

1387

00:55:48,309 --> 00:55:46,390

you know this is all very carefully

1388

00:55:50,309 --> 00:55:48,319

choreographed

1389

00:55:52,230 --> 00:55:50,319

you can see you see in one of the shots

1390

00:55:53,670 --> 00:55:52,240

some of the ropes and stanchions but

1391

00:55:55,670 --> 00:55:53,680

there are

1392

00:55:56,870 --> 00:55:55,680

lots of people involved in the planning

1393

00:55:58,630 --> 00:55:56,880

of

1394

00:56:00,710 --> 00:55:58,640

where the immediate families are going

1395

00:56:03,349 --> 00:56:00,720

to stand where the small

1396

00:56:06,470 --> 00:56:03,359

contingent of media will stand

1397

00:56:08,630 --> 00:56:06,480

especially in covid times where we have

1398

00:56:10,789 --> 00:56:08,640

to make sure we're keeping the crew safe

1399

00:56:12,390 --> 00:56:10,799

and their families safe they were able

1400

00:56:14,470 --> 00:56:12,400

to have a little extra time with their

1401
00:56:15,990 --> 00:56:14,480
families yesterday because we moved off

1402
00:56:17,990 --> 00:56:16,000
of yesterday as the launch day so they

1403
00:56:22,150 --> 00:56:18,000
had a little extra down time that i

1404
00:56:25,349 --> 00:56:23,510
yeah you mentioned that everything is

1405
00:56:26,950 --> 00:56:25,359
very well choreographed

1406
00:56:29,109 --> 00:56:26,960
you know while this is the first time

1407
00:56:31,349 --> 00:56:29,119
that we're seeing the crew

1408
00:56:33,349 --> 00:56:31,359
make this journey to the pad

1409
00:56:35,349 --> 00:56:33,359
on you know the day of fingers crossed

1410
00:56:36,870 --> 00:56:35,359
we don't have a scrub we they have

1411
00:56:39,829 --> 00:56:36,880
performed this a number of times

1412
00:56:42,230 --> 00:56:39,839
including a dry dress earlier this week

1413
00:56:44,950 --> 00:56:42,240

but everything that this crew does is

1414

00:56:50,470 --> 00:56:44,960

rehearsed many many times whether it's

1415

00:56:53,270 --> 00:56:52,069

or even the operations and activities

1416

00:56:55,430 --> 00:56:53,280

that they have going on during the

1417

00:56:58,630 --> 00:56:55,440

mission everything is rehearsed and

1418

00:57:03,829 --> 00:57:01,750

i can tell you though on the real day

1419

00:57:17,829 --> 00:57:03,839

feels a little different

1420

00:57:21,109 --> 00:57:19,349

immediate family members getting a

1421

00:57:22,789 --> 00:57:21,119

chance to

1422

00:57:24,150 --> 00:57:22,799

have another moment with the crew before

1423

00:57:25,349 --> 00:57:24,160

they leave

1424

00:57:27,190 --> 00:57:25,359

and then you'll see some of the folks

1425

00:57:29,190 --> 00:57:27,200

there in the blue flight suits those are

1426
00:57:31,750 --> 00:57:29,200
um astronauts from the astronaut office

1427
00:57:34,069 --> 00:57:31,760
active that are working as crew support

1428
00:57:50,230 --> 00:57:34,079
astronauts for the families and um and

1429
00:57:50,240 --> 00:57:56,150
that's so awesome

1430
00:58:00,390 --> 00:57:58,069
so i mentioned earlier that the teslas

1431
00:58:02,309 --> 00:58:00,400
that we utilized in our last crew

1432
00:58:04,150 --> 00:58:02,319
mission demo two

1433
00:58:06,549 --> 00:58:04,160
you can tell which teslas those are

1434
00:58:14,630 --> 00:58:06,559
because of the sticker in the lower

1435
00:58:18,309 --> 00:58:16,309
i can't get a good read at the license

1436
00:58:20,630 --> 00:58:18,319
plate this time but i remember for demo

1437
00:58:23,910 --> 00:58:20,640
2 they said iss bound

1438
00:58:27,990 --> 00:58:25,510

i think another one might say later

1439

00:58:29,910 --> 00:58:28,000

earth this is core on compound one for

1440

00:58:32,710 --> 00:58:29,920

timeline the crew is departing for the

1441

00:58:35,109 --> 00:58:32,720

pad on schedule

1442

00:58:36,950 --> 00:58:35,119

all right so we just heard the call out

1443

00:58:39,510 --> 00:58:36,960

from the corps that the crew is

1444

00:58:40,789 --> 00:58:39,520

departing for the pad and they are right

1445

00:58:42,069 --> 00:58:40,799

on schedule

1446

00:58:43,670 --> 00:58:42,079

again they are leaving the neil

1447

00:58:47,270 --> 00:58:43,680

armstrong operations in checkout

1448

00:58:49,670 --> 00:58:47,280

building now beginning a 20-minute ride

1449

00:58:51,030 --> 00:58:49,680

20 minutes or so across nasa's kennedy

1450

00:58:52,470 --> 00:58:51,040

space center they're going to drive

1451
00:58:53,910 --> 00:58:52,480
right behind where we're sitting we

1452
00:58:56,230 --> 00:58:53,920
can't wait for that

1453
00:58:58,549 --> 00:58:56,240
and out to launch pad 39a

1454
00:59:00,710 --> 00:58:58,559
there are scores of people around the

1455
00:59:03,430 --> 00:59:00,720
world watching and cheering on these

1456
00:59:06,309 --> 00:59:03,440
four souls including many team members

1457
00:59:09,580 --> 00:59:06,319
who helped get the crew here today take

1458
00:59:13,670 --> 00:59:11,910
[Music]

1459
00:59:16,069 --> 00:59:13,680
this is stephanie duncan and the duncan

1460
00:59:19,510 --> 00:59:16,079
family from the commercial crew program

1461
00:59:22,390 --> 00:59:19,520
at the johnson space center nasa spacex

1462
00:59:25,190 --> 00:59:22,400
shannon victor mike and our new moment

1463
00:59:27,829 --> 00:59:25,200

suici you're all an inspiration to us

1464

00:59:31,880 --> 00:59:27,839

adults and kids around the globe from

1465

00:59:37,670 --> 00:59:31,890

texas to you godspeed and let's launch

1466

00:59:40,390 --> 00:59:37,680

[Music]

1467

00:59:42,630 --> 00:59:40,400

aloha i'm gabriella from spacex in boca

1468

00:59:44,789 --> 00:59:42,640

chica texas on behalf of the entire

1469

00:59:46,870 --> 00:59:44,799

starship production facility and launch

1470

00:59:48,549 --> 00:59:46,880

site congratulations to our crew on

1471

00:59:49,910 --> 00:59:48,559

astronauts as well as the spacex and

1472

00:59:52,309 --> 00:59:49,920

nasa teams

1473

00:59:54,230 --> 00:59:52,319

shannon victor mike and suichi safe

1474

00:59:55,829 --> 00:59:54,240

travels and best of luck we hope you

1475

00:59:58,710 --> 00:59:55,839

enjoy the journey to the international

1476

01:00:01,030 --> 00:59:58,720

space station godspeed falcon 9 go

1477

01:00:03,530 --> 01:00:01,040

dragon go nasa and thank you for writing

1478

01:00:27,500 --> 01:00:03,540

this statement

1479

01:00:31,510 --> 01:00:29,910

[Music]

1480

01:00:33,910 --> 01:00:31,520

from the entire commercial crew program

1481

01:00:35,109 --> 01:00:33,920

team mike victor shannon and suicide

1482

01:00:42,069 --> 01:00:35,119

we're looking forward to your flight

1483

01:00:45,430 --> 01:00:43,829

is mark welch from the commercial crew

1484

01:00:48,150 --> 01:00:45,440

program in houston

1485

01:00:52,970 --> 01:00:48,160

go mike victor shannon suici have a

1486

01:00:56,150 --> 01:00:52,980

great flight to iss go through one yeah

1487

01:00:57,750 --> 01:00:56,160

[Music]

1488

01:00:59,750 --> 01:00:57,760

this is micah here from the dragon team

1489

01:01:01,349 --> 01:00:59,760

at spacex we've all worked tirelessly to

1490

01:01:03,109 --> 01:01:01,359

build a reliable vehicle for the crew

1491

01:01:05,589 --> 01:01:03,119

and now it's time to fly we hope that

1492

01:01:06,950 --> 01:01:05,599

they enjoy a totally rad rocket ride

1493

01:01:09,000 --> 01:01:06,960

aboard resilience

1494

01:01:12,150 --> 01:01:09,010

go drive

1495

01:01:14,870 --> 01:01:12,160

[Music]

1496

01:01:16,710 --> 01:01:14,880

hey mike shannon victor and zoe this is

1497

01:01:19,109 --> 01:01:16,720

amber jacobson from nasa's space

1498

01:01:21,349 --> 01:01:19,119

communications and navigation program

1499

01:01:22,870 --> 01:01:21,359

better known as scan we're all so

1500

01:01:24,870 --> 01:01:22,880

excited for your launch and we'll be

1501
01:01:27,030 --> 01:01:24,880
working hard down here making sure you

1502
01:01:32,470 --> 01:01:27,040
stay connected with earth stay safe and

1503
01:01:37,670 --> 01:01:34,950
hi i'm arden robertson from nasa's

1504
01:01:39,910 --> 01:01:37,680
johnson space center in houston texas

1505
01:01:41,990 --> 01:01:39,920
congratulations on the first commercial

1506
01:01:44,789 --> 01:01:42,000
crew rotation mission to the

1507
01:01:47,670 --> 01:01:44,799
international space station godspeed and

1508
01:01:52,890 --> 01:01:47,680
good luck to mike victor shannon and

1509
01:01:52,900 --> 01:01:58,069
[Music]

1510
01:02:02,309 --> 01:01:59,990
uh we love hearing from those team

1511
01:02:05,589 --> 01:02:02,319
members it was really great to get

1512
01:02:08,549 --> 01:02:05,599
the jaxa team included in those messages

1513
01:02:11,270 --> 01:02:08,559

again we are following the convoy

1514

01:02:14,470 --> 01:02:11,280

out to launch pad 39a

1515

01:02:17,190 --> 01:02:14,480

and uh we understand that the crew has a

1516

01:02:18,870 --> 01:02:17,200

ride out playlist we tried and tried

1517

01:02:21,349 --> 01:02:18,880

could not find out what that playlist

1518

01:02:23,270 --> 01:02:21,359

was so i think that's top secret

1519

01:02:24,630 --> 01:02:23,280

but we we had some conversation amongst

1520

01:02:25,750 --> 01:02:24,640

ourselves about what they might be

1521

01:02:27,829 --> 01:02:25,760

listening to

1522

01:02:29,430 --> 01:02:27,839

um my personal pick would be something

1523

01:02:30,789 --> 01:02:29,440

from queen

1524

01:02:33,510 --> 01:02:30,799

and i told you i'm gonna steal that

1525

01:02:35,430 --> 01:02:33,520

because we we need to have don't stop me

1526

01:02:37,510 --> 01:02:35,440

now going right here that is the perfect

1527

01:02:39,589 --> 01:02:37,520

going to space song mine would

1528

01:02:41,589 --> 01:02:39,599

definitely be something by daft punk you

1529

01:02:45,029 --> 01:02:41,599

know with the spacesuits looking like

1530

01:02:47,029 --> 01:02:45,039

futuristic robot aliens yeah i i just

1531

01:02:49,990 --> 01:02:47,039

have to go with daft punk for sure

1532

01:02:51,829 --> 01:02:50,000

and was as we're watching the crew um

1533

01:02:54,630 --> 01:02:51,839

this is from our we're calling it our

1534

01:02:56,950 --> 01:02:54,640

chase car it the road is shut down in

1535

01:02:58,950 --> 01:02:56,960

either direction uh for the convoy so we

1536

01:03:02,230 --> 01:02:58,960

are on the opposite side of the road uh

1537

01:03:04,230 --> 01:03:02,240

with a camera literally uh so you can be

1538

01:03:06,549 --> 01:03:04,240

along with the crew every step of the

1539

01:03:08,150 --> 01:03:06,559

way um tahira i know we had to cut

1540

01:03:10,549 --> 01:03:08,160

things short earlier but i imagine

1541

01:03:12,549 --> 01:03:10,559

there's been a lot of reaction to the

1542

01:03:14,309 --> 01:03:12,559

things folks are seeing and i'm sure

1543

01:03:15,510 --> 01:03:14,319

you've got some thoughts on a playlist

1544

01:03:17,589 --> 01:03:15,520

as well

1545

01:03:19,349 --> 01:03:17,599

yeah oh my goodness so i mean the top

1546

01:03:21,270 --> 01:03:19,359

cinnamon and so we're seeing online just

1547

01:03:23,670 --> 01:03:21,280

a lot of patriotism

1548

01:03:25,670 --> 01:03:23,680

and well wishes for the crew and that

1549

01:03:27,829 --> 01:03:25,680

white that ride out playlist question is

1550

01:03:29,270 --> 01:03:27,839

so fun i think if i'm awesome enough to

1551

01:03:30,950 --> 01:03:29,280

be an astronaut i would definitely be

1552

01:03:32,549 --> 01:03:30,960

playing feeling myself

1553

01:03:35,190 --> 01:03:32,559

but i think that's something that we

1554

01:03:37,270 --> 01:03:35,200

should even pose to the public so for

1555

01:03:38,870 --> 01:03:37,280

those of you watching right now head on

1556

01:03:41,190 --> 01:03:38,880

over to nasa's twitter and we're going

1557

01:03:42,950 --> 01:03:41,200

to get a question out to know to ask

1558

01:03:44,710 --> 01:03:42,960

what's one song you would absolutely

1559

01:03:46,150 --> 01:03:44,720

have to have on your ride out playlist

1560

01:03:48,230 --> 01:03:46,160

the launch pad

1561

01:03:50,710 --> 01:03:48,240

ladies i'm very excited to see what

1562

01:03:52,870 --> 01:03:50,720

comes in so i'll keep you updated so

1563

01:03:55,910 --> 01:03:52,880

just real quick on that note um i just

1564

01:03:57,910 --> 01:03:55,920

got notification of the playlist

1565

01:03:59,750 --> 01:03:57,920

okay we're all dying to know what are

1566

01:04:01,430 --> 01:03:59,760

they listening to right now

1567

01:04:03,829 --> 01:04:01,440

so like we mentioned before they are in

1568

01:04:06,870 --> 01:04:03,839

two different vehicles um

1569

01:04:09,589 --> 01:04:06,880

they're on one playlist we have songs

1570

01:04:12,309 --> 01:04:09,599

like alicia keys how it feels to fly

1571

01:04:14,870 --> 01:04:12,319

phil collins in the air tonight eminem

1572

01:04:17,430 --> 01:04:14,880

till i collapse van halen right now so

1573

01:04:19,670 --> 01:04:17,440

like a pretty pretty big man my favorite

1574

01:04:22,309 --> 01:04:19,680

yes and then in the other vehicle fly

1575

01:04:26,950 --> 01:04:22,319

away by lenny kravitz jump also by van

1576

01:04:30,069 --> 01:04:26,960

halen uptown funk from bruno mars

1577

01:04:33,190 --> 01:04:31,829

those are all really good ones i i feel

1578

01:04:36,309 --> 01:04:33,200

like folks are gonna i don't know can we

1579

01:04:48,789 --> 01:04:36,319

make those the choices to hear

1580

01:04:52,230 --> 01:04:50,789

so nicole um

1581

01:04:53,829 --> 01:04:52,240

obviously they're they're in a pair of

1582

01:04:55,510 --> 01:04:53,839

teslas uh this is a little different

1583

01:04:58,230 --> 01:04:55,520

than your ride out experience can you

1584

01:04:59,750 --> 01:04:58,240

kind of compare contrast for us

1585

01:05:01,349 --> 01:04:59,760

well we you know we rode out in

1586

01:05:02,789 --> 01:05:01,359

something called the astrovan which i

1587

01:05:04,950 --> 01:05:02,799

thought was really cool too you know the

1588

01:05:06,710 --> 01:05:04,960

silver sleek um

1589

01:05:07,430 --> 01:05:06,720

vehicle that was heading out to the pad

1590

01:05:08,470 --> 01:05:07,440

but

1591

01:05:10,309 --> 01:05:08,480

i don't know there's something about

1592

01:05:12,549 --> 01:05:10,319

this ride you're you know you're again

1593

01:05:14,630 --> 01:05:12,559

it's the word surreal comes to mind a

1594

01:05:16,549 --> 01:05:14,640

lot you know you you're thinking like

1595

01:05:19,750 --> 01:05:16,559

i'm in a vehicle that's driving to a

1596

01:05:21,510 --> 01:05:19,760

launch pad to take me to space and you

1597

01:05:23,990 --> 01:05:21,520

it's difficult to believe that that that

1598

01:05:25,990 --> 01:05:24,000

could be happening so i wonder how did

1599

01:05:27,910 --> 01:05:26,000

it feel any different the first time

1600

01:05:29,670 --> 01:05:27,920

versus the second time because victor is

1601

01:05:31,430 --> 01:05:29,680

the first timer here and the others it's

1602

01:05:33,910 --> 01:05:31,440

their second or even third and there

1603

01:05:35,910 --> 01:05:33,920

goes the hilo um that's leading the way

1604

01:05:38,309 --> 01:05:35,920

so that's our cue that the the convoy is

1605

01:05:39,829 --> 01:05:38,319

going to be passing by us uh pretty

1606

01:05:41,990 --> 01:05:39,839

shortly looks like they're turning right

1607

01:05:44,710 --> 01:05:42,000

now on nasa causeway yep

1608

01:05:46,549 --> 01:05:44,720

yeah it's you know um i think just like

1609

01:05:48,309 --> 01:05:46,559

launch on your second time you think oh

1610

01:05:49,750 --> 01:05:48,319

been there done that it's you're gonna

1611

01:05:53,029 --> 01:05:49,760

but i'll tell you what the the

1612

01:05:55,829 --> 01:05:53,039

adrenaline the the feeling is is equally

1613

01:05:57,190 --> 01:05:55,839

as excited on the second time too

1614

01:05:58,870 --> 01:05:57,200

okay i know you're you're all watching

1615

01:06:01,109 --> 01:05:58,880

the convoy and so are we we're turning

1616

01:06:02,630 --> 01:06:01,119

around in our chairs because

1617

01:06:03,990 --> 01:06:02,640

it looks like

1618

01:06:05,750 --> 01:06:04,000

is that the first car that's probably

1619

01:06:07,750 --> 01:06:05,760

the lead vehicle i think we i think we

1620

01:06:09,270 --> 01:06:07,760

see the lead uh car going by so we're

1621

01:06:14,950 --> 01:06:09,280

all turned around in our seat so we can

1622

01:06:18,069 --> 01:06:17,109

so something that's really cool um well

1623

01:06:19,589 --> 01:06:18,079

i think yeah we can see in the

1624

01:06:22,309 --> 01:06:19,599

background there they're passing the

1625

01:06:24,470 --> 01:06:22,319

vehicle assembly building or the vab

1626
01:06:26,950 --> 01:06:24,480
you know a very famous building here at

1627
01:06:28,870 --> 01:06:26,960
nasa and i just think it's so cool that

1628
01:06:29,750 --> 01:06:28,880
they're literally driving down the road

1629
01:06:32,470 --> 01:06:29,760
where

1630
01:06:33,990 --> 01:06:32,480
the shuttle and the saturns used to come

1631
01:06:36,069 --> 01:06:34,000
down on the crawler down there on

1632
01:06:44,470 --> 01:06:36,079
crawler causeway and there we see them

1633
01:06:49,430 --> 01:06:47,349
so awesome

1634
01:06:51,510 --> 01:06:49,440
all right so as we're getting an awesome

1635
01:06:53,349 --> 01:06:51,520
look right behind us of the uh the crew

1636
01:06:55,670 --> 01:06:53,359
passing by the press site here at

1637
01:06:58,710 --> 01:06:55,680
kennedy space center among those of you

1638
01:07:01,029 --> 01:06:58,720

following along on nasa tv and online

1639

01:07:03,190 --> 01:07:01,039

are a very special group of folks

1640

01:07:05,520 --> 01:07:03,200

some who the crew might even recognize

1641

01:07:07,750 --> 01:07:05,530

take a look

1642

01:07:09,750 --> 01:07:07,760

[Music]

1643

01:07:11,750 --> 01:07:09,760

hello we are aerospace engineers from

1644

01:07:13,589 --> 01:07:11,760

the university of illinois mike hopkins

1645

01:07:15,190 --> 01:07:13,599

alma mater the university of illinois

1646

01:07:16,710 --> 01:07:15,200

family would like to wish mike the very

1647

01:07:18,230 --> 01:07:16,720

best on his launch and mission to the

1648

01:07:22,130 --> 01:07:18,240

international space station you're a

1649

01:07:26,470 --> 01:07:22,140

huge inspiration to all of us ill

1650

01:07:28,549 --> 01:07:26,480

[Music]

1651

01:07:30,789 --> 01:07:28,559

what's up everyone my name is aman aspal

1652

01:07:33,589 --> 01:07:30,799

from cal poly san luis obispo victor

1653

01:07:35,349 --> 01:07:33,599

glover's alma mater i and my fellow

1654

01:07:37,910 --> 01:07:35,359

students from cal poly want to wish

1655

01:07:39,190 --> 01:07:37,920

victor and all of crew one a safe launch

1656

01:07:41,029 --> 01:07:39,200

and wonderful mission to the

1657

01:07:42,630 --> 01:07:41,039

international space station you're an

1658

01:07:48,230 --> 01:07:42,640

inspiration to us all and thank you for

1659

01:07:52,630 --> 01:07:50,950

hi i'm ryan udell from rice university

1660

01:07:54,870 --> 01:07:52,640

students for the exploration and

1661

01:07:57,270 --> 01:07:54,880

development of space and i am fanny

1662

01:07:58,870 --> 01:07:57,280

pandial with rice's society of women at

1663

01:08:01,430 --> 01:07:58,880

space exploration

1664

01:08:03,510 --> 01:08:01,440

all rice owls with shannon walker and

1665

01:08:05,109 --> 01:08:03,520

her crewmates a safe launch and a

1666

01:08:08,880 --> 01:08:05,119

successful mission to the international

1667

01:08:14,309 --> 01:08:11,829

[Music]

1668

01:08:16,149 --> 01:08:14,319

hi this is viki matsubara from the

1669

01:08:19,110 --> 01:08:16,159

university of tokyo school of

1670

01:08:21,829 --> 01:08:19,120

engineering so ichi you are a huge

1671

01:08:24,070 --> 01:08:21,839

inspiration to us all we are wishing you

1672

01:08:28,650 --> 01:08:24,080

and your crewmates safely and can't wait

1673

01:08:35,429 --> 01:08:33,349

[Music]

1674

01:08:51,510 --> 01:08:35,439

hey guys

1675

01:08:53,349 --> 01:08:51,520

[Music]

1676

01:08:55,030 --> 01:08:53,359

hi this is rob blevins at the discovery

1677

01:08:57,590 --> 01:08:55,040

center in springfield missouri we want

1678

01:08:59,510 --> 01:08:57,600

to thank mike shannon victor and suici

1679

01:09:01,910 --> 01:08:59,520

for helping inspire the next generation

1680

01:09:03,910 --> 01:09:01,920

of scientists and astronauts to go make

1681

01:09:07,160 --> 01:09:03,920

history like you're going to do today go

1682

01:09:13,189 --> 01:09:07,170

nasa go spacex go make history

1683

01:09:15,749 --> 01:09:13,199

[Music]

1684

01:09:17,749 --> 01:09:15,759

hi everybody i'm nasa astronaut drew

1685

01:09:22,070 --> 01:09:17,759

feustel and i'm here with my fellow

1686

01:09:24,149 --> 01:09:22,080

astronauts to wish crew one a successful

1687

01:09:26,950 --> 01:09:24,159

and exciting ride to the international

1688

01:09:28,789 --> 01:09:26,960

space station on the spacex dragon we're

1689

01:09:31,269 --> 01:09:28,799

excited to see you launch in space

1690

01:09:33,990 --> 01:09:31,279

congratulations to mike hopkins victor

1691

01:09:35,829 --> 01:09:34,000

glover shannon walker and naguchi on

1692

01:09:37,269 --> 01:09:35,839

this historic flight we can't wait to

1693

01:09:40,769 --> 01:09:37,279

see his face

1694

01:09:45,030 --> 01:09:40,779

go crew one yeah

1695

01:09:49,510 --> 01:09:47,110

all right the crew is continuing to make

1696

01:09:52,789 --> 01:09:49,520

their way to launch pad 39a we're at

1697

01:09:54,630 --> 01:09:52,799

t-minus three hours and three minutes so

1698

01:09:56,790 --> 01:09:54,640

in about eight minutes or so we should

1699

01:09:59,350 --> 01:09:56,800

hear the announcement uh of the crew

1700

01:10:00,950 --> 01:09:59,360

arriving at the pad i loved hearing

1701

01:10:02,550 --> 01:10:00,960

those shout outs from those folks i

1702

01:10:04,950 --> 01:10:02,560

think that little girl was my favorite

1703

01:10:06,790 --> 01:10:04,960

but nicole i know um the first time you

1704

01:10:08,870 --> 01:10:06,800

saw that video you got to see a lot of

1705

01:10:11,430 --> 01:10:08,880

familiar faces from the astronaut core

1706

01:10:12,870 --> 01:10:11,440

yeah it's fun you know um like the other

1707

01:10:14,630 --> 01:10:12,880

words i'll use a lot today are living

1708

01:10:16,229 --> 01:10:14,640

vicariously i can tell you every single

1709

01:10:17,590 --> 01:10:16,239

one of the people in that picture were

1710

01:10:18,790 --> 01:10:17,600

it's uh

1711

01:10:20,870 --> 01:10:18,800

pretty cool

1712

01:10:23,110 --> 01:10:20,880

and now with the eyes of so many uh

1713

01:10:25,350 --> 01:10:23,120

around the world watching the crew is

1714

01:10:28,390 --> 01:10:25,360

nearing their next milestone at this

1715

01:10:31,990 --> 01:10:28,400

point the convoy is approaching pad 39a

1716

01:10:34,870 --> 01:10:32,000

and entering what is known as the bda or

1717

01:10:37,350 --> 01:10:34,880

blast danger area before any pad

1718

01:10:40,149 --> 01:10:37,360

technicians engineers or astronauts

1719

01:10:42,630 --> 01:10:40,159

enter this area around the launch pad

1720

01:10:45,030 --> 01:10:42,640

the spacex and nasa teams have to do

1721

01:10:46,790 --> 01:10:45,040

internal go no-go poles to make sure

1722

01:10:47,830 --> 01:10:46,800

everything is clear and it's safe to

1723

01:10:49,669 --> 01:10:47,840

approach

1724

01:10:50,470 --> 01:10:49,679

this view that we have now i just love

1725

01:10:53,750 --> 01:10:50,480

it

1726

01:10:55,189 --> 01:10:53,760

this pad is this is the pad where humans

1727

01:10:57,270 --> 01:10:55,199

went to the moon

1728

01:11:00,310 --> 01:10:57,280

this is pad 39a

1729

01:11:03,270 --> 01:11:00,320

and originally built in the 1960s to

1730

01:11:05,669 --> 01:11:03,280

support the saturn 5 for the apollo

1731

01:11:07,350 --> 01:11:05,679

program it was then upgraded to support

1732

01:11:10,470 --> 01:11:07,360

the shuttle program

1733

01:11:12,790 --> 01:11:10,480

spacex signed the lease for it in 2014

1734

01:11:14,310 --> 01:11:12,800

made some upgrades ourselves might look

1735

01:11:16,470 --> 01:11:14,320

a little different we did remove the

1736

01:11:19,990 --> 01:11:16,480

rotating service structure

1737

01:11:21,990 --> 01:11:20,000

but the the heart the bones of the fixed

1738

01:11:23,510 --> 01:11:22,000

service structure from the shuttle days

1739

01:11:25,910 --> 01:11:23,520

is still there we made some

1740

01:11:28,229 --> 01:11:25,920

modifications and safety improvements

1741

01:11:31,110 --> 01:11:28,239

you know the salty air here can be quite

1742

01:11:33,430 --> 01:11:31,120

corrosive but um as you know something

1743

01:11:35,270 --> 01:11:33,440

that is also a little different um the

1744

01:11:37,430 --> 01:11:35,280

hanger that is built there allows us to

1745

01:11:39,990 --> 01:11:37,440

do the integration much closer to the

1746

01:11:41,990 --> 01:11:40,000

pad itself than in the shuttle and

1747

01:11:44,630 --> 01:11:42,000

apollo excuse me the shuttle

1748

01:11:46,310 --> 01:11:44,640

and uh yeah the saturn five apollo days

1749

01:11:48,229 --> 01:11:46,320

so um it's really neat to see them

1750

01:11:51,030 --> 01:11:48,239

they're approaching now driving up onto

1751

01:11:53,189 --> 01:11:51,040

the pad and i just i just love thinking

1752

01:11:55,110 --> 01:11:53,199

about everything that has happened here

1753

01:11:57,350 --> 01:11:55,120

and appreciate that we have the

1754

01:12:00,550 --> 01:11:57,360

opportunity to continue human space

1755

01:12:02,630 --> 01:12:00,560

flight from such a historic location

1756

01:12:05,189 --> 01:12:02,640

yeah it really strikes me that the last

1757

01:12:07,189 --> 01:12:05,199

time we saw this happening was you know

1758

01:12:08,390 --> 01:12:07,199

back in the spring with bob benkin and

1759

01:12:10,870 --> 01:12:08,400

doug hurley

1760

01:12:12,870 --> 01:12:10,880

uh making this approach onto the pad and

1761

01:12:15,350 --> 01:12:12,880

we saw them kind of lean back after they

1762

01:12:17,590 --> 01:12:15,360

got out of the cars looking up uh to try

1763

01:12:19,350 --> 01:12:17,600

to just take in the the height and the

1764

01:12:21,189 --> 01:12:19,360

grandeur of the pad knowing that they

1765

01:12:22,390 --> 01:12:21,199

were about to get on a rocket that was

1766

01:12:23,350 --> 01:12:22,400

going to come to life

1767

01:12:26,310 --> 01:12:23,360

and now

1768

01:12:29,110 --> 01:12:26,320

now we have a full crew of four

1769

01:12:31,590 --> 01:12:29,120

and it's just spectacular to know uh

1770

01:12:33,270 --> 01:12:31,600

what is just around the corner for them

1771

01:12:35,430 --> 01:12:33,280

from their standpoint standing out there

1772

01:12:36,630 --> 01:12:35,440

on the pad they have to look up about 70

1773

01:12:38,310 --> 01:12:36,640

meters

1774

01:12:39,830 --> 01:12:38,320

considering everything that's holding

1775

01:12:41,590 --> 01:12:39,840

the rocket up in

1776

01:12:43,189 --> 01:12:41,600

i think that's part of the awe of it

1777

01:12:44,790 --> 01:12:43,199

though too is that you have to i mean

1778

01:12:46,149 --> 01:12:44,800

you really have to kind of bend back

1779

01:12:47,910 --> 01:12:46,159

it's not easy to bend back in those

1780

01:12:49,510 --> 01:12:47,920

suits up like that

1781

01:12:52,070 --> 01:12:49,520

but you want to you want wanna take it

1782

01:12:53,990 --> 01:12:52,080

in a little bit um i know i heard suici

1783

01:12:56,070 --> 01:12:54,000

earlier echo this sentiment that you get

1784

01:12:58,070 --> 01:12:56,080

out to the pad on launch day and it i

1785

01:13:00,550 --> 01:12:58,080

mean it's absolutely like the vehicle is

1786

01:13:02,630 --> 01:13:00,560

already alive even before you

1787

01:13:03,669 --> 01:13:02,640

um take off it's huffing and puffing a

1788

01:13:05,590 --> 01:13:03,679

little bit you know a little bit of

1789

01:13:08,390 --> 01:13:05,600

smoke or you know steam coming out of

1790

01:13:10,070 --> 01:13:08,400

there and it like it's ready to go

1791

01:13:11,270 --> 01:13:10,080

as well and

1792

01:13:12,870 --> 01:13:11,280

i know i love what you're talking about

1793

01:13:14,470 --> 01:13:12,880

too kate with the transformation of the

1794

01:13:15,669 --> 01:13:14,480

pad you know

1795

01:13:17,430 --> 01:13:15,679

i think

1796

01:13:21,430 --> 01:13:17,440

i was very fortunate to fly both times

1797

01:13:22,630 --> 01:13:21,440

out of 39a on discovery and

1798

01:13:24,870 --> 01:13:22,640

i don't know on the one side you want

1799

01:13:26,709 --> 01:13:24,880

the pad just to stay the way it was you

1800

01:13:29,110 --> 01:13:26,719

know when you went but you know

1801

01:13:31,030 --> 01:13:29,120

absolutely that as it's changing that

1802

01:13:33,590 --> 01:13:31,040

new opportunities are opening up it's

1803

01:13:35,510 --> 01:13:33,600

it's allowing us to to get back to space

1804

01:13:37,430 --> 01:13:35,520

on a new vehicle and

1805

01:13:38,950 --> 01:13:37,440

you know look to the future of space

1806

01:13:40,470 --> 01:13:38,960

exploration yeah i mean the pad has to

1807

01:13:42,550 --> 01:13:40,480

change just like everything else does

1808

01:13:43,430 --> 01:13:42,560

absolutely and the shuttle program was

1809

01:13:45,750 --> 01:13:43,440

the

1810

01:13:47,910 --> 01:13:45,760

space flight program of my childhood and

1811

01:13:49,990 --> 01:13:47,920

there's absolutely nostalgia associated

1812

01:13:51,430 --> 01:13:50,000

with that service structure and

1813

01:13:53,669 --> 01:13:51,440

um but you know to see the

1814

01:13:55,350 --> 01:13:53,679

transformation transformation take place

1815

01:13:57,510 --> 01:13:55,360

and to see all of the upgrades that have

1816

01:13:59,270 --> 01:13:57,520

been incorporated not only to allow

1817

01:14:00,470 --> 01:13:59,280

falcon 9 to fly from here but also

1818

01:14:02,070 --> 01:14:00,480

falcon heavy

1819

01:14:04,390 --> 01:14:02,080

um is just

1820

01:14:05,350 --> 01:14:04,400

it's really mind-blowing in in many ways

1821

01:14:07,430 --> 01:14:05,360

yeah

1822

01:14:09,110 --> 01:14:07,440

and for folks um that may be wondering

1823

01:14:10,870 --> 01:14:09,120

we're the reason why we don't see the

1824

01:14:12,310 --> 01:14:10,880

crew right now we saw them pull up to

1825

01:14:15,350 --> 01:14:12,320

the base of the pad

1826

01:14:17,910 --> 01:14:15,360

they have an opportunity for a bio break

1827

01:14:19,430 --> 01:14:17,920

before they get into the elevator uh

1828

01:14:20,950 --> 01:14:19,440

that's you know

1829

01:14:22,950 --> 01:14:20,960

something you can't overlook important

1830

01:14:24,550 --> 01:14:22,960

stop you have to make so we're giving

1831

01:14:25,430 --> 01:14:24,560

them a chance to do that and then we

1832

01:14:27,669 --> 01:14:25,440

will

1833

01:14:29,910 --> 01:14:27,679

probably hear the official call out that

1834

01:14:31,189 --> 01:14:29,920

the crew has arrived at the pad at

1835

01:14:33,669 --> 01:14:31,199

t-minus

1836

01:14:35,189 --> 01:14:33,679

255 so that's coming up in about three

1837

01:14:37,189 --> 01:14:35,199

minutes or so

1838

01:14:39,510 --> 01:14:37,199

and one other thing kate for folks that

1839

01:14:42,470 --> 01:14:39,520

maybe aren't familiar with

1840

01:14:44,630 --> 01:14:42,480

the operational timeline for falcon 9.

1841

01:14:46,550 --> 01:14:44,640

there's no fuel in the rocket yet right

1842

01:14:47,910 --> 01:14:46,560

that process hasn't started yet for crew

1843

01:14:49,590 --> 01:14:47,920

dragon it's a little bit different but

1844

01:14:51,350 --> 01:14:49,600

can you explain that process for folks

1845

01:14:53,990 --> 01:14:51,360

who might not be familiar with it yeah

1846

01:14:55,110 --> 01:14:54,000

absolutely um so in order to make sure

1847

01:14:57,350 --> 01:14:55,120

that the

1848

01:14:59,669 --> 01:14:57,360

nine merlin engines have the best

1849

01:15:02,229 --> 01:14:59,679

performance possible we wait as long as

1850

01:15:04,470 --> 01:15:02,239

we can to begin more on compound one for

1851

01:15:06,950 --> 01:15:04,480

timeline all personnel have arrived at

1852

01:15:08,630 --> 01:15:06,960

the pad on schedule

1853

01:15:11,270 --> 01:15:08,640

all right good call there confirming

1854

01:15:12,630 --> 01:15:11,280

that we are on schedule

1855

01:15:14,550 --> 01:15:12,640

so as i was saying yeah we want to make

1856

01:15:16,149 --> 01:15:14,560

sure that the nine merlin engines have

1857

01:15:18,790 --> 01:15:16,159

the best performance possible and in

1858

01:15:20,950 --> 01:15:18,800

order to do that we use super densified

1859

01:15:23,030 --> 01:15:20,960

super chilled liquid oxygen so the

1860

01:15:25,030 --> 01:15:23,040

colder you get the liquid oxygen the

1861

01:15:26,709 --> 01:15:25,040

more of those oxygen molecules you can

1862

01:15:28,310 --> 01:15:26,719

pack in

1863

01:15:30,790 --> 01:15:28,320

so we get better performance by having

1864

01:15:32,709 --> 01:15:30,800

more oxidizer and so we basically wait

1865

01:15:34,630 --> 01:15:32,719

uh and you know

1866

01:15:37,189 --> 01:15:34,640

in the in the larger timeline of things

1867

01:15:39,750 --> 01:15:37,199

uh it is it is seems like last minute

1868

01:15:40,950 --> 01:15:39,760

but it's around the uh t minus 35 minute

1869

01:15:43,430 --> 01:15:40,960

mark that we will begin that prop

1870

01:15:47,030 --> 01:15:43,440

loading uh on first and second stages

1871

01:15:50,709 --> 01:15:47,040

with liquid oxygen and rp1 which is our

1872

01:15:54,950 --> 01:15:52,390

and crew dragon though

1873

01:15:57,830 --> 01:15:54,960

has already been fueled oh yeah i'm

1874

01:16:00,630 --> 01:15:57,840

sorry yeah the capsule itself yes so um

1875

01:16:02,709 --> 01:16:00,640

the dragon capsule use hypergolic fuels

1876

01:16:04,470 --> 01:16:02,719

um that are

1877

01:16:06,470 --> 01:16:04,480

instantaneously combustible so that's

1878

01:16:08,070 --> 01:16:06,480

why they're great for spacecraft because

1879

01:16:10,149 --> 01:16:08,080

you don't need an ignition source you

1880

01:16:12,550 --> 01:16:10,159

just put them to the two together that

1881

01:16:13,910 --> 01:16:12,560

per excuse me the fuel and the oxidizer

1882

01:16:16,229 --> 01:16:13,920

and they combust

1883

01:16:18,790 --> 01:16:16,239

so yeah those hypergolic fuels were

1884

01:16:19,990 --> 01:16:18,800

loaded onto the capsule uh earlier in

1885

01:16:22,229 --> 01:16:20,000

the week actually might have been last

1886

01:16:23,110 --> 01:16:22,239

week i'm losing track of the days at

1887

01:16:25,590 --> 01:16:23,120

this point

1888

01:16:28,229 --> 01:16:25,600

but yeah that is all done prior to

1889

01:16:30,070 --> 01:16:28,239

uh prior to integration um that's all

1890

01:16:32,550 --> 01:16:30,080

done in an area called dragon land down

1891

01:16:35,910 --> 01:16:32,560

the street um and then yeah so the

1892

01:16:37,750 --> 01:16:35,920

capsule then gets integrated to

1893

01:16:40,149 --> 01:16:37,760

gets integrated onto the trunk and then

1894

01:16:41,270 --> 01:16:40,159

we transport that here to 39a and then

1895

01:16:43,910 --> 01:16:41,280

we then

1896

01:16:47,750 --> 01:16:43,920

integrate the trunk and capsule on on

1897

01:16:51,110 --> 01:16:49,270

and we had a

1898

01:16:55,270 --> 01:16:51,120

what what is called a dry dress

1899

01:16:56,790 --> 01:16:55,280

rehearsal of this entire process um

1900

01:16:58,310 --> 01:16:56,800

without fueling the rocket that's why

1901

01:17:01,270 --> 01:16:58,320

it's called dry dress because there's no

1902

01:17:03,189 --> 01:17:01,280

fuel involved but that happened on

1903

01:17:05,830 --> 01:17:03,199

thursday so i'm trying to i'm mixing up

1904

01:17:07,669 --> 01:17:05,840

my days like uk today's sunday right

1905

01:17:09,510 --> 01:17:07,679

yeah so thursday there was a dry dress

1906

01:17:13,669 --> 01:17:09,520

rehearsal where they went through this

1907

01:17:16,870 --> 01:17:14,870

sorry sounds like we were starting to

1908

01:17:23,990 --> 01:17:16,880

hear a call so i don't want to step on

1909

01:17:30,390 --> 01:17:27,350

okay so uh to recap we had a dry dress

1910

01:17:32,630 --> 01:17:30,400

rehearsal on thursday where the teams

1911

01:17:34,709 --> 01:17:32,640

went through the entire process starting

1912

01:17:36,310 --> 01:17:34,719

in the suit up room of suit out suit up

1913

01:17:38,550 --> 01:17:36,320

right up to the pad

1914

01:17:40,470 --> 01:17:38,560

they ingressed dragon

1915

01:17:41,750 --> 01:17:40,480

closed the hatch and then they simulated

1916

01:17:43,830 --> 01:17:41,760

a scrub

1917

01:17:46,229 --> 01:17:43,840

an hour or so before the simulated

1918

01:17:47,990 --> 01:17:46,239

launch time so um that is the last

1919

01:17:50,149 --> 01:17:48,000

opportunity i think nicole during the

1920

01:17:51,830 --> 01:17:50,159

shuttle days they called it the the tcd

1921

01:17:53,189 --> 01:17:51,840

t yep and i can't remember what that

1922

01:17:55,270 --> 01:17:53,199

stands for

1923

01:17:58,229 --> 01:17:55,280

terminal countdown test yeah there you

1924

01:18:00,229 --> 01:17:58,239

go dry run

1925

01:18:02,550 --> 01:18:00,239

how important is that uh final

1926

01:18:03,590 --> 01:18:02,560

opportunity to do that before the real

1927

01:18:05,189 --> 01:18:03,600

thing

1928

01:18:07,430 --> 01:18:05,199

um i think it's i think it's really

1929

01:18:09,830 --> 01:18:07,440

important and over time we found it was

1930

01:18:11,990 --> 01:18:09,840

so that we are continuing it now right

1931

01:18:14,070 --> 01:18:12,000

um there's something about having the

1932

01:18:17,270 --> 01:18:14,080

team in that

1933

01:18:20,229 --> 01:18:17,280

i mean really in that launch mode um

1934

01:18:22,790 --> 01:18:20,239

real vehicle at the pad you know shortly

1935

01:18:23,990 --> 01:18:22,800

before um the actual time is going to

1936

01:18:25,350 --> 01:18:24,000

come to

1937

01:18:27,110 --> 01:18:25,360

you know to run through these things and

1938

01:18:29,270 --> 01:18:27,120

to give the crew an opportunity like you

1939

01:18:30,630 --> 01:18:29,280

said at about an hour or before to run

1940

01:18:31,990 --> 01:18:30,640

through what it would be like if they

1941

01:18:33,270 --> 01:18:32,000

needed to scrub

1942

01:18:34,950 --> 01:18:33,280

and you know kind of that final

1943

01:18:36,550 --> 01:18:34,960

countdown and get you know to their

1944

01:18:39,430 --> 01:18:36,560

escape baskets or down to the base of

1945

01:18:41,189 --> 01:18:39,440

the pad and um out of harm's way so just

1946

01:18:44,310 --> 01:18:41,199

get your head kind of in the right place

1947

01:18:46,470 --> 01:18:44,320

yep yep and we we actually had a scrub

1948

01:18:48,950 --> 01:18:46,480

um with bob benkin and doug hurley the

1949

01:18:51,030 --> 01:18:48,960

first launch attempt for demo two was

1950

01:18:53,990 --> 01:18:51,040

may 27th when they we ended up not going

1951

01:18:56,390 --> 01:18:54,000

until may 30th but that first day scrub

1952

01:18:59,270 --> 01:18:56,400

happened at all the way down to it was

1953

01:19:01,750 --> 01:18:59,280

like t minus 17 minutes and so

1954

01:19:03,590 --> 01:19:01,760

falcon 9 was still you know was well

1955

01:19:06,310 --> 01:19:03,600

into the fueling process and the crew

1956

01:19:07,990 --> 01:19:06,320

can't egress from the capsule until they

1957

01:19:09,830 --> 01:19:08,000

the vehicle is offloaded right right

1958

01:19:11,750 --> 01:19:09,840

we've got to offload all that fuel so

1959

01:19:15,110 --> 01:19:11,760

hopefully we won't uh be in a situation

1960

01:19:16,550 --> 01:19:15,120

like that today 50 50. uh we'll see

1961

01:19:18,950 --> 01:19:16,560

but uh

1962

01:19:21,350 --> 01:19:18,960

here they are the astronauts have begun

1963

01:19:23,030 --> 01:19:21,360

to emerge uh from their bio break and

1964

01:19:25,270 --> 01:19:23,040

i'm trying i'm not sure which pair this

1965

01:19:26,790 --> 01:19:25,280

is i i think that might be victor and

1966

01:19:28,630 --> 01:19:26,800

suici

1967

01:19:30,550 --> 01:19:28,640

you have better eyes than i do okay i

1968

01:19:32,070 --> 01:19:30,560

think that might be shannon yeah i think

1969

01:19:33,590 --> 01:19:32,080

that's shannon i'm sorry shannon yeah

1970

01:19:36,229 --> 01:19:33,600

okay victor and shannon so they're

1971

01:19:40,229 --> 01:19:36,239

getting inside the elevator oh this is

1972

01:19:41,750 --> 01:19:40,239

the same elevator nicole's awesome it is

1973

01:19:44,229 --> 01:19:41,760

so i mentioned before that we have

1974

01:19:45,030 --> 01:19:44,239

something called the advanced team and i

1975

01:19:46,310 --> 01:19:45,040

just

1976

01:19:47,669 --> 01:19:46,320

when i learned about this okay that's

1977

01:19:49,590 --> 01:19:47,679

mike and shannon

1978

01:19:51,669 --> 01:19:49,600

um when i learned about the advanced

1979

01:19:53,030 --> 01:19:51,679

team they they are responsible for like

1980

01:19:55,910 --> 01:19:53,040

i said before making sure the hatch is

1981

01:19:57,750 --> 01:19:55,920

open the cabin has uh communications and

1982

01:19:59,110 --> 01:19:57,760

lights they're also responsible for

1983

01:20:01,830 --> 01:19:59,120

making sure that someone has the

1984

01:20:04,550 --> 01:20:01,840

elevator keys yeah

1985

01:20:06,950 --> 01:20:04,560

you can't just get in there you know the

1986

01:20:09,270 --> 01:20:06,960

devil's in the details for sure

1987

01:20:13,189 --> 01:20:09,280

now when the astronauts ascend here um

1988

01:20:15,110 --> 01:20:13,199

just as in the the olden days the levels

1989

01:20:17,030 --> 01:20:15,120

of the tower are not marked one two

1990

01:20:19,830 --> 01:20:17,040

three four and so on they are marked by

1991

01:20:23,189 --> 01:20:19,840

foot height so they press the 255 foot

1992

01:20:25,430 --> 01:20:23,199

button and ride to the top

1993

01:20:27,350 --> 01:20:25,440

okay and here's our first look at that

1994

01:20:28,790 --> 01:20:27,360

level uh where they come out of the

1995

01:20:30,870 --> 01:20:28,800

elevator now they're going to make their

1996

01:20:32,950 --> 01:20:30,880

way around because they have a handful

1997

01:20:34,550 --> 01:20:32,960

of stairs to climb uh to get up to the

1998

01:20:37,030 --> 01:20:34,560

level where

1999

01:20:39,030 --> 01:20:37,040

the crew access arm is that's that long

2000

01:20:40,229 --> 01:20:39,040

suspended walkway so here they go up the

2001

01:20:42,470 --> 01:20:40,239

steps

2002

01:20:43,990 --> 01:20:42,480

gotta work for it yeah right well

2003

01:20:47,430 --> 01:20:44,000

they've made it this far what's a couple

2004

01:20:47,440 --> 01:20:52,790

oh look how beautiful

2005

01:20:56,310 --> 01:20:54,629

it's been a long time since i've had the

2006

01:20:58,629 --> 01:20:56,320

the privilege of being up there and

2007

01:21:05,669 --> 01:20:58,639

seeing that view up in person but it is

2008

01:21:09,430 --> 01:21:07,350

okay so here's a view

2009

01:21:10,229 --> 01:21:09,440

you can see the nasa worm and on the far

2010

01:21:12,790 --> 01:21:10,239

end

2011

01:21:14,310 --> 01:21:12,800

um that is where the phone is nicole can

2012

01:21:16,310 --> 01:21:14,320

you talk about the significance of the

2013

01:21:18,229 --> 01:21:16,320

phone there yeah and i think they've

2014

01:21:20,870 --> 01:21:18,239

maintained the same original phone like

2015

01:21:23,750 --> 01:21:20,880

a big handset you know like you know and

2016

01:21:26,550 --> 01:21:23,760

um and it was one last opportunity to

2017

01:21:29,510 --> 01:21:26,560

you know call your your family before

2018

01:21:31,510 --> 01:21:29,520

loading up into the vehicle and uh i

2019

01:21:33,350 --> 01:21:31,520

don't know i love that that nasa and now

2020

01:21:35,350 --> 01:21:33,360

nasa and spacex have

2021

01:21:37,669 --> 01:21:35,360

maintained these

2022

01:21:39,110 --> 01:21:37,679

these personal touches to the the humans

2023

01:21:40,790 --> 01:21:39,120

that are part of human space flight i

2024

01:21:44,470 --> 01:21:40,800

think it's really really important that

2025

01:21:50,070 --> 01:21:46,070

and the one other thing that you'll

2026
01:21:51,189 --> 01:21:50,080
notice um are the the white arrows um

2027
01:21:53,669 --> 01:21:51,199
pointing

2028
01:21:55,669 --> 01:21:53,679
towards us uh on on the camera and

2029
01:21:57,590 --> 01:21:55,679
that's not just for design that there's

2030
01:21:59,750 --> 01:21:57,600
a very there's those are very it doesn't

2031
01:22:02,229 --> 01:21:59,760
look cool but um that they're very

2032
01:22:04,950 --> 01:22:02,239
intentional

2033
01:22:06,470 --> 01:22:04,960
okay and so this will be victor and

2034
01:22:10,070 --> 01:22:06,480
suici yeah

2035
01:22:12,709 --> 01:22:10,080
now approaching the pad

2036
01:22:14,790 --> 01:22:12,719
so mike and shannon got a head start

2037
01:22:16,229 --> 01:22:14,800
uh victor and soichi are are making

2038
01:22:18,229 --> 01:22:16,239

their way to the elevator now i wonder

2039

01:22:20,149 --> 01:22:18,239

if they're going to stop and

2040

01:22:22,390 --> 01:22:20,159

oh they got a strain or maybe they've

2041

01:22:26,070 --> 01:22:22,400

already done that to see to get a look

2042

01:22:26,080 --> 01:22:30,550

here they go

2043

01:22:33,590 --> 01:22:32,149

it's kind of like the pre-flight right

2044

01:22:35,510 --> 01:22:33,600

the walk around your vehicle before you

2045

01:22:36,390 --> 01:22:35,520

get in and fly

2046

01:22:39,030 --> 01:22:36,400

yeah

2047

01:22:40,629 --> 01:22:39,040

i feel like um this one carries a little

2048

01:22:43,590 --> 01:22:40,639

more weight

2049

01:22:46,870 --> 01:22:45,030

incredible

2050

01:22:48,310 --> 01:22:46,880

i really want to come up with a name for

2051

01:22:50,950 --> 01:22:48,320

the move that they have to do when they

2052

01:22:53,110 --> 01:22:50,960

turn and bend and look back yeah

2053

01:22:59,590 --> 01:22:53,120

it's the don't fall backwards move yeah

2054

01:23:03,350 --> 01:23:01,350

and you know we're having a lot of fun

2055

01:23:05,669 --> 01:23:03,360

here we know the crew is is having a

2056

01:23:06,870 --> 01:23:05,679

blast there there they are i knew they

2057

01:23:08,390 --> 01:23:06,880

were gonna do it

2058

01:23:09,189 --> 01:23:08,400

um

2059

01:23:11,590 --> 01:23:09,199

but

2060

01:23:14,310 --> 01:23:11,600

you know this is uh

2061

01:23:15,990 --> 01:23:14,320

they must have so much adrenaline uh

2062

01:23:18,709 --> 01:23:16,000

pumping through them because you know

2063

01:23:20,149 --> 01:23:18,719

when you when you are getting on top of

2064

01:23:22,310 --> 01:23:20,159

a rocket

2065

01:23:23,750 --> 01:23:22,320

your life is at stake and that's not

2066

01:23:25,910 --> 01:23:23,760

something that any of the people

2067

01:23:29,030 --> 01:23:25,920

involved in this mission from start to

2068

01:23:31,270 --> 01:23:29,040

finish take for granted or take lightly

2069

01:23:33,270 --> 01:23:31,280

the folks who work on this program take

2070

01:23:35,350 --> 01:23:33,280

that responsibility to heart and like

2071

01:23:36,629 --> 01:23:35,360

you said nicole i mean the when you're

2072

01:23:38,550 --> 01:23:36,639

talking about the relationships with the

2073

01:23:40,470 --> 01:23:38,560

people in the suit up room they have

2074

01:23:42,870 --> 01:23:40,480

those relationships with people across

2075

01:23:45,270 --> 01:23:42,880

the nasa and spacex teams they walk the

2076
01:23:46,870 --> 01:23:45,280
the factory floor in hawthorne and and

2077
01:23:48,470 --> 01:23:46,880
the the people that work this mission

2078
01:23:50,629 --> 01:23:48,480
they know the astronauts and they see

2079
01:23:53,189 --> 01:23:50,639
them as their own family here's a look

2080
01:23:56,149 --> 01:23:53,199
inside the crew access arm

2081
01:23:59,830 --> 01:23:57,669
i love this shot

2082
01:24:02,310 --> 01:23:59,840
you know when this was being designed it

2083
01:24:03,669 --> 01:24:02,320
was definitely a forward thinking design

2084
01:24:05,590 --> 01:24:03,679
that we went with

2085
01:24:08,550 --> 01:24:05,600
we really wanted it to

2086
01:24:10,070 --> 01:24:08,560
encapsulate the experience of the next

2087
01:24:12,070 --> 01:24:10,080
era of spaceflight really wanting to

2088
01:24:14,070 --> 01:24:12,080

make it look futuristic

2089

01:24:17,430 --> 01:24:14,080

as with the suits and the the capsule

2090

01:24:19,669 --> 01:24:17,440

itself very sleek and elegant

2091

01:24:22,149 --> 01:24:19,679

okay so here's victor and suici the last

2092

01:24:24,390 --> 01:24:22,159

shot inside the access arm was mike and

2093

01:24:25,669 --> 01:24:24,400

shannon um so they're standing now

2094

01:24:27,030 --> 01:24:25,679

inside the white room we're going to

2095

01:24:28,709 --> 01:24:27,040

explain a little bit more about that in

2096

01:24:31,030 --> 01:24:28,719

a minute but you can see

2097

01:24:32,070 --> 01:24:31,040

the side hatch of dragon open and that

2098

01:24:34,470 --> 01:24:32,080

is where

2099

01:24:36,870 --> 01:24:34,480

they are going to ingress or climb

2100

01:24:38,870 --> 01:24:36,880

inside in about 13 minutes if things are

2101
01:24:40,790 --> 01:24:38,880
on schedule they're signing the wall

2102
01:24:42,950 --> 01:24:40,800
there um kate can you explain what

2103
01:24:45,110 --> 01:24:42,960
they're doing there with the signatures

2104
01:24:46,950 --> 01:24:45,120
so we just saw mike's

2105
01:24:48,390 --> 01:24:46,960
the crew has arrived at the white room

2106
01:24:50,149 --> 01:24:48,400
on schedule

2107
01:24:51,510 --> 01:24:50,159
all right good core call there just

2108
01:24:53,110 --> 01:24:51,520
notifying everyone that the crew has

2109
01:24:55,510 --> 01:24:53,120
arrived on time

2110
01:24:56,950 --> 01:24:55,520
we now see shannon adding her signature

2111
01:24:58,950 --> 01:24:56,960
to the wall so

2112
01:25:01,590 --> 01:24:58,960
in keeping with tradition we painted

2113
01:25:03,350 --> 01:25:01,600

this room white and

2114

01:25:04,709 --> 01:25:03,360

the advanced team once again i'll talk

2115

01:25:06,550 --> 01:25:04,719

about them um

2116

01:25:07,990 --> 01:25:06,560

part of their responsibility also making

2117

01:25:10,709 --> 01:25:08,000

sure that there's a sharpie on hand so

2118

01:25:12,709 --> 01:25:10,719

that crew members can add their names to

2119

01:25:15,110 --> 01:25:12,719

our signature wall bob and doug did this

2120

01:25:17,030 --> 01:25:15,120

prior to their flight and i love that

2121

01:25:18,870 --> 01:25:17,040

this is really the last thing you do

2122

01:25:21,110 --> 01:25:18,880

before you get in our spaceship i just

2123

01:25:22,709 --> 01:25:21,120

love that there's an opportunity and i

2124

01:25:26,390 --> 01:25:22,719

and i'm really looking forward to seeing

2125

01:25:28,470 --> 01:25:26,400

the list of names grow over time

2126

01:25:31,110 --> 01:25:28,480

it's going to be uh spectacular to see

2127

01:25:32,950 --> 01:25:31,120

well you know if if everything goes

2128

01:25:33,830 --> 01:25:32,960

as planned we'll have the next group of

2129

01:25:35,510 --> 01:25:33,840

four

2130

01:25:39,510 --> 01:25:35,520

signing their names there in the spring

2131

01:25:43,510 --> 01:25:41,189

and on crew two one of your one of your

2132

01:25:46,229 --> 01:25:43,520

crew members will be um you know megan

2133

01:25:48,790 --> 01:25:46,239

macarthur bank and um wife of bob who

2134

01:25:51,270 --> 01:25:48,800

flew dm to you know they are my

2135

01:25:53,669 --> 01:25:51,280

definition of a power couple and i'm

2136

01:25:55,750 --> 01:25:53,679

here for it i i love it i'm really

2137

01:25:56,709 --> 01:25:55,760

excited to see what the seat assignments

2138

01:25:57,910 --> 01:25:56,719

will be

2139

01:26:00,470 --> 01:25:57,920

because it'd be really cool if she was

2140

01:26:02,390 --> 01:26:00,480

sitting in the same position as he was

2141

01:26:09,030 --> 01:26:02,400

inside the capsule for her mission oh

2142

01:26:13,669 --> 01:26:11,750

this is so so exciting for soichi and i

2143

01:26:15,189 --> 01:26:13,679

know he i know he has some extended

2144

01:26:16,709 --> 01:26:15,199

family who couldn't be here in florida

2145

01:26:18,870 --> 01:26:16,719

for the launch but hopefully they're

2146

01:26:20,629 --> 01:26:18,880

getting the opportunity uh to watch from

2147

01:26:22,870 --> 01:26:20,639

japan and i'm trying to think of what

2148

01:26:24,229 --> 01:26:22,880

time it is there now it's early monday

2149

01:26:25,750 --> 01:26:24,239

morning so

2150

01:26:27,830 --> 01:26:25,760

if they set their alarm clocks early

2151

01:26:29,189 --> 01:26:27,840

enough they'll have a chance to uh oh

2152

01:26:30,070 --> 01:26:29,199

i'm sure they are

2153

01:26:31,830 --> 01:26:30,080

yeah

2154

01:26:35,270 --> 01:26:31,840

so i think at this point in time victor

2155

01:26:36,950 --> 01:26:35,280

is making that last family phone call

2156

01:26:38,470 --> 01:26:36,960

and kate we started to talk about the

2157

01:26:39,669 --> 01:26:38,480

arrows and then we

2158

01:26:41,430 --> 01:26:39,679

hi

2159

01:26:43,110 --> 01:26:41,440

i feel like he's

2160

01:26:44,870 --> 01:26:43,120

watching us well you know that's so

2161

01:26:47,350 --> 01:26:44,880

awesome that he's doing that because i i

2162

01:26:50,390 --> 01:26:47,360

think i um we had talked about this once

2163

01:26:52,629 --> 01:26:50,400

before where in the white room before

2164

01:26:54,550 --> 01:26:52,639

because with shuttle we didn't have that

2165

01:26:56,950 --> 01:26:54,560

like last meet and greet kind of thing

2166

01:26:57,990 --> 01:26:56,960

at the onc before getting in the

2167

01:26:59,590 --> 01:26:58,000

vehicles

2168

01:27:01,350 --> 01:26:59,600

we would do we knew the cameras were

2169

01:27:03,350 --> 01:27:01,360

there we knew our families were watching

2170

01:27:05,830 --> 01:27:03,360

and we would do like little secret hand

2171

01:27:08,310 --> 01:27:05,840

signals to our you know our spouses and

2172

01:27:09,510 --> 01:27:08,320

kids okay they'd know it was coming you

2173

01:27:10,629 --> 01:27:09,520

couldn't say anything but you could do

2174

01:27:13,990 --> 01:27:10,639

the little

2175

01:27:15,350 --> 01:27:14,000

love you thing sign language yeah but um

2176

01:27:16,470 --> 01:27:15,360

the arrows i know you can't see them on

2177

01:27:18,070 --> 01:27:16,480

the screen right now but we've mentioned

2178

01:27:21,189 --> 01:27:18,080

them a couple times those are for

2179

01:27:23,350 --> 01:27:21,199

emergency egress um if if for any reason

2180

01:27:24,950 --> 01:27:23,360

the crew had to uh

2181

01:27:26,950 --> 01:27:24,960

get out of the capsule get out of the

2182

01:27:28,950 --> 01:27:26,960

white room and get out of the get away

2183

01:27:29,830 --> 01:27:28,960

from the pad in a hurry that is the the

2184

01:27:31,590 --> 01:27:29,840

path

2185

01:27:33,590 --> 01:27:31,600

the arrows that show them go this way

2186

01:27:35,430 --> 01:27:33,600

essentially and you need something like

2187

01:27:37,030 --> 01:27:35,440

that because you know depending on the

2188

01:27:40,870 --> 01:27:37,040

situation you might actually have some

2189

01:27:42,950 --> 01:27:40,880

smoke or the water deluge system um

2190

01:27:44,390 --> 01:27:42,960

going and so you just you

2191

01:27:46,709 --> 01:27:44,400

tip your head down you look at the floor

2192

01:27:49,110 --> 01:27:46,719

you grab each other and go yeah and if

2193

01:27:51,830 --> 01:27:49,120

we were to do a quick exit from the

2194

01:27:53,510 --> 01:27:51,840

tower we utilize basically baskets that

2195

01:27:56,550 --> 01:27:53,520

are on zip lines

2196

01:27:57,990 --> 01:27:56,560

and they slide down the wire to safety

2197

01:27:59,830 --> 01:27:58,000

and you can see

2198

01:28:02,390 --> 01:27:59,840

on your screen the crew beginning the

2199

01:28:04,709 --> 01:28:02,400

ingress process already so our timeline

2200

01:28:07,270 --> 01:28:04,719

has this happening at t minus two hours

2201
01:28:09,990 --> 01:28:07,280
and 35 minutes so it looks like they may

2202
01:28:11,990 --> 01:28:10,000
just be starting that a little bit early

2203
01:28:14,550 --> 01:28:12,000
there are of course four astronauts who

2204
01:28:16,149 --> 01:28:14,560
have to in to to ingress so this doesn't

2205
01:28:18,310 --> 01:28:16,159
happen in an instant

2206
01:28:23,910 --> 01:28:18,320
it's a process but obviously that

2207
01:28:28,070 --> 01:28:26,070
so we see some of the

2208
01:28:30,229 --> 01:28:28,080
uh the suit technicians they're

2209
01:28:33,189 --> 01:28:30,239
assisting them to get into their seat

2210
01:28:34,790 --> 01:28:33,199
making sure that the boots are able to

2211
01:28:36,550 --> 01:28:34,800
lock into position on the foot rest

2212
01:28:38,709 --> 01:28:36,560
appropriately

2213
01:28:40,070 --> 01:28:38,719

making sure once again that the

2214

01:28:41,910 --> 01:28:40,080

all the zippers are in the right place

2215

01:28:43,510 --> 01:28:41,920

and making sure that we're able to do

2216

01:28:45,910 --> 01:28:43,520

all the checkouts necessary both in

2217

01:28:49,110 --> 01:28:45,920

terms of environmental controls but also

2218

01:28:52,229 --> 01:28:49,120

communication audio as well

2219

01:28:55,430 --> 01:28:52,239

and i wasn't sure do we have mike and

2220

01:28:58,310 --> 01:28:55,440

shannon already inside

2221

01:29:01,189 --> 01:28:58,320

okay so mike and shannon are are already

2222

01:29:02,390 --> 01:29:01,199

inside and victor and suici have not

2223

01:29:04,229 --> 01:29:02,400

made their way

2224

01:29:21,189 --> 01:29:04,239

into the white room yet

2225

01:29:26,390 --> 01:29:24,070

and so again crew ingress ingress is

2226

01:29:29,189 --> 01:29:26,400

just a spaceflight term for

2227

01:29:31,430 --> 01:29:29,199

getting inside the spacecraft so mike

2228

01:29:33,350 --> 01:29:31,440

hopkins and shannon walker have

2229

01:29:35,110 --> 01:29:33,360

ingressed crew dragon

2230

01:29:36,950 --> 01:29:35,120

you can see the bottom of

2231

01:29:39,189 --> 01:29:36,960

one of their legs

2232

01:29:41,590 --> 01:29:39,199

inside the open hatch there and victor

2233

01:29:43,510 --> 01:29:41,600

glover and suicina gucci looks like are

2234

01:29:45,350 --> 01:29:43,520

now making their way they're starting to

2235

01:29:48,310 --> 01:29:45,360

move uh they will be walking down the

2236

01:29:49,830 --> 01:29:48,320

crew access arm uh there's the outside

2237

01:29:52,709 --> 01:29:49,840

of it so they're making their way down

2238

01:29:54,550 --> 01:29:52,719

that hallway as we speak

2239

01:29:56,709 --> 01:29:54,560

and they'll be stopping in the white

2240

01:29:58,390 --> 01:29:56,719

room in just a moment

2241

01:30:00,709 --> 01:29:58,400

you know it's hard to see in that shot

2242

01:30:02,709 --> 01:30:00,719

but i'm very happy to say that we got

2243

01:30:05,030 --> 01:30:02,719

blue skies and a couple of puffy white

2244

01:30:06,870 --> 01:30:05,040

clouds working with us so

2245

01:30:09,189 --> 01:30:06,880

well it might look a little overcast on

2246

01:30:11,270 --> 01:30:09,199

the screen uh we are we're pretty happy

2247

01:30:12,709 --> 01:30:11,280

with what what we've got at the moment

2248

01:30:14,470 --> 01:30:12,719

and you can see the little shadows of

2249

01:30:15,270 --> 01:30:14,480

them moving along through the windows

2250

01:30:17,110 --> 01:30:15,280

and

2251

01:30:23,510 --> 01:30:17,120

into the white room

2252

01:30:27,830 --> 01:30:25,510

okay there they are so there this is

2253

01:30:29,910 --> 01:30:27,840

again a look inside the white room it's

2254

01:30:31,030 --> 01:30:29,920

not a very big space uh it's pretty

2255

01:30:46,950 --> 01:30:31,040

tight

2256

01:30:51,350 --> 01:30:48,870

okay so while victor and suici are

2257

01:30:53,350 --> 01:30:51,360

getting a chance to uh sign their names

2258

01:30:55,350 --> 01:30:53,360

to the inside of the white room we want

2259

01:30:57,510 --> 01:30:55,360

to recap just a little bit if you're

2260

01:30:59,910 --> 01:30:57,520

just joining us you're watching live

2261

01:31:03,430 --> 01:30:59,920

coverage of nasa's spacex

2262

01:31:05,510 --> 01:31:03,440

uh crew one mission today sending four

2263

01:31:07,990 --> 01:31:05,520

astronauts into orbit on a mission to

2264

01:31:10,790 --> 01:31:08,000

the international space station nasa

2265

01:31:14,149 --> 01:31:10,800

astronauts victor glover mike hopkins

2266

01:31:17,510 --> 01:31:14,159

shannon walker and suicinoguchi

2267

01:31:19,430 --> 01:31:17,520

are flying on a six-month mission to the

2268

01:31:21,270 --> 01:31:19,440

international space station

2269

01:31:23,830 --> 01:31:21,280

good afternoon and welcome to kennedy

2270

01:31:26,629 --> 01:31:23,840

space center in florida i'm marie lewis

2271

01:31:29,030 --> 01:31:26,639

public affairs officer for nasa

2272

01:31:31,510 --> 01:31:29,040

and i'm kate tys senior certification

2273

01:31:33,350 --> 01:31:31,520

engineer at spacex happy to be bringing

2274

01:31:35,510 --> 01:31:33,360

you live coverage of the crew one

2275

01:31:37,510 --> 01:31:35,520

mission from kennedy space center

2276

01:31:39,669 --> 01:31:37,520

joining us is retired nasa astronaut

2277

01:31:41,270 --> 01:31:39,679

nicole stott who has flown twice on the

2278

01:31:43,350 --> 01:31:41,280

shuttle so pretty exciting to have you

2279

01:31:44,870 --> 01:31:43,360

here with us thank you yeah absolutely

2280

01:31:48,550 --> 01:31:44,880

very nice to be here today with you

2281

01:31:54,149 --> 01:31:50,870

and again the crew has already arrived

2282

01:31:57,590 --> 01:31:54,159

at pad 39a where falcon 9 will lift off

2283

01:31:59,590 --> 01:31:57,600

from 7 27 pm eastern and

2284

01:32:01,110 --> 01:31:59,600

victor glover and suicina gucci are

2285

01:32:03,030 --> 01:32:01,120

standing inside the white room mike

2286

01:32:05,510 --> 01:32:03,040

hopkins and shannon walker are already

2287

01:32:07,510 --> 01:32:05,520

inside crew dragon yeah so it looks like

2288

01:32:10,229 --> 01:32:07,520

we're fitting up the earpieces now and

2289

01:32:12,390 --> 01:32:10,239

just doing a couple final checks

2290

01:32:14,390 --> 01:32:12,400

they have ascended the tall structure

2291

01:32:16,310 --> 01:32:14,400

next to the rocket known as the fixed

2292

01:32:18,790 --> 01:32:16,320

service structure and they've walked

2293

01:32:21,350 --> 01:32:18,800

down that futuristic looking corridor

2294

01:32:23,669 --> 01:32:21,360

known as the crew access arm

2295

01:32:26,149 --> 01:32:23,679

and so now they are about halfway

2296

01:32:27,910 --> 01:32:26,159

through the process of boarding dragons

2297

01:32:31,030 --> 01:32:27,920

so it looks like possibly a little bit

2298

01:32:33,350 --> 01:32:31,040

ahead of schedule our crew members uh

2299

01:32:35,510 --> 01:32:33,360

they're making their final stop again

2300

01:32:38,070 --> 01:32:35,520

this is the white room and the white

2301

01:32:40,709 --> 01:32:38,080

room is this small space at the end of

2302

01:32:43,270 --> 01:32:40,719

the crew access arm that provides entry

2303

01:32:45,510 --> 01:32:43,280

into crew dragon and as kate mentioned

2304

01:32:48,390 --> 01:32:45,520

earlier this is the last place the crew

2305

01:32:50,310 --> 01:32:48,400

will be on earth before stepping into

2306

01:32:52,629 --> 01:32:50,320

the spacecraft for their ride to the

2307

01:32:55,189 --> 01:32:52,639

international space station yeah like i

2308

01:32:57,189 --> 01:32:55,199

mentioned before uh the term white room

2309

01:32:59,750 --> 01:32:57,199

is it has a little bit of history uh it

2310

01:33:01,910 --> 01:32:59,760

was first used during the nasa gemini

2311

01:33:04,149 --> 01:33:01,920

missions where the room right before

2312

01:33:04,950 --> 01:33:04,159

entering into the spacecraft was painted

2313

01:33:07,270 --> 01:33:04,960

white

2314

01:33:09,830 --> 01:33:07,280

so we love traditions when we we've

2315

01:33:11,350 --> 01:33:09,840

continued this one by painting ours

2316

01:33:13,350 --> 01:33:11,360

white as well

2317

01:33:15,510 --> 01:33:13,360

like marie said it is a pretty small

2318

01:33:17,430 --> 01:33:15,520

area and it has just enough room for the

2319

01:33:18,629 --> 01:33:17,440

crew and a couple of ground support

2320

01:33:20,790 --> 01:33:18,639

members

2321

01:33:22,950 --> 01:33:20,800

to allow them to complete late cargo

2322

01:33:24,950 --> 01:33:22,960

load at t minus 24 hours and then of

2323

01:33:27,270 --> 01:33:24,960

course what we were just witnessing crew

2324

01:33:29,030 --> 01:33:27,280

ingress running a little bit

2325

01:33:31,990 --> 01:33:29,040

ahead of schedule

2326

01:33:33,110 --> 01:33:32,000

at t minus 39 minutes 2 hours and 39

2327

01:33:37,189 --> 01:33:33,120

minutes

2328

01:33:38,950 --> 01:33:37,199

and ingress is how we refer to boarding

2329

01:33:41,350 --> 01:33:38,960

on top of crew dragon

2330

01:33:43,990 --> 01:33:41,360

now inside uh the white room where we're

2331

01:33:46,070 --> 01:33:44,000

looking there is a movable platform that

2332

01:33:48,310 --> 01:33:46,080

gets extended out to the capsule and

2333

01:33:50,790 --> 01:33:48,320

that helps bridge the gap between the

2334

01:33:53,350 --> 01:33:50,800

crew access arm and the dragon side

2335

01:33:55,270 --> 01:33:53,360

hatch and this allows for easy entry

2336

01:33:57,189 --> 01:33:55,280

into the spacecraft

2337

01:33:59,189 --> 01:33:57,199

as you might expect it's environmentally

2338

01:34:00,470 --> 01:33:59,199

controlled so that the dragon side hatch

2339

01:34:03,590 --> 01:34:00,480

can be opened

2340

01:34:06,149 --> 01:34:03,600

while at the same time keeping dust dirt

2341

01:34:08,470 --> 01:34:06,159

that nasty florida humidity out of the

2342

01:34:11,110 --> 01:34:08,480

capsule to make sure it is just in

2343

01:34:13,430 --> 01:34:11,120

pristine condition for the crew there is

2344

01:34:15,669 --> 01:34:13,440

also a large seal that gets inflated and

2345

01:34:18,070 --> 01:34:15,679

compressed against the capsule to make

2346

01:34:19,750 --> 01:34:18,080

sure that we can maintain these clean

2347

01:34:21,350 --> 01:34:19,760

environments

2348

01:34:22,310 --> 01:34:21,360

yeah so this is all really exciting to

2349

01:34:24,550 --> 01:34:22,320

watch

2350

01:34:26,629 --> 01:34:24,560

like i mentioned you saw them take part

2351

01:34:29,430 --> 01:34:26,639

in that tradition that we've mentioned a

2352

01:34:32,229 --> 01:34:29,440

couple of times by and it began with our

2353

01:34:35,350 --> 01:34:32,239

demo two crew of nasa astronauts bob

2354

01:34:37,830 --> 01:34:35,360

benkin and doug hurley they signed the

2355

01:34:40,550 --> 01:34:37,840

wall of the room to mark that they are

2356

01:34:42,790 --> 01:34:40,560

now part of the select few who

2357

01:34:43,669 --> 01:34:42,800

will have launched after leaving this

2358

01:34:47,189 --> 01:34:43,679

room

2359

01:34:49,430 --> 01:34:47,199

other tools

2360

01:34:52,310 --> 01:34:49,440

that are utilized in order to open the

2361

01:34:55,109 --> 01:34:52,320

hidesat open the side hatch and complete

2362

01:34:57,350 --> 01:34:55,119

crew ingress as well as allowing them to

2363

01:34:59,830 --> 01:34:57,360

prepare for any contingency or emergency

2364

01:35:00,709 --> 01:34:59,840

that might be

2365

01:35:02,470 --> 01:35:00,719

so

2366

01:35:03,669 --> 01:35:02,480

as we're waiting for our last crew

2367

01:35:05,830 --> 01:35:03,679

member to

2368

01:35:08,470 --> 01:35:05,840

hop inside crew dragon let's check back

2369

01:35:10,709 --> 01:35:08,480

in with jesse and leah back at spacex

2370

01:35:17,109 --> 01:35:10,719

headquarters in hawthorne california

2371

01:35:21,990 --> 01:35:19,270

everything is going good we are so

2372

01:35:23,830 --> 01:35:22,000

excited watching ingress right now yeah

2373

01:35:26,229 --> 01:35:23,840

so as jesse just mentioned this is

2374

01:35:28,470 --> 01:35:26,239

ingress that means the astronauts are

2375

01:35:30,709 --> 01:35:28,480

entering the dragon capsule that's a

2376

01:35:32,629 --> 01:35:30,719

space flight term and you'll hear a lot

2377

01:35:35,189 --> 01:35:32,639

of these space terms in the coming hours

2378

01:35:36,709 --> 01:35:35,199

and days ingress is what we use when

2379

01:35:39,430 --> 01:35:36,719

crew members are getting into a

2380

01:35:41,830 --> 01:35:39,440

spacecraft or airlock and egress means

2381

01:35:43,750 --> 01:35:41,840

the opposite they're exiting but before

2382

01:35:46,629 --> 01:35:43,760

climbing into the capsule today the crew

2383

01:35:49,510 --> 01:35:46,639

completed a foreign object debris check

2384

01:35:52,149 --> 01:35:49,520

also known as fod check that means they

2385

01:35:54,070 --> 01:35:52,159

themselves have to be inspected for any

2386

01:35:56,310 --> 01:35:54,080

substance or debris that isn't supposed

2387

01:35:59,189 --> 01:35:56,320

to be on them or their suits which could

2388

01:36:01,350 --> 01:35:59,199

potentially cause damage to dragon

2389

01:36:03,189 --> 01:36:01,360

to help protect against debris the crew

2390

01:36:05,590 --> 01:36:03,199

has covers on their boots and as well as

2391

01:36:07,750 --> 01:36:05,600

their umbilical part on their suits that

2392

01:36:10,950 --> 01:36:07,760

need to be removed before they ingress

2393

01:36:13,109 --> 01:36:10,960

so they've been doing that victor is up

2394

01:36:15,030 --> 01:36:13,119

next or last um

2395

01:36:18,310 --> 01:36:15,040

completing that fod check and once the

2396

01:36:20,550 --> 01:36:18,320

fod check is complete uh mike hopkins

2397

01:36:22,950 --> 01:36:20,560

our commander first ingress and then

2398

01:36:24,950 --> 01:36:22,960

shannon walker suicina gucci and now we

2399

01:36:29,189 --> 01:36:24,960

are waiting for victor glover actually

2400

01:36:31,189 --> 01:36:29,199

watching him enter the vehicle right now

2401
01:36:33,109 --> 01:36:31,199
and they are now getting buckled in and

2402
01:36:36,070 --> 01:36:33,119
attaching their umbilicals to their

2403
01:36:39,030 --> 01:36:36,080
suits the suit techs are there helping

2404
01:36:41,109 --> 01:36:39,040
if as needed the umbilicals allow the

2405
01:36:43,510 --> 01:36:41,119
crew to have calms through their suit

2406
01:36:46,070 --> 01:36:43,520
air to help keep them cool as well as

2407
01:36:47,830 --> 01:36:46,080
delivers nitrox for suit pressurization

2408
01:36:49,430 --> 01:36:47,840
as we mentioned earlier in the broadcast

2409
01:36:52,669 --> 01:36:49,440
the suit's primary function is to

2410
01:36:55,510 --> 01:36:52,679
protect the crew in the event of a cabin

2411
01:36:57,189 --> 01:36:55,520
depressurization i love this view inside

2412
01:36:59,590 --> 01:36:57,199
crew dragon and as you saw there are

2413
01:37:01,270 --> 01:36:59,600

four seats configured right now and

2414

01:37:03,750 --> 01:37:01,280

they're numbered one to four from right

2415

01:37:05,750 --> 01:37:03,760

to left when you're looking at the seats

2416

01:37:07,830 --> 01:37:05,760

mike hopkins is in seat two that's the

2417

01:37:10,229 --> 01:37:07,840

commander's seat and then victor glover

2418

01:37:12,390 --> 01:37:10,239

will be beside him in seat three

2419

01:37:15,430 --> 01:37:12,400

he uh that for crew dragon is the pilot

2420

01:37:18,149 --> 01:37:15,440

seat so ichinoguchi is in seat one and

2421

01:37:19,750 --> 01:37:18,159

shannon walker is in seat four now

2422

01:37:21,750 --> 01:37:19,760

directly in front of them which you can

2423

01:37:23,350 --> 01:37:21,760

see here are three displays which

2424

01:37:25,189 --> 01:37:23,360

they'll use throughout the flight

2425

01:37:27,109 --> 01:37:25,199

getting insight into dragon systems

2426

01:37:29,430 --> 01:37:27,119

seeing any alerts or issues with the

2427

01:37:33,669 --> 01:37:29,440

vehicle and if required they can take

2428

01:37:36,229 --> 01:37:33,679

control and manually fly dragon

2429

01:37:37,430 --> 01:37:36,239

and coming up the crew will do a comm

2430

01:37:38,870 --> 01:37:37,440

check to make sure that they can hear

2431

01:37:41,830 --> 01:37:38,880

mission control and then their seats

2432

01:37:43,590 --> 01:37:41,840

will be rotated into position for launch

2433

01:37:45,109 --> 01:37:43,600

but right now they are finishing getting

2434

01:37:47,590 --> 01:37:45,119

buckled in

2435

01:37:52,709 --> 01:37:47,600

and getting their suits connected to

2436

01:37:56,629 --> 01:37:54,550

some of those things to listen for when

2437

01:37:58,070 --> 01:37:56,639

we're doing those comm checks

2438

01:38:00,229 --> 01:37:58,080

they'll be doing com checks through

2439

01:38:02,070 --> 01:38:00,239

multiple paths to dragon they'll do some

2440

01:38:04,229 --> 01:38:02,080

through tdrs that's our tracking data

2441

01:38:05,510 --> 01:38:04,239

and relay satellite system we also use

2442

01:38:07,590 --> 01:38:05,520

that for communications with the

2443

01:38:09,590 --> 01:38:07,600

international space station and then

2444

01:38:11,910 --> 01:38:09,600

they'll also you'll hear ground that

2445

01:38:14,709 --> 01:38:11,920

refers to several ground stations around

2446

01:38:16,470 --> 01:38:14,719

the globe that spacex had and upon

2447

01:38:17,669 --> 01:38:16,480

liftoff those ground stations will be

2448

01:38:25,189 --> 01:38:17,679

able to provide

2449

01:38:29,750 --> 01:38:27,030

there's also about a half a dozen checks

2450

01:38:30,950 --> 01:38:29,760

to ensure everybody's ready in here you

2451

01:38:32,550 --> 01:38:30,960

can see those

2452

01:38:34,550 --> 01:38:32,560

suit up crew i've heard people call them

2453

01:38:36,709 --> 01:38:34,560

the ninjas before

2454

01:38:38,550 --> 01:38:36,719

i think it's a pretty apt name

2455

01:38:41,109 --> 01:38:38,560

but they are checking to make sure the

2456

01:38:43,270 --> 01:38:41,119

suits are ready they're helping them

2457

01:38:45,430 --> 01:38:43,280

connect the umbilicals they're buckling

2458

01:38:47,590 --> 01:38:45,440

them in they're also assisting with

2459

01:38:50,709 --> 01:38:47,600

those leak and calm checks so they each

2460

01:38:52,629 --> 01:38:50,719

have a very individual and specific role

2461

01:38:55,669 --> 01:38:52,639

and we just stepped through this a

2462

01:38:58,149 --> 01:38:55,679

couple of days ago for the dry dress

2463

01:39:01,109 --> 01:38:58,159

every single every single detail we step

2464

01:39:03,109 --> 01:39:01,119

through it um from buckling up to

2465

01:39:04,950 --> 01:39:03,119

connecting the umbilicals even the comm

2466

01:39:07,030 --> 01:39:04,960

checks

2467

01:39:09,189 --> 01:39:07,040

so it's kind of like

2468

01:39:10,629 --> 01:39:09,199

it's kind of like run two right really

2469

01:39:13,270 --> 01:39:10,639

day one

2470

01:39:14,870 --> 01:39:13,280

little deja vu but it's all very very

2471

01:39:21,030 --> 01:39:14,880

organized

2472

01:39:25,430 --> 01:39:22,629

this helps make sure that you know

2473

01:39:29,189 --> 01:39:25,440

everything goes smoothly

2474

01:39:30,790 --> 01:39:29,199

on the day of launch like today

2475

01:39:39,270 --> 01:39:30,800

looks like almost everybody's all

2476

01:39:48,070 --> 01:39:41,669

calm check should occur once everybody's

2477

01:39:51,910 --> 01:39:49,830

a lot of excitement really cool to see

2478

01:40:07,270 --> 01:39:51,920

four crew members just saw a wave from

2479

01:40:11,510 --> 01:40:09,590

all right well let's check in with john

2480

01:40:13,990 --> 01:40:11,520

inspector for the latest with the health

2481

01:40:16,470 --> 01:40:14,000

of both vehicles what's the update so

2482

01:40:18,229 --> 01:40:16,480

far john

2483

01:40:20,070 --> 01:40:18,239

well we've got just over two and a half

2484

01:40:21,750 --> 01:40:20,080

hours remaining in the countdown for the

2485

01:40:24,950 --> 01:40:21,760

launch of falcon 9 with dragon on the

2486

01:40:26,790 --> 01:40:24,960

crew one mission to the space station

2487

01:40:28,470 --> 01:40:26,800

right now the dragon launch ops team has

2488

01:40:29,750 --> 01:40:28,480

completed their major activities to

2489

01:40:31,990 --> 01:40:29,760

prepare the spacecraft for the

2490

01:40:34,390 --> 01:40:32,000

astronauts checkouts of major systems

2491

01:40:36,390 --> 01:40:34,400

are complete including the escape system

2492

01:40:39,109 --> 01:40:36,400

as you can see ingress of the astronauts

2493

01:40:41,270 --> 01:40:39,119

uh is well underway uh getting victor

2494

01:40:43,189 --> 01:40:41,280

strapped in right now no issues are in

2495

01:40:45,669 --> 01:40:43,199

work and right now we're listening

2496

01:40:48,149 --> 01:40:45,679

waiting for comp checks with the crew

2497

01:40:49,990 --> 01:40:48,159

and the ground coming up here shortly

2498

01:40:52,310 --> 01:40:50,000

on the launch vehicle the falcon 9 team

2499

01:40:54,629 --> 01:40:52,320

is located in firing room 4 in the

2500

01:40:56,310 --> 01:40:54,639

launch control center at ksc they're

2501
01:40:58,390 --> 01:40:56,320
settling in for final checkouts and

2502
01:40:59,830 --> 01:40:58,400
propellant loading and launch

2503
01:41:02,470 --> 01:40:59,840
they'll be doing com checks with the

2504
01:41:05,109 --> 01:41:02,480
crew and that'll happen about t minus

2505
01:41:07,430 --> 01:41:05,119
two hours currently all systems are go

2506
01:41:09,189 --> 01:41:07,440
on the falcon 9 launch vehicle

2507
01:41:11,430 --> 01:41:09,199
the range continues to report no

2508
01:41:13,910 --> 01:41:11,440
problems the weather forecast continues

2509
01:41:16,629 --> 01:41:13,920
to be acceptable we're watching the

2510
01:41:18,790 --> 01:41:16,639
upper altitude rain showers if they're

2511
01:41:21,990 --> 01:41:18,800
in the trajectory of the vehicle

2512
01:41:24,149 --> 01:41:22,000
also watching a thick cloud rule and

2513
01:41:26,310 --> 01:41:24,159

keeping the fingers crossed we're also

2514

01:41:27,669 --> 01:41:26,320

looking at weather around the world we

2515

01:41:30,149 --> 01:41:27,679

need to make sure conditions are

2516

01:41:32,470 --> 01:41:30,159

acceptable if dragon has to splash down

2517

01:41:34,310 --> 01:41:32,480

in the atlantic in case of an escape

2518

01:41:36,629 --> 01:41:34,320

and we're also monitoring contingency

2519

01:41:38,470 --> 01:41:36,639

splashdown locations if the crew had to

2520

01:41:39,910 --> 01:41:38,480

come back to earth before docking with

2521

01:41:41,990 --> 01:41:39,920

the space station

2522

01:41:44,149 --> 01:41:42,000

now if this were to happen spacex and

2523

01:41:46,229 --> 01:41:44,159

nasa are coordinating with the us coast

2524

01:41:48,870 --> 01:41:46,239

guard to ensure crew safety upon

2525

01:41:51,669 --> 01:41:48,880

splashdown that includes extra ships and

2526

01:41:54,070 --> 01:41:51,679

air assets to patrol a 10 nautical mile

2527

01:41:56,470 --> 01:41:54,080

keep out zone this will help mitigate

2528

01:41:58,870 --> 01:41:56,480

safety concerns for any boaters who are

2529

01:42:01,430 --> 01:41:58,880

approaching the launch area

2530

01:42:04,629 --> 01:42:01,440

as the clock continues to count down

2531

01:42:06,550 --> 01:42:04,639

all systems are go at t minus 2 hours 31

2532

01:42:08,229 --> 01:42:06,560

minutes and let's head back over to

2533

01:42:10,390 --> 01:42:08,239

jesse and leah who are also here in

2534

01:42:12,709 --> 01:42:10,400

hawthorne as we wait for the comp checks

2535

01:42:14,550 --> 01:42:12,719

with the crew

2536

01:42:16,070 --> 01:42:14,560

thanks john

2537

01:42:18,950 --> 01:42:16,080

sounds like everything is looking good

2538

01:42:21,430 --> 01:42:18,960

so far we're getting really excited here

2539

01:42:23,430 --> 01:42:21,440

and the astronauts are still

2540

01:42:26,709 --> 01:42:23,440

wrapping up buckling in and getting

2541

01:42:28,550 --> 01:42:26,719

their suits connected to their seats

2542

01:42:30,390 --> 01:42:28,560

definitely ahead of schedule today

2543

01:42:32,070 --> 01:42:30,400

though so that's a good sign

2544

01:42:34,149 --> 01:42:32,080

uh and as we mentioned we're really

2545

01:42:36,390 --> 01:42:34,159

standing by for those comm checks with

2546

01:42:38,149 --> 01:42:36,400

the crew some of the people you'll hear

2547

01:42:39,510 --> 01:42:38,159

talking with the crew during those comm

2548

01:42:41,270 --> 01:42:39,520

checks are the core which we've

2549

01:42:43,430 --> 01:42:41,280

mentioned that's the crew operations and

2550

01:42:45,510 --> 01:42:43,440

resources engineer they're here in

2551
01:42:47,510 --> 01:42:45,520
hawthorne we have a similar position at

2552
01:42:49,590 --> 01:42:47,520
nasa called the capcom

2553
01:42:51,270 --> 01:42:49,600
that's the person who really takes the

2554
01:42:53,189 --> 01:42:51,280
oh and there's the core right there

2555
01:42:54,629 --> 01:42:53,199
that's the person who really takes all

2556
01:42:56,310 --> 01:42:54,639
of the information that's happening down

2557
01:42:58,790 --> 01:42:56,320
on the ground and relays it to the crew

2558
01:43:00,790 --> 01:42:58,800
so it's coming from one location

2559
01:43:02,709 --> 01:43:00,800
additionally there's the Id that's the

2560
01:43:04,629 --> 01:43:02,719
launch director they're down in florida

2561
01:43:07,109 --> 01:43:04,639
and they're overseeing all the countdown

2562
01:43:09,510 --> 01:43:07,119
operations the mission director or the

2563
01:43:10,390 --> 01:43:09,520

md is also here in hawthorne and mission

2564

01:43:12,310 --> 01:43:10,400

control

2565

01:43:14,470 --> 01:43:12,320

and that's the overall flight lead for

2566

01:43:16,310 --> 01:43:14,480

spacex so those are some of the people

2567

01:43:27,270 --> 01:43:16,320

that you will hear speaking with the

2568

01:43:31,830 --> 01:43:29,350

once they're all finished getting

2569

01:43:33,990 --> 01:43:31,840

buckled in those seats will also rotate

2570

01:43:35,109 --> 01:43:34,000

into launch position right now

2571

01:43:37,030 --> 01:43:35,119

it does look like they're a little

2572

01:43:39,990 --> 01:43:37,040

further away from those display panels

2573

01:43:41,910 --> 01:43:40,000

but once they rotate backwards

2574

01:43:47,990 --> 01:43:41,920

those display panels will be right in

2575

01:43:53,910 --> 01:43:51,510

just under two and a half hours now too

2576

01:43:57,030 --> 01:43:55,430

we launched today

2577

01:43:59,030 --> 01:43:57,040

as john i mentioned weather's still

2578

01:44:02,709 --> 01:43:59,040

looking good just a little bit about the

2579

01:44:05,350 --> 01:44:02,719

vehicle there on itself crew dragon and

2580

01:44:06,950 --> 01:44:05,360

its trunk are about 27 feet tall that's

2581

01:44:08,709 --> 01:44:06,960

from the tip of the nose cone to the

2582

01:44:10,470 --> 01:44:08,719

base of the trunk

2583

01:44:12,070 --> 01:44:10,480

under that nose comb we have bulkhead

2584

01:44:14,229 --> 01:44:12,080

thrusters those will be used for some of

2585

01:44:16,629 --> 01:44:14,239

the burns after the crew are already on

2586

01:44:18,709 --> 01:44:16,639

orbit and once they launch today as we

2587

01:44:20,550 --> 01:44:18,719

mentioned it's going to take about 27

2588

01:44:22,390 --> 01:44:20,560

and a half hours

2589

01:44:24,629 --> 01:44:22,400

until they arrive at their destination

2590

01:44:26,790 --> 01:44:24,639

on the space station that allows them to

2591

01:44:28,709 --> 01:44:26,800

get a little bit of a sleep period

2592

01:44:30,629 --> 01:44:28,719

because at some point obviously you get

2593

01:44:33,430 --> 01:44:30,639

a little too tired we want to make sure

2594

01:44:35,750 --> 01:44:33,440

our astronauts are cognizant and fully

2595

01:44:37,189 --> 01:44:35,760

focused on the mission and so after a

2596

01:44:39,590 --> 01:44:37,199

really long day today they're going to

2597

01:44:41,669 --> 01:44:39,600

get to sleep for about eight hours

2598

01:44:43,669 --> 01:44:41,679

tonight before waking up tomorrow

2599

01:44:45,430 --> 01:44:43,679

continuing on with the mission and then

2600

01:44:51,590 --> 01:44:45,440

docking with the international space

2601
01:44:56,149 --> 01:44:53,750
and again we are standing by for those

2602
01:44:58,629 --> 01:44:56,159
calm checks this is just to make sure

2603
01:45:01,590 --> 01:44:58,639
that their comp path does

2604
01:45:03,830 --> 01:45:01,600
work properly before liftoff

2605
01:45:05,669 --> 01:45:03,840
making sure that they can hear

2606
01:45:09,750 --> 01:45:05,679
the core

2607
01:45:13,510 --> 01:45:11,510
just a high-level look at some of the

2608
01:45:15,590 --> 01:45:13,520
other milestones that will be coming up

2609
01:45:17,510 --> 01:45:15,600
over these next two and a half hours the

2610
01:45:19,830 --> 01:45:17,520
next big milestone will be the hatch

2611
01:45:23,270 --> 01:45:19,840
closure we'll be looking for that around

2612
01:45:25,510 --> 01:45:23,280
t minus one hour and 55 minutes

2613
01:45:27,990 --> 01:45:25,520

and then at 45 minutes before launch

2614

01:45:29,750 --> 01:45:28,000

will be the go no go for propellant load

2615

01:45:32,390 --> 01:45:29,760

so there's not any propellant on the

2616

01:45:35,030 --> 01:45:32,400

first or second stage of cr or falcon 9

2617

01:45:37,990 --> 01:45:35,040

right now but they'll begin loading some

2618

01:45:40,390 --> 01:45:38,000

densified kerosene and then the oxidizer

2619

01:45:43,030 --> 01:45:40,400

is some liquid oxygen

2620

01:45:44,870 --> 01:45:43,040

that will be loaded onto the crew dragon

2621

01:45:46,070 --> 01:45:44,880

up until just a few minutes before

2622

01:46:08,790 --> 01:45:46,080

launch

2623

01:46:11,510 --> 01:46:10,310

again we are still waiting for those

2624

01:46:14,470 --> 01:46:11,520

comm checks

2625

01:46:16,470 --> 01:46:14,480

looks like the crew is almost done

2626

01:46:19,350 --> 01:46:16,480

getting all strapped in their suits

2627

01:46:22,149 --> 01:46:19,360

connected to their custom seats

2628

01:46:24,229 --> 01:46:22,159

shortly we will do com checks as well as

2629

01:46:27,030 --> 01:46:24,239

have their seats rotated back into

2630

01:46:31,030 --> 01:46:27,040

launch position

2631

01:46:33,430 --> 01:46:31,040

really good view of those

2632

01:46:35,189 --> 01:46:33,440

three main displays which aren't used

2633

01:46:36,790 --> 01:46:35,199

for them to command the mission it's

2634

01:46:39,030 --> 01:46:36,800

really for them to

2635

01:46:40,629 --> 01:46:39,040

to monitor where they're at monitor how

2636

01:46:43,270 --> 01:46:40,639

the vehicle is doing

2637

01:46:45,750 --> 01:46:43,280

they can take control if need be however

2638

01:46:47,750 --> 01:46:45,760

this is an autonomous vehicle so after

2639

01:46:49,910 --> 01:46:47,760

launch today they should just be along

2640

01:46:51,510 --> 01:46:49,920

for the ride until we get to docking

2641

01:46:53,910 --> 01:46:51,520

tomorrow

2642

01:46:58,790 --> 01:46:53,920

and spacex this is dragon we are ready

2643

01:46:58,800 --> 01:47:05,910

copy standby for umbilical comp check

2644

01:47:11,109 --> 01:47:09,990

cdr plt ms-1 ms2 contracting checks here

2645

01:47:13,270 --> 01:47:11,119

shortly

2646

01:47:18,629 --> 01:47:13,280

and spacex is dragging on umbilical

2647

01:47:24,790 --> 01:47:21,050

alt umbilical volume

2648

01:47:24,800 --> 01:47:28,790

ms2 umbilical loud and clear

2649

01:47:32,390 --> 01:47:31,430

and core copy four good comm checks loud

2650

01:47:34,310 --> 01:47:32,400

and clear

2651
01:48:13,510 --> 01:47:34,320
umbilical comp check complete standby

2652
01:48:20,310 --> 01:48:15,750
dragon spacex com check over ground

2653
01:48:25,590 --> 01:48:23,669
have you log and clear on ground station

2654
01:48:27,590 --> 01:48:25,600
and core i've got you loud and clear

2655
01:48:53,830 --> 01:48:27,600
ground station contract complete standby

2656
01:48:53,840 --> 01:48:59,430
dragon spacex contract over tdrs

2657
01:49:05,270 --> 01:49:01,510
and spacex this is dragged in happy loud

2658
01:49:08,950 --> 01:49:06,870
copy have you allowed clear as well

2659
01:49:11,109 --> 01:49:08,960
teachers com check complete standby for

2660
01:49:23,030 --> 01:49:11,119
comp checks with md and ld in the launch

2661
01:49:23,040 --> 01:49:28,950
dragon md on countdown one calm check

2662
01:49:33,990 --> 01:49:31,270
indeed this is dragon on countdown one

2663
01:49:37,430 --> 01:49:35,589

afternoon resilience got you loud and

2664

01:49:43,430 --> 01:49:37,440

clear as well stand by for come check

2665

01:49:48,870 --> 01:49:45,430

dragon md on dragon the ground come

2666

01:49:53,510 --> 01:49:51,109

md this is dragon loud and clear on

2667

01:49:55,430 --> 01:49:53,520

dragon the ground

2668

01:49:59,910 --> 01:49:55,440

happy loud and clear

2669

01:49:59,920 --> 01:50:05,030

dragon ld on countdown one comp check

2670

01:50:08,629 --> 01:50:06,709

well dude this is dragon on countdown

2671

01:50:10,629 --> 01:50:08,639

one happy vlogging clear

2672

01:50:15,270 --> 01:50:10,639

ld loud and clear standby for comp

2673

01:50:15,280 --> 01:50:20,310

ld on dragging the ground comp check

2674

01:50:25,910 --> 01:50:22,790

and ld this is dragon have you loud and

2675

01:50:31,510 --> 01:50:27,750

ld loud and clear good luck resilience

2676

01:50:36,070 --> 01:50:34,390

copying thank you

2677

01:50:37,750 --> 01:50:36,080

okay resilience

2678

01:50:38,950 --> 01:50:37,760

that concludes our launch configuration

2679

01:50:40,390 --> 01:50:38,960

comp checks

2680

01:50:46,709 --> 01:50:40,400

please report when you are ready for

2681

01:50:46,719 --> 01:50:59,430

dragon copies and inward

2682

01:51:04,149 --> 01:51:02,070

and sounds like we just completed com

2683

01:51:06,229 --> 01:51:04,159

checks sounds like everything is good to

2684

01:51:09,109 --> 01:51:06,239

go so we're gonna head back over to ksc

2685

01:51:13,990 --> 01:51:11,270

we are now getting an up-close look at a

2686

01:51:16,629 --> 01:51:14,000

full-scale mock-up of crew dragon and

2687

01:51:18,310 --> 01:51:16,639

kate the astronauts are sitting inside a

2688

01:51:20,070 --> 01:51:18,320

crew dragon that's very much like this

2689

01:51:22,550 --> 01:51:20,080

one can you kind of give us a layout of

2690

01:51:26,070 --> 01:51:22,560

what we're looking at here so this is an

2691

01:51:29,430 --> 01:51:26,080

exact replica a one-to-one scale of crew

2692

01:51:31,830 --> 01:51:29,440

dragon so you can kind of see size-wise

2693

01:51:34,470 --> 01:51:31,840

the amount of room that our four crew

2694

01:51:36,470 --> 01:51:34,480

members have to move around

2695

01:51:38,870 --> 01:51:36,480

while this isn't the exact training

2696

01:51:40,550 --> 01:51:38,880

module that they use to train in as i've

2697

01:51:43,030 --> 01:51:40,560

mentioned before our crew trains at

2698

01:51:45,830 --> 01:51:43,040

spacex extensively prior to flight they

2699

01:51:47,750 --> 01:51:45,840

use a mock-up similar to this one for

2700

01:51:50,149 --> 01:51:47,760

things very detailed such as running

2701
01:51:51,830 --> 01:51:50,159
procedures inside the capsule but also

2702
01:51:53,669 --> 01:51:51,840
something as simple as practicing

2703
01:51:55,990 --> 01:51:53,679
getting in and out going through the

2704
01:51:58,390 --> 01:51:56,000
side hatch especially in a spacesuit

2705
01:52:00,229 --> 01:51:58,400
that could be a little clunky nicole you

2706
01:52:02,790 --> 01:52:00,239
flew on shuttle twice i'm sure you had

2707
01:52:04,310 --> 01:52:02,800
training and modules similar we did and

2708
01:52:06,390 --> 01:52:04,320
you know what's really

2709
01:52:07,750 --> 01:52:06,400
exciting for crew members is once you

2710
01:52:10,149 --> 01:52:07,760
start doing a lot of training in the

2711
01:52:11,589 --> 01:52:10,159
mock-ups you know you're close to flying

2712
01:52:13,350 --> 01:52:11,599
in space so you really really get

2713
01:52:14,950 --> 01:52:13,360

excited about that i don't know i look

2714

01:52:17,189 --> 01:52:14,960

at this and it's it's really neat to me

2715

01:52:19,189 --> 01:52:17,199

to be just up close and personal with

2716

01:52:20,709 --> 01:52:19,199

even with a mock-up of the spacecraft

2717

01:52:22,229 --> 01:52:20,719

but you know i look at it and there's

2718

01:52:24,390 --> 01:52:22,239

things that are certainly familiar like

2719

01:52:25,830 --> 01:52:24,400

a window thankfully there's windows but

2720

01:52:27,350 --> 01:52:25,840

what is some of the other

2721

01:52:29,669 --> 01:52:27,360

the other stuff we're seeing on here

2722

01:52:31,510 --> 01:52:29,679

these you know these silver little ovals

2723

01:52:33,109 --> 01:52:31,520

and i know i know that's the hatch but

2724

01:52:35,430 --> 01:52:33,119

what else are we looking at here so

2725

01:52:37,750 --> 01:52:35,440

these are the ports for our draco

2726
01:52:40,310 --> 01:52:37,760
thruster system um as i've mentioned

2727
01:52:42,470 --> 01:52:40,320
before dragon is capable of steering

2728
01:52:45,189 --> 01:52:42,480
itself in space and that onboard

2729
01:52:46,950 --> 01:52:45,199
propulsion system is here

2730
01:52:48,870 --> 01:52:46,960
these are the the draco thruster ports

2731
01:52:50,390 --> 01:52:48,880
that are utilized during in-flight and

2732
01:52:51,990 --> 01:52:50,400
orbit maneuvers

2733
01:52:54,790 --> 01:52:52,000
over here on the side

2734
01:52:56,950 --> 01:52:54,800
we have the super draco system which is

2735
01:53:00,229 --> 01:52:56,960
basically a super powered high flow

2736
01:53:02,070 --> 01:53:00,239
system and those are only utilized in an

2737
01:53:04,310 --> 01:53:02,080
abort scenario so we talked a little bit

2738
01:53:06,550 --> 01:53:04,320

about escape procedures those super

2739

01:53:08,870 --> 01:53:06,560

dracos will not be firing on a nominal

2740

01:53:11,109 --> 01:53:08,880

day uh so but they're important to have

2741

01:53:12,950 --> 01:53:11,119

as you know they give the crew a path to

2742

01:53:14,390 --> 01:53:12,960

safety if necessary

2743

01:53:17,350 --> 01:53:14,400

and we just heard the call for seat

2744

01:53:19,030 --> 01:53:17,360

rotation uh so that means that the crew

2745

01:53:21,510 --> 01:53:19,040

their seats are being rotated into

2746

01:53:24,310 --> 01:53:21,520

position for launch uh so we are going

2747

01:53:26,709 --> 01:53:24,320

to send it over to uh nasa's daryl nail

2748

01:53:29,589 --> 01:53:26,719

he is at the osb 2 viewing location with

2749

01:53:30,950 --> 01:53:29,599

kennedy center director bob cabana daryl

2750

01:53:32,870 --> 01:53:30,960

that's right thank you marie and thank

2751

01:53:34,709 --> 01:53:32,880

you for the tour of the dragon space

2752

01:53:36,709 --> 01:53:34,719

capsule and i am here with bob cabana

2753

01:53:38,229 --> 01:53:36,719

director of the kennedy space center

2754

01:53:40,310 --> 01:53:38,239

thanks for being here bob and this is

2755

01:53:41,669 --> 01:53:40,320

the kennedy interview desk and we are in

2756

01:53:43,589 --> 01:53:41,679

the shadow of a little bit of cool

2757

01:53:45,990 --> 01:53:43,599

hardware ourselves the vehicle assembly

2758

01:53:47,990 --> 01:53:46,000

building which looks outstanding doesn't

2759

01:53:50,070 --> 01:53:48,000

it it's got a new we we touched it up a

2760

01:53:52,070 --> 01:53:50,080

little we repainted the flag and the

2761

01:53:53,589 --> 01:53:52,080

nasa meatball and the sides of it we got

2762

01:53:55,350 --> 01:53:53,599

it all spiffed up for this uh

2763

01:53:57,030 --> 01:53:55,360

history-making day

2764

01:53:58,790 --> 01:53:57,040

it's another great day at the kennedy

2765

01:54:00,790 --> 01:53:58,800

space center america's premier

2766

01:54:02,229 --> 01:54:00,800

multi-user spaceport we're making

2767

01:54:04,550 --> 01:54:02,239

history we'd like to talk about that

2768

01:54:05,830 --> 01:54:04,560

first first faa commercial licensed

2769

01:54:07,830 --> 01:54:05,840

launch of crew to the international

2770

01:54:10,229 --> 01:54:07,840

space station to that point why is that

2771

01:54:11,510 --> 01:54:10,239

important for for well it's important

2772

01:54:13,189 --> 01:54:11,520

because we're trying to establish a

2773

01:54:15,030 --> 01:54:13,199

commercial economy in low earth orbit

2774

01:54:16,629 --> 01:54:15,040

all right we we want to be one of many

2775

01:54:18,310 --> 01:54:16,639

customers so

2776
01:54:21,030 --> 01:54:18,320
by us flying crews to the international

2777
01:54:22,870 --> 01:54:21,040
space station on an faa launch

2778
01:54:23,910 --> 01:54:22,880
it license flight it opens up the door

2779
01:54:25,910 --> 01:54:23,920
for other

2780
01:54:27,830 --> 01:54:25,920
people to fly up there right other

2781
01:54:29,350 --> 01:54:27,840
commercial customers yeah so i saw you

2782
01:54:30,550 --> 01:54:29,360
down there uh with the crew getting out

2783
01:54:31,589 --> 01:54:30,560
and they were walking out to their car

2784
01:54:32,870 --> 01:54:31,599
they look great they're excited i think

2785
01:54:35,030 --> 01:54:32,880
i saw you you're holding your phone

2786
01:54:37,270 --> 01:54:35,040
getting some shots i got yeah i kind of

2787
01:54:38,950 --> 01:54:37,280
admit i'm a little bit of a space nerd

2788
01:54:40,870 --> 01:54:38,960

well hey listen i mean you've been to

2789

01:54:42,790 --> 01:54:40,880

space four times so you understand what

2790

01:54:44,229 --> 01:54:42,800

these folks are going through right now

2791

01:54:46,149 --> 01:54:44,239

i mean it's getting real these seats are

2792

01:54:48,470 --> 01:54:46,159

articulating up you can see it moving

2793

01:54:49,510 --> 01:54:48,480

right now bob as they get into position

2794

01:54:50,950 --> 01:54:49,520

there

2795

01:54:53,109 --> 01:54:50,960

this must be a moment where it kind of

2796

01:54:55,109 --> 01:54:53,119

gets real oh yeah yeah once you're

2797

01:54:56,629 --> 01:54:55,119

strapped in and it will they close the

2798

01:54:58,070 --> 01:54:56,639

hatch then it's really rough is that

2799

01:54:59,589 --> 01:54:58,080

where is that the moment it comes and

2800

01:55:01,510 --> 01:54:59,599

then it's like okay we're inside this

2801
01:55:03,350 --> 01:55:01,520
thing we're going you know what's the

2802
01:55:04,790 --> 01:55:03,360
feeling what i mean what kind of goes

2803
01:55:07,030 --> 01:55:04,800
through your head so it depends on

2804
01:55:08,950 --> 01:55:07,040
different i mean on my first flight what

2805
01:55:11,669 --> 01:55:08,960
absolutely went through my head was

2806
01:55:12,870 --> 01:55:11,679
i don't want to screw this up

2807
01:55:15,350 --> 01:55:12,880
i want to make sure i don't make any

2808
01:55:16,709 --> 01:55:15,360
mistakes i mean i was really focused on

2809
01:55:18,870 --> 01:55:16,719
making sure that i did everything

2810
01:55:21,669 --> 01:55:18,880
absolutely perfect and you don't know

2811
01:55:23,350 --> 01:55:21,679
what to expect first off no simulator on

2812
01:55:25,910 --> 01:55:23,360
earth can prepare you for what it's like

2813
01:55:28,709 --> 01:55:25,920

to ride a rocket into space i mean you

2814

01:55:30,629 --> 01:55:28,719

practice everything but man it just gets

2815

01:55:32,470 --> 01:55:30,639

up and goes that acceleration that force

2816

01:55:34,950 --> 01:55:32,480

pushing you back in the sea it's

2817

01:55:35,990 --> 01:55:34,960

something else and so not knowing what

2818

01:55:37,990 --> 01:55:36,000

that's going to be like there's a little

2819

01:55:39,109 --> 01:55:38,000

bit of anticipation you know when you go

2820

01:55:40,709 --> 01:55:39,119

a second and third time then you've got

2821

01:55:42,310 --> 01:55:40,719

a little more idea of what to expect and

2822

01:55:44,310 --> 01:55:42,320

you can relax a little bit more but so

2823

01:55:45,510 --> 01:55:44,320

there's a there's anticipation of what

2824

01:55:47,270 --> 01:55:45,520

is this going to be like what is this

2825

01:55:49,350 --> 01:55:47,280

going to feel like you think there's

2826
01:55:50,870 --> 01:55:49,360
some nerves there right just naturally

2827
01:55:53,430 --> 01:55:50,880
in this moment

2828
01:55:55,510 --> 01:55:53,440
but these four astronauts they also ate

2829
01:55:57,510 --> 01:55:55,520
extremely well so i hope that the nerves

2830
01:55:58,709 --> 01:55:57,520
don't get them too much they ate well

2831
01:56:00,070 --> 01:55:58,719
because they're at the astronaut crew

2832
01:56:02,070 --> 01:56:00,080
quarters you've been hosting them for

2833
01:56:03,589 --> 01:56:02,080
the past week and tell me about what

2834
01:56:04,550 --> 01:56:03,599
they got to eat like anything they

2835
01:56:06,550 --> 01:56:04,560
wanted

2836
01:56:08,229 --> 01:56:06,560
that's great on the menu whatever you

2837
01:56:11,589 --> 01:56:08,239
want i heard like new york strip steak

2838
01:56:13,510 --> 01:56:11,599

basmati rice whatever some dressings

2839

01:56:16,070 --> 01:56:13,520

yeah yeah no life in crew quarters is

2840

01:56:17,830 --> 01:56:16,080

good with the uh there's one crew we

2841

01:56:19,350 --> 01:56:17,840

used to have a model open crew quarters

2842

01:56:21,990 --> 01:56:19,360

eat till you're sleepy and sleep till

2843

01:56:23,750 --> 01:56:22,000

you it's time you're hungry

2844

01:56:25,189 --> 01:56:23,760

that's that's a good way to leave i'm

2845

01:56:26,310 --> 01:56:25,199

surprised you can get them out there to

2846

01:56:27,750 --> 01:56:26,320

get on the rocket with that kind of

2847

01:56:29,669 --> 01:56:27,760

living so that's why you don't want to

2848

01:56:32,709 --> 01:56:29,679

spend too much time in crew quarters

2849

01:56:34,629 --> 01:56:32,719

but it's we do a a great job protecting

2850

01:56:35,669 --> 01:56:34,639

our astronauts from uh you know keeping

2851
01:56:37,430 --> 01:56:35,679
them healthy

2852
01:56:40,310 --> 01:56:37,440
but you know it's not about

2853
01:56:42,149 --> 01:56:40,320
it's it's just amazing what we do you

2854
01:56:44,149 --> 01:56:42,159
know i i would trade places with any one

2855
01:56:45,750 --> 01:56:44,159
of them in a heartbeat i i'm just i'm

2856
01:56:47,669 --> 01:56:45,760
really proud of these guys and i'm proud

2857
01:56:49,669 --> 01:56:47,679
of what we've accomplished as a nation

2858
01:56:51,270 --> 01:56:49,679
to have this commercial crew program

2859
01:56:53,510 --> 01:56:51,280
kathy leaders and her team has just done

2860
01:56:55,830 --> 01:56:53,520
an outstanding job getting it you know

2861
01:56:58,070 --> 01:56:55,840
getting bob and doug hurley up there and

2862
01:56:59,510 --> 01:56:58,080
home safely paving the way for this

2863
01:57:01,589 --> 01:56:59,520

first

2864

01:57:03,430 --> 01:57:01,599

flight under contract with spacex you

2865

01:57:05,030 --> 01:57:03,440

know this is the future and we want to

2866

01:57:07,510 --> 01:57:05,040

get boeing flying too they're right over

2867

01:57:09,589 --> 01:57:07,520

here building the cst-100 we got to have

2868

01:57:11,350 --> 01:57:09,599

them have a successful flight so that we

2869

01:57:12,470 --> 01:57:11,360

have dissimilar redundancy so that we

2870

01:57:13,750 --> 01:57:12,480

can get crews to and from the

2871

01:57:15,510 --> 01:57:13,760

international space station their test

2872

01:57:17,589 --> 01:57:15,520

launch right around the corner uh next

2873

01:57:19,510 --> 01:57:17,599

year in 2021 bob cabana thanks so much

2874

01:57:21,430 --> 01:57:19,520

for being here appreciate your insight

2875

01:57:23,510 --> 01:57:21,440

as always thanks for having me daryl

2876

01:57:25,189 --> 01:57:23,520

flew into space four times folks so

2877

01:57:26,950 --> 01:57:25,199

between me and him we have four flights

2878

01:57:29,510 --> 01:57:26,960

into space there you go we'll send it

2879

01:57:32,149 --> 01:57:29,520

back to you guys tahira

2880

01:57:34,709 --> 01:57:32,159

hey daryl thank you so much so right now

2881

01:57:36,709 --> 01:57:34,719

we've got about 300 000 people tuning in

2882

01:57:38,390 --> 01:57:36,719

across all of our social channels that's

2883

01:57:40,950 --> 01:57:38,400

about a hundred thousand more from when

2884

01:57:43,030 --> 01:57:40,960

we last checked in and ladies i am

2885

01:57:44,470 --> 01:57:43,040

seeing some great comments coming in

2886

01:57:45,270 --> 01:57:44,480

online and i've got a few i want to show

2887

01:57:48,149 --> 01:57:45,280

you

2888

01:57:49,910 --> 01:57:48,159

so this first one is she says i've

2889

01:57:51,990 --> 01:57:49,920

always heard nasa astronauts talk about

2890

01:57:54,390 --> 01:57:52,000

steak and eggs for breakfast but this is

2891

01:57:56,550 --> 01:57:54,400

the first time i've heard of curry rice

2892

01:57:58,390 --> 01:57:56,560

love this and just a huge thank you to

2893

01:57:59,990 --> 01:57:58,400

astronaut soichi for sharing this

2894

01:58:03,589 --> 01:58:00,000

tradition with us

2895

01:58:05,189 --> 01:58:03,599

and let's take a look at another one

2896

01:58:07,910 --> 01:58:05,199

so we've got this user saying this is

2897

01:58:10,149 --> 01:58:07,920

like watching apollo 11. this will make

2898

01:58:12,629 --> 01:58:10,159

history and a private company sending

2899

01:58:14,470 --> 01:58:12,639

humans to space with a reusable rocket

2900

01:58:17,189 --> 01:58:14,480

the future is now

2901
01:58:19,030 --> 01:58:17,199
so and again marie people have been

2902
01:58:20,629 --> 01:58:19,040
super curious about what the zero

2903
01:58:21,990 --> 01:58:20,639
gravity indicator is going to be on

2904
01:58:24,870 --> 01:58:22,000
today's flight i was wondering if you

2905
01:58:26,709 --> 01:58:24,880
could maybe give us a hint okay so i

2906
01:58:29,270 --> 01:58:26,719
know what it's going to be

2907
01:58:31,270 --> 01:58:29,280
nicole knows i think kate might know

2908
01:58:33,669 --> 01:58:31,280
we're not allowed to say yet but i can

2909
01:58:36,149 --> 01:58:33,679
tell you to keep your eye out it will

2910
01:58:37,510 --> 01:58:36,159
make an appearance at some point but

2911
01:58:39,910 --> 01:58:37,520
it's a surprise

2912
01:58:41,830 --> 01:58:39,920
it's special it's going to be great have

2913
01:58:43,830 --> 01:58:41,840

to tune in so

2914

01:58:45,910 --> 01:58:43,840

uh and ladies we're hearing about the

2915

01:58:47,510 --> 01:58:45,920

larger crew size in the capsule today

2916

01:58:49,510 --> 01:58:47,520

and i think that's super fun to think

2917

01:58:51,189 --> 01:58:49,520

about of those at home so i think we're

2918

01:58:53,910 --> 01:58:51,199

going to pose the question to the public

2919

01:58:55,510 --> 01:58:53,920

to see how big is their dream space crew

2920

01:58:57,270 --> 01:58:55,520

and we'll make this a poll and so i'll

2921

01:58:59,669 --> 01:58:57,280

share the results with you later on in

2922

01:59:01,270 --> 01:58:59,679

the show but nicole you're the only one

2923

01:59:03,669 --> 01:59:01,280

up here that's actually been to space

2924

01:59:05,589 --> 01:59:03,679

and on a few different crew sizes do you

2925

01:59:08,149 --> 01:59:05,599

have a preferred number

2926
01:59:09,910 --> 01:59:08,159
well um six seem to be the number for me

2927
01:59:11,270 --> 01:59:09,920
and i think if i could add my family

2928
01:59:14,790 --> 01:59:11,280
members on top of that that would be

2929
01:59:17,830 --> 01:59:14,800
outstanding oh i agree and room for pets

2930
01:59:19,830 --> 01:59:17,840
oh yes so ladies over the past month

2931
01:59:21,270 --> 01:59:19,840
we've also been asking users on social

2932
01:59:23,109 --> 01:59:21,280
media to show us how they're getting

2933
01:59:25,030 --> 01:59:23,119
excited for today's launch and we've

2934
01:59:29,669 --> 01:59:25,040
received some amazing submissions from

2935
01:59:31,669 --> 01:59:30,870
three

2936
01:59:32,470 --> 01:59:31,679
two

2937
01:59:34,390 --> 01:59:32,480
one

2938
01:59:36,440 --> 01:59:34,400

zero ignition

2939

01:59:54,550 --> 01:59:36,450

lift dog

2940

02:00:28,229 --> 01:59:55,710

check

2941

02:00:32,229 --> 02:00:30,229

i mean there you have it people from

2942

02:00:34,310 --> 02:00:32,239

around the world are just engaged with

2943

02:00:35,910 --> 02:00:34,320

this launch all right thanks to hira and

2944

02:00:37,990 --> 02:00:35,920

thanks to all of you following along

2945

02:00:40,229 --> 02:00:38,000

keep sending us uh your submissions how

2946

02:00:43,189 --> 02:00:40,239

you're watching we love seeing those um

2947

02:00:45,030 --> 02:00:43,199

so we had uh seat rotation and com

2948

02:00:46,790 --> 02:00:45,040

checks and we want to learn a little bit

2949

02:00:48,709 --> 02:00:46,800

more about the crew uh before we get

2950

02:00:50,390 --> 02:00:48,719

into hatch closure this will be the

2951

02:00:53,109 --> 02:00:50,400

second space flight

2952

02:00:54,870 --> 02:00:53,119

5 decimal to 4.100 we are ready for

2953

02:00:56,629 --> 02:00:54,880

dragon hatch closure

2954

02:00:58,709 --> 02:00:56,639

okay so we just heard the call ready for

2955

02:01:00,709 --> 02:00:58,719

hatch closure and we'll keep you posted

2956

02:01:02,550 --> 02:01:00,719

as that progresses

2957

02:01:06,870 --> 02:01:02,560

okay so we're we heard the call that

2958

02:01:23,669 --> 02:01:08,149

so we're going to pause for just a

2959

02:01:26,790 --> 02:01:25,270

so if you've been following along we

2960

02:01:29,350 --> 02:01:26,800

actually heard

2961

02:01:31,109 --> 02:01:29,360

the call out and saw seat rotation uh

2962

02:01:33,350 --> 02:01:31,119

happen just i think it was a couple of

2963

02:01:37,430 --> 02:01:33,360

minutes earlier than we had on our

2964

02:01:41,510 --> 02:01:39,589

okay so hatch closure is coming up uh

2965

02:01:43,430 --> 02:01:41,520

but in the meantime we want to learn a

2966

02:01:46,310 --> 02:01:43,440

little bit more about uh crew dragon

2967

02:01:48,229 --> 02:01:46,320

commander mike hopkins he is a u.s air

2968

02:01:49,750 --> 02:01:48,239

force colonel and here's a little bit

2969

02:02:02,030 --> 02:01:49,760

more about the missouri native who's

2970

02:02:02,040 --> 02:02:07,669

[Music]

2971

02:02:11,109 --> 02:02:09,189

sitting on the launch pad is is

2972

02:02:12,550 --> 02:02:11,119

definitely a moment that that you're

2973

02:02:14,070 --> 02:02:12,560

always thinking about right that's one

2974

02:02:17,990 --> 02:02:14,080

of the more critical phases of the

2975

02:02:23,510 --> 02:02:20,310

you're very focused in right it can be a

2976

02:02:25,109 --> 02:02:23,520

very emotional time

2977

02:02:26,550 --> 02:02:25,119

you're kind of pinching yourself because

2978

02:02:27,910 --> 02:02:26,560

it's hard to believe that you're finally

2979

02:02:30,550 --> 02:02:27,920

there

2980

02:02:33,350 --> 02:02:30,560

born in lebanon missouri he is an air

2981

02:02:36,870 --> 02:02:33,360

force colonel and a flight test engineer

2982

02:02:37,950 --> 02:02:36,880

he was selected as an astronaut in 2009

2983

02:02:40,790 --> 02:02:37,960

he spent

2984

02:02:41,750 --> 02:02:40,800

166 days on the international space

2985

02:02:47,100 --> 02:02:41,760

station

2986

02:02:54,149 --> 02:02:47,110

introducing nasa astronaut mike hopkins

2987

02:02:57,830 --> 02:02:55,430

you know it's funny i mean a lot of

2988

02:03:00,550 --> 02:02:57,840

times people think of the dream of being

2989

02:03:03,270 --> 02:03:00,560

an astronaut as something that a

2990

02:03:05,109 --> 02:03:03,280

a kid would have and i remember

2991

02:03:07,270 --> 02:03:05,119

when my wife and i first started dating

2992

02:03:08,629 --> 02:03:07,280

at the university of illinois and

2993

02:03:11,109 --> 02:03:08,639

i told her that i wanted to be an

2994

02:03:13,589 --> 02:03:11,119

astronaut she laughed at me

2995

02:03:16,229 --> 02:03:13,599

and kind of said are you serious

2996

02:03:18,470 --> 02:03:16,239

but but at the same time she she stuck

2997

02:03:21,109 --> 02:03:18,480

with me throughout the years and and to

2998

02:03:33,830 --> 02:03:21,119

have that dream come true is is pretty

2999

02:03:38,070 --> 02:03:36,149

my role on the crew dragon itself as

3000

02:03:39,910 --> 02:03:38,080

part of crew one is the commander of the

3001
02:03:41,270 --> 02:03:39,920
vehicle

3002
02:03:42,470 --> 02:03:41,280
we'll be launching to the international

3003
02:03:44,149 --> 02:03:42,480
space station

3004
02:03:45,750 --> 02:03:44,159
and we're going to be doing a long

3005
02:03:49,030 --> 02:03:45,760
duration mission a standard long

3006
02:03:52,390 --> 02:03:50,709
one of the nice things about being on

3007
02:03:53,830 --> 02:03:52,400
board the international space station is

3008
02:03:55,430 --> 02:03:53,840
you have a lot of connectivity believe

3009
02:03:56,709 --> 02:03:55,440
it or not with your family and so i i

3010
02:03:58,870 --> 02:03:56,719
was able to call

3011
02:04:01,270 --> 02:03:58,880
just about every day

3012
02:04:04,069 --> 02:04:01,280
my family means every everything to me

3013
02:04:07,270 --> 02:04:04,079

it is the most important part of my life

3014

02:04:10,550 --> 02:04:07,280

my wife julie my son ryan my son lucas

3015

02:04:11,990 --> 02:04:10,560

they are just such a a huge part of this

3016

02:04:15,030 --> 02:04:12,000

of this whole endeavor you know without

3017

02:04:17,189 --> 02:04:15,040

family it just wouldn't be as meaningful

3018

02:04:19,669 --> 02:04:17,199

the partnership that we have right now

3019

02:04:22,310 --> 02:04:19,679

with spacex it's pretty powerful they

3020

02:04:23,910 --> 02:04:22,320

bring a lot to the table nasa brings a

3021

02:04:25,910 --> 02:04:23,920

lot to the table we've got a ton of

3022

02:04:28,069 --> 02:04:25,920

experience in human space flight when

3023

02:04:29,430 --> 02:04:28,079

you're out there on a day-to-day basis

3024

02:04:31,510 --> 02:04:29,440

and you're and you're interacting with

3025

02:04:32,550 --> 02:04:31,520

their engineers and you're interacting

3026

02:04:33,990 --> 02:04:32,560

with their trainers and you're

3027

02:04:36,229 --> 02:04:34,000

interacting with

3028

02:04:38,390 --> 02:04:36,239

the people that are actually building

3029

02:04:40,310 --> 02:04:38,400

the rockets and building the capsule

3030

02:04:42,950 --> 02:04:40,320

itself you really get to establish the

3031

02:04:44,550 --> 02:04:42,960

relationships the personal relationships

3032

02:04:46,069 --> 02:04:44,560

it's not just about the astronauts that

3033

02:04:48,470 --> 02:04:46,079

are on board but it's about the entire

3034

02:04:49,910 --> 02:04:48,480

team at nasa and spacex that it that

3035

02:04:51,750 --> 02:04:49,920

it's taken to launch this crew one

3036

02:04:53,800 --> 02:04:51,760

vehicle and we couldn't do our job

3037

02:05:04,310 --> 02:04:53,810

without them

3038

02:05:09,669 --> 02:05:06,790

seated next to mike hopkins is crew

3039

02:05:12,550 --> 02:05:09,679

dragon pilot victor glover who has flown

3040

02:05:15,270 --> 02:05:12,560

on 40 different types of aircraft for a

3041

02:05:17,430 --> 02:05:15,280

total of more than 3 000 hours

3042

02:05:19,830 --> 02:05:17,440

helping prepare him for this piloting

3043

02:05:21,990 --> 02:05:19,840

his first test flight to space here's

3044

02:05:27,189 --> 02:05:22,000

more about the u.s navy commander and

3045

02:05:33,109 --> 02:05:29,589

i saw a shuttle launch

3046

02:05:35,830 --> 02:05:33,119

when i was in elementary school

3047

02:05:38,149 --> 02:05:35,840

and i thought i really want to fly that

3048

02:05:40,870 --> 02:05:38,159

and that's where it began

3049

02:05:43,830 --> 02:05:40,880

he is a navy commander a naval aviator

3050

02:05:46,470 --> 02:05:43,840

and a test pilot he was selected as an

3051
02:05:49,189 --> 02:05:46,480
astronaut in 2013.

3052
02:05:50,470 --> 02:05:49,199
this is his first space flight

3053
02:05:52,069 --> 02:05:50,480
introducing

3054
02:05:56,740 --> 02:05:52,079
nasa astronaut

3055
02:06:05,750 --> 02:05:59,850
[Music]

3056
02:06:09,990 --> 02:06:07,589
first and foremost i'm just grateful to

3057
02:06:11,910 --> 02:06:10,000
god and to my family to work and live in

3058
02:06:13,990 --> 02:06:11,920
space is just a humbling and amazing

3059
02:06:17,189 --> 02:06:14,000
blessing in and of itself this is a test

3060
02:06:18,629 --> 02:06:17,199
pilot's dream

3061
02:06:20,470 --> 02:06:18,639
flying has been such an important part

3062
02:06:23,069 --> 02:06:20,480
of my professional life and i love to do

3063
02:06:28,629 --> 02:06:26,069

64 000 feet that's the highest up i've

3064

02:06:30,709 --> 02:06:28,639

ever been above the ground and so to get

3065

02:06:33,560 --> 02:06:30,719

to a point beyond that

3066

02:06:36,470 --> 02:06:33,570

that'll be a little special moment

3067

02:06:37,589 --> 02:06:36,480

[Music]

3068

02:06:41,669 --> 02:06:37,599

i'm

3069

02:06:43,750 --> 02:06:41,679

going to be learning the ropes from a

3070

02:06:45,270 --> 02:06:43,760

very experienced crew

3071

02:06:47,030 --> 02:06:45,280

trying to balance that enjoying and

3072

02:06:48,390 --> 02:06:47,040

living in the moment but also managing

3073

02:06:50,629 --> 02:06:48,400

the responsibilities to make sure that

3074

02:06:52,550 --> 02:06:50,639

we get to space safely

3075

02:06:55,270 --> 02:06:52,560

i'm looking forward to that

3076

02:06:57,430 --> 02:06:55,280

juxtaposition of emotion i think

3077

02:06:58,950 --> 02:06:57,440

tell me about how you ended up here i

3078

02:07:01,189 --> 02:06:58,960

think for every astronaut that said

3079

02:07:02,709 --> 02:07:01,199

that's kind of a different story

3080

02:07:04,149 --> 02:07:02,719

that goes way back so high school

3081

02:07:05,510 --> 02:07:04,159

athlete

3082

02:07:07,270 --> 02:07:05,520

loved being a part of a small high

3083

02:07:09,030 --> 02:07:07,280

performing team wrestling in football

3084

02:07:12,149 --> 02:07:09,040

was fortunate to wrestle in college

3085

02:07:14,149 --> 02:07:12,159

while pursuing my engineering education

3086

02:07:16,229 --> 02:07:14,159

i actually originally wanted to be a

3087

02:07:17,910 --> 02:07:16,239

navy seal that's what started my journey

3088

02:07:21,669 --> 02:07:17,920

in the navy and i wound up deciding to

3089

02:07:24,069 --> 02:07:21,679

go into aviation and learn to fly

3090

02:07:26,390 --> 02:07:24,079

the love of flying and being a part of a

3091

02:07:28,870 --> 02:07:26,400

small very specialized high performing

3092

02:07:30,870 --> 02:07:28,880

team that gets to do things in really

3093

02:07:33,189 --> 02:07:30,880

interesting and challenging environments

3094

02:07:36,069 --> 02:07:33,199

the astronaut core is the epitome of

3095

02:07:41,109 --> 02:07:39,109

this is truly an exciting time for human

3096

02:07:42,870 --> 02:07:41,119

space flight iron animation and believe

3097

02:07:46,069 --> 02:07:42,880

me it's only going to get better as we

3098

02:07:47,990 --> 02:07:46,079

charge off into the future

3099

02:07:50,870 --> 02:07:48,000

we've been working with our partner

3100

02:07:53,030 --> 02:07:50,880

spacex for years it's been it's just

3101
02:07:54,709 --> 02:07:53,040
been amazing to learn about the vehicle

3102
02:07:56,149 --> 02:07:54,719
um and to just spend time getting to

3103
02:07:57,830 --> 02:07:56,159
know their flight control team and their

3104
02:08:00,229 --> 02:07:57,840
trainers it's creating sort of a new

3105
02:08:03,350 --> 02:08:00,239
culture that is some kind of a balance

3106
02:08:07,510 --> 02:08:05,430
the fact that it takes thousands of

3107
02:08:09,830 --> 02:08:07,520
people all over the world to get us

3108
02:08:11,830 --> 02:08:09,840
ready it's humbling and overwhelming and

3109
02:08:13,750 --> 02:08:11,840
i want to do my best because i represent

3110
02:08:15,510 --> 02:08:13,760
them so thank you for your support and

3111
02:08:21,070 --> 02:08:15,520
for your love and know that you're

3112
02:08:27,589 --> 02:08:25,030
[Music]

3113
02:08:30,870 --> 02:08:27,599

okay so while we were in that video um

3114

02:08:32,550 --> 02:08:30,880

we saw the hatch close um we have not

3115

02:08:34,629 --> 02:08:32,560

heard the confirmation of the hatch

3116

02:08:36,790 --> 02:08:34,639

closed we're not expecting that until t

3117

02:08:39,510 --> 02:08:36,800

minus one hour and 55 minutes so we're

3118

02:08:41,669 --> 02:08:39,520

still almost 10 minutes away from that

3119

02:08:44,870 --> 02:08:41,679

but even though the hat appears to be

3120

02:08:47,350 --> 02:08:44,880

closed there's a process to um

3121

02:08:49,430 --> 02:08:47,360

completing this and making sure that uh

3122

02:08:51,270 --> 02:08:49,440

it's it's sealed and there's no leaking

3123

02:08:53,669 --> 02:08:51,280

so kate can you kind of explain what the

3124

02:08:55,669 --> 02:08:53,679

crew is doing now uh during this hatch

3125

02:08:57,669 --> 02:08:55,679

closure process yeah for sure so like

3126
02:09:00,069 --> 02:08:57,679
marie said it's not quite as simple as

3127
02:09:01,830 --> 02:09:00,079
closing your car door um of course

3128
02:09:03,510 --> 02:09:01,840
they're having to make sure that

3129
02:09:05,669 --> 02:09:03,520
everything is in place there will

3130
02:09:08,950 --> 02:09:05,679
actually be a seal that is inflated to

3131
02:09:11,510 --> 02:09:08,960
ensure uh that all of the basically that

3132
02:09:13,830 --> 02:09:11,520
it is watertight um if it's watertight

3133
02:09:15,669 --> 02:09:13,840
it'll it'll get to space uh so we see

3134
02:09:18,229 --> 02:09:15,679
the crew there's excuse me the closeout

3135
02:09:19,990 --> 02:09:18,239
techs the suit techs all their in their

3136
02:09:21,669 --> 02:09:20,000
numbered uniforms going through the

3137
02:09:23,910 --> 02:09:21,679
steps you can see the tablets in their

3138
02:09:26,790 --> 02:09:23,920

hands uh those are our electronic

3139

02:09:29,189 --> 02:09:26,800

procedures or e-procedures and they are

3140

02:09:30,790 --> 02:09:29,199

essentially stepping through each one uh

3141

02:09:32,470 --> 02:09:30,800

to make sure that

3142

02:09:34,550 --> 02:09:32,480

in giving verbal cues saying that is

3143

02:09:36,470 --> 02:09:34,560

complete we are good uh and we're

3144

02:09:38,870 --> 02:09:36,480

basically just counting through the

3145

02:09:41,510 --> 02:09:38,880

process um step by step getting closer

3146

02:09:43,350 --> 02:09:41,520

to uh launch time which at this point

3147

02:09:45,589 --> 02:09:43,360

we're just a mere two hours and three

3148

02:09:47,030 --> 02:09:45,599

minutes away from

3149

02:09:49,830 --> 02:09:47,040

nicole what was it like when you're

3150

02:09:51,430 --> 02:09:49,840

sitting inside the space shuttle when

3151

02:09:53,430 --> 02:09:51,440

that moment when

3152

02:09:56,470 --> 02:09:53,440

you know that that last door to the

3153

02:09:57,910 --> 02:09:56,480

outside closed

3154

02:09:59,910 --> 02:09:57,920

you know i think it's like all the steps

3155

02:10:01,830 --> 02:09:59,920

we've been talking along the way it's

3156

02:10:04,550 --> 02:10:01,840

another one of those wow this could be

3157

02:10:06,550 --> 02:10:04,560

real today's steps and

3158

02:10:08,550 --> 02:10:06,560

um that is certainly one that makes you

3159

02:10:10,229 --> 02:10:08,560

think it's it's going to happen you're

3160

02:10:12,310 --> 02:10:10,239

here at that point you know the closeout

3161

02:10:14,310 --> 02:10:12,320

crew is getting ready to depart the pad

3162

02:10:15,350 --> 02:10:14,320

um shortly and you know that you're

3163

02:10:17,080 --> 02:10:15,360

going to be out there on your own with

3164

02:10:27,030 --> 02:10:17,090

your crew waiting to go

3165

02:10:31,589 --> 02:10:29,750

okay all right and in seat number one

3166

02:10:34,310 --> 02:10:31,599

today is crew one mission specialist

3167

02:10:36,550 --> 02:10:34,320

shannon walker who flew previously on

3168

02:10:40,229 --> 02:10:36,560

the russian soyuz to the international

3169

02:10:42,149 --> 02:10:40,239

space station spending 163 days in space

3170

02:10:44,470 --> 02:10:42,159

here's more on dr walker who will be the

3171

02:10:47,109 --> 02:10:44,480

first woman to fly on a commercial

3172

02:10:49,589 --> 02:10:47,119

orbital spacecraft

3173

02:10:51,109 --> 02:10:49,599

i always wanted to be an astronaut

3174

02:10:53,830 --> 02:10:51,119

i just turned four

3175

02:10:55,990 --> 02:10:53,840

when we first landed on the moon and i

3176
02:10:58,069 --> 02:10:56,000
have very distinct memory of my parents

3177
02:11:00,310 --> 02:10:58,079
taking me and my older sister out into

3178
02:11:02,550 --> 02:11:00,320
the backyard and the moon was rising

3179
02:11:05,669 --> 02:11:02,560
over our house and they pointed up there

3180
02:11:07,109 --> 02:11:05,679
and said we have people there and even

3181
02:11:09,030 --> 02:11:07,119
at four i thought that just sounded like

3182
02:11:10,870 --> 02:11:09,040
the best idea ever

3183
02:11:11,910 --> 02:11:10,880
we have been given the scientific

3184
02:11:13,669 --> 02:11:11,920
knowledge

3185
02:11:15,430 --> 02:11:13,679
the technical ability

3186
02:11:17,350 --> 02:11:15,440
and the materials to pursue the

3187
02:11:20,709 --> 02:11:17,360
exploration of the universe

3188
02:11:24,870 --> 02:11:20,719

to ignore these great resources would be

3189

02:11:27,109 --> 02:11:24,880

a corruption of a god-given ability

3190

02:11:28,709 --> 02:11:27,119

i had seen a new class of astronauts

3191

02:11:30,390 --> 02:11:28,719

that had been hired for the space

3192

02:11:31,750 --> 02:11:30,400

shuttle and i was reading in the

3193

02:11:34,229 --> 02:11:31,760

newspaper

3194

02:11:37,109 --> 02:11:34,239

what their qualifications were and just

3195

02:11:38,390 --> 02:11:37,119

going through some of them i realized i

3196

02:11:40,210 --> 02:11:38,400

can do that

3197

02:11:42,870 --> 02:11:40,220

and that was a big turning point

3198

02:11:45,350 --> 02:11:42,880

[Music]

3199

02:11:46,950 --> 02:11:45,360

i'm dr shannon walker nasa astronaut and

3200

02:11:48,709 --> 02:11:46,960

i am getting ready to fly on the crew

3201
02:11:52,550 --> 02:11:48,719
one mission to the international space

3202
02:11:58,470 --> 02:11:55,510
crew one is the first operational

3203
02:12:00,950 --> 02:11:58,480
mission of the crew dragon vehicle to

3204
02:12:02,550 --> 02:12:00,960
the international space station

3205
02:12:04,550 --> 02:12:02,560
i was not expecting the call to be

3206
02:12:05,910 --> 02:12:04,560
assigned and so um

3207
02:12:08,150 --> 02:12:05,920
any time you get a flight assignment

3208
02:12:13,030 --> 02:12:08,160
it's it's tremendously exciting

3209
02:12:14,790 --> 02:12:13,040
[Music]

3210
02:12:17,750 --> 02:12:14,800
i spent six months on the station

3211
02:12:19,350 --> 02:12:17,760
previously in 2010 and i am so looking

3212
02:12:21,669 --> 02:12:19,360
forward to getting back there and having

3213
02:12:22,870 --> 02:12:21,679

another six months on the space station

3214

02:12:25,990 --> 02:12:22,880

there are so many things that you could

3215

02:12:28,629 --> 02:12:26,000

do on station what i like about it is

3216

02:12:30,709 --> 02:12:28,639

is every day really is different you get

3217

02:12:32,390 --> 02:12:30,719

up and you may be doing a biological

3218

02:12:34,470 --> 02:12:32,400

experiment one day you may be doing

3219

02:12:36,069 --> 02:12:34,480

maintenance on equipment the next day

3220

02:12:37,189 --> 02:12:36,079

and then the day following that you'll

3221

02:12:40,149 --> 02:12:37,199

be doing

3222

02:12:41,589 --> 02:12:40,159

some sort of experiment in chemistry

3223

02:12:44,069 --> 02:12:41,599

what i have found being part of the

3224

02:12:46,390 --> 02:12:44,079

international space station program and

3225

02:12:49,270 --> 02:12:46,400

not just russia but our colleagues in

3226

02:12:51,430 --> 02:12:49,280

japan and europe and canada is that

3227

02:12:55,109 --> 02:12:51,440

underneath it all we all have the same

3228

02:12:57,510 --> 02:12:55,119

goals and we all have the same passions

3229

02:13:00,470 --> 02:12:57,520

the dragon spacecraft represents to me

3230

02:13:02,709 --> 02:13:00,480

is just a continuing evolution of better

3231

02:13:04,950 --> 02:13:02,719

computing power that's you know evolved

3232

02:13:06,629 --> 02:13:04,960

over the years and different ways that

3233

02:13:08,069 --> 02:13:06,639

the crew can interact with the

3234

02:13:09,910 --> 02:13:08,079

spacecraft

3235

02:13:12,069 --> 02:13:09,920

spacex is a very interesting company

3236

02:13:14,629 --> 02:13:12,079

there are so many young people i always

3237

02:13:17,109 --> 02:13:14,639

imagine it to be like it was in the

3238

02:13:19,109 --> 02:13:17,119

early apollo days at nasa with so many

3239

02:13:21,750 --> 02:13:19,119

young engineers so passionate about what

3240

02:13:24,149 --> 02:13:21,760

they are doing the important thing is we

3241

02:13:27,669 --> 02:13:24,159

both have learned from each other and

3242

02:13:29,430 --> 02:13:27,679

now we've got a very strong bond on what

3243

02:13:33,030 --> 02:13:29,440

we want to accomplish and how we need to

3244

02:13:35,510 --> 02:13:33,040

accomplish it together i do believe that

3245

02:13:38,629 --> 02:13:35,520

human space flight is an imperative for

3246

02:13:41,750 --> 02:13:38,639

our planet and to be a part of that

3247

02:13:43,190 --> 02:13:41,760

to keep the progress growing i find very

3248

02:13:49,350 --> 02:13:43,200

inspiring

3249

02:13:55,109 --> 02:13:51,350

crew one mission specialist soichi

3250

02:13:57,109 --> 02:13:55,119

naguchi has spent 177 days in space and

3251

02:13:58,470 --> 02:13:57,119

this will be his third mission in an

3252

02:14:00,310 --> 02:13:58,480

orbital spacecraft

3253

02:14:06,870 --> 02:14:00,320

here's more on the first international

3254

02:14:13,030 --> 02:14:11,189

suici appears to be a very quiet person

3255

02:14:15,030 --> 02:14:13,040

and yet he comes out with some fantastic

3256

02:14:17,669 --> 02:14:15,040

one-liners

3257

02:14:21,430 --> 02:14:17,679

suicide is probably the quietest but he

3258

02:14:26,229 --> 02:14:23,750

earlier i used the word dignified to

3259

02:14:28,629 --> 02:14:26,239

describe him but his and so his humor is

3260

02:14:30,550 --> 02:14:28,639

very dry and subtle but it is extremely

3261

02:14:33,430 --> 02:14:30,560

witty and it just makes it that much

3262

02:14:36,310 --> 02:14:33,440

more funny konnichiwa my name is soichi

3263

02:14:38,629 --> 02:14:36,320

noguchi i am mission specialist one on

3264

02:14:41,910 --> 02:14:38,639

crew one mission to international space

3265

02:14:46,629 --> 02:14:44,709

well my mission will be uh help support

3266

02:14:48,629 --> 02:14:46,639

the commander and the pilot on crew

3267

02:14:50,069 --> 02:14:48,639

dragon and of course once i arrive on

3268

02:14:52,310 --> 02:14:50,079

the space station i'll be a border

3269

02:14:55,030 --> 02:14:52,320

engineer and do lots of science and

3270

02:14:56,790 --> 02:14:55,040

maintenance and the spacewalks robotics

3271

02:14:59,750 --> 02:14:56,800

all kinds of work

3272

02:15:01,109 --> 02:14:59,760

i'm really fortunate enough to have a

3273

02:15:02,709 --> 02:15:01,119

good crew member

3274

02:15:05,910 --> 02:15:02,719

and obviously we have a lot of a

3275

02:15:09,030 --> 02:15:05,920

different background and the diversity

3276

02:15:12,229 --> 02:15:09,040

definitely gives us a great rigidity

3277

02:15:18,550 --> 02:15:14,629

i wanted to be an astronaut for for a

3278

02:15:21,030 --> 02:15:18,560

long time high school days i watched the

3279

02:15:22,550 --> 02:15:21,040

shuttle launch i studied aerodynamics

3280

02:15:25,910 --> 02:15:22,560

and

3281

02:15:28,470 --> 02:15:25,920

airspace engineering when i turned 30

3282

02:15:31,510 --> 02:15:28,480

a japanese space agency started

3283

02:15:34,069 --> 02:15:31,520

recruiting another astronaut class

3284

02:15:34,870 --> 02:15:34,079

i was fortunate enough to be selected

3285

02:15:39,030 --> 02:15:34,880

and

3286

02:15:42,149 --> 02:15:39,040

sent immediately to johnson space center

3287

02:15:45,430 --> 02:15:42,159

my first flight was 2005 that was on the

3288

02:15:48,790 --> 02:15:45,440

space shuttle discovery is this 114

3289

02:15:52,390 --> 02:15:48,800

and the next flight was 2009 i was on

3290

02:15:55,589 --> 02:15:52,400

the russian soyuz

3291

02:15:56,950 --> 02:15:55,599

the vehicle is definitely like like a

3292

02:15:59,350 --> 02:15:56,960

living creature

3293

02:16:01,510 --> 02:15:59,360

all the all the pipes or the pipelines

3294

02:16:04,390 --> 02:16:01,520

are alive

3295

02:16:06,470 --> 02:16:04,400

i really remember the morning of the

3296

02:16:09,669 --> 02:16:06,480

launch they arrive at the path hey this

3297

02:16:11,830 --> 02:16:09,679

vehicle is alive and waiting to go out

3298

02:16:13,990 --> 02:16:11,840

liftoff of space shuttle discovery

3299

02:16:16,550 --> 02:16:14,000

beginning america's new journey to the

3300

02:16:20,709 --> 02:16:18,629

i'm really looking forward to go back to

3301

02:16:24,069 --> 02:16:20,719

that launch day

3302

02:16:26,790 --> 02:16:24,079

the crewman is the first operational

3303

02:16:28,470 --> 02:16:26,800

spaceflight after the certification

3304

02:16:31,669 --> 02:16:28,480

given by nasa

3305

02:16:33,830 --> 02:16:31,679

the important thing is this is brand new

3306

02:16:36,469 --> 02:16:33,840

design from scratch

3307

02:16:37,990 --> 02:16:36,479

21st century spacecraft and this is a

3308

02:16:40,950 --> 02:16:38,000

new design

3309

02:16:44,469 --> 02:16:40,960

and obviously the spacex did a very nice

3310

02:16:46,469 --> 02:16:44,479

job the spacecraft of this century is

3311

02:16:48,950 --> 02:16:46,479

not just for america but this is

3312

02:16:50,950 --> 02:16:48,960

international corporation and all the

3313

02:16:54,389 --> 02:16:50,960

other people around the world have a

3314

02:17:02,870 --> 02:16:54,399

chance to ride on this screwdriver so

3315

02:17:07,270 --> 02:17:05,270

okay we're looking live now inside the

3316

02:17:08,950 --> 02:17:07,280

white room uh you can see discussing

3317

02:17:15,110 --> 02:17:08,960

that negative we're gonna go to pad

3318

02:17:19,110 --> 02:17:16,950

okay so

3319

02:17:22,230 --> 02:17:19,120

it sounds like they may be reopening the

3320

02:17:33,429 --> 02:17:24,309

we're gonna listen and uh to see if we

3321

02:17:39,589 --> 02:17:35,830

okay so it sounds like uh they want to

3322

02:17:42,070 --> 02:17:39,599

double check uh a leak check

3323

02:17:58,469 --> 02:17:42,080

so we may see that hatch reopen

3324

02:18:03,669 --> 02:18:00,389

and nominally we would expect right

3325

02:18:06,629 --> 02:18:03,679

about now to hear a call out for hatch

3326

02:18:08,230 --> 02:18:06,639

close right at t minus one hour and 55

3327

02:18:09,110 --> 02:18:08,240

minutes so we haven't heard that just

3328

02:18:10,629 --> 02:18:09,120

yet

3329

02:18:12,870 --> 02:18:10,639

but we did hear

3330

02:18:16,469 --> 02:18:12,880

that the teams are looking at reopening

3331

02:18:18,309 --> 02:18:16,479

the hatch to double check uh some leaks

3332

02:18:19,990 --> 02:18:18,319

so what i'm hearing is that uh the

3333

02:18:22,150 --> 02:18:20,000

closeout team saw a little bit of a

3334

02:18:24,389 --> 02:18:22,160

pressure drop during those leak checks

3335

02:18:26,150 --> 02:18:24,399

so like i mentioned before it's not like

3336

02:18:28,629 --> 02:18:26,160

it's not like closing a door right it's

3337

02:18:31,509 --> 02:18:28,639

not closing the the door to your car um

3338

02:18:32,950 --> 02:18:31,519

the the door closes uh they check the

3339

02:18:35,349 --> 02:18:32,960

environments inside the capsule make

3340

02:18:37,270 --> 02:18:35,359

sure we're good um then they perform a

3341

02:18:38,389 --> 02:18:37,280

leak check again essentially making sure

3342

02:18:40,549 --> 02:18:38,399

that the

3343

02:18:42,790 --> 02:18:40,559

the cabin and the door are able to

3344

02:18:44,469 --> 02:18:42,800

maintain pressure and environments uh so

3345

02:18:46,070 --> 02:18:44,479

something like this if they have to

3346

02:18:48,469 --> 02:18:46,080

reopen it it might just be they have to

3347

02:18:50,230 --> 02:18:48,479

reposition a seal um so it's a we're

3348

02:18:50,950 --> 02:18:50,240

considered a minor issue at the moment

3349

02:18:53,830 --> 02:18:50,960

but

3350

02:18:55,910 --> 02:18:53,840

it might be as simple as

3351

02:18:57,990 --> 02:18:55,920

allowing us to open the hatch check the

3352

02:18:58,870 --> 02:18:58,000

seals and the latch mechanism

3353

02:19:13,830 --> 02:18:58,880

and then

3354

02:19:17,030 --> 02:19:15,270

okay we're going to go over to john

3355

02:19:18,629 --> 02:19:17,040

insprucker and hawthorne he's been

3356

02:19:20,150 --> 02:19:18,639

listening to some more details john can

3357

02:19:21,669 --> 02:19:20,160

you give us an update on what's going on

3358

02:19:23,830 --> 02:19:21,679

now

3359

02:19:26,950 --> 02:19:23,840

yeah murray i've been listening into the

3360

02:19:28,549 --> 02:19:26,960

dragon nets uh in addition to falcon 9.

3361

02:19:32,070 --> 02:19:28,559

right now you can see on the screen the

3362

02:19:33,429 --> 02:19:32,080

crew inside dragon everything is safe

3363

02:19:35,349 --> 02:19:33,439

at the launch pad we have not gotten

3364

02:19:37,589 --> 02:19:35,359

into propellant load

3365

02:19:39,750 --> 02:19:37,599

what we were doing is our standard

3366

02:19:41,669 --> 02:19:39,760

procedures uh we did communications

3367

02:19:43,509 --> 02:19:41,679

checks that you heard a while back uh

3368

02:19:45,190 --> 02:19:43,519

they checked the environmental hey the

3369

02:19:47,589 --> 02:19:45,200

temperature was just right for the crew

3370

02:19:50,790 --> 02:19:47,599

inside and then we command to close the

3371

02:19:52,630 --> 02:19:50,800

hatch the team then uh locks it down and

3372

02:19:54,469 --> 02:19:52,640

we run a leak check just to make sure

3373

02:19:55,910 --> 02:19:54,479

that it is leaked tight

3374

02:19:57,510 --> 02:19:55,920

we're running that leak check and they

3375

02:19:59,270 --> 02:19:57,520

saw a little bit of a drop in pressure

3376

02:20:01,030 --> 02:19:59,280

so what you're seeing on the screen

3377

02:20:02,790 --> 02:20:01,040

right now from the outside of the

3378

02:20:04,870 --> 02:20:02,800

capsule on the left

3379

02:20:06,950 --> 02:20:04,880

the spacex uh

3380

02:20:08,710 --> 02:20:06,960

ingress team in the access arm in the

3381

02:20:10,469 --> 02:20:08,720

white room they're going to open that

3382

02:20:12,230 --> 02:20:10,479

hatch back up again one thing they want

3383

02:20:13,830 --> 02:20:12,240

to look at is just make sure nothing got

3384

02:20:15,990 --> 02:20:13,840

trapped in the seal they're going to

3385

02:20:17,990 --> 02:20:16,000

take a look at the latch mechanism they

3386

02:20:19,830 --> 02:20:18,000

also are checking their equipment to

3387

02:20:21,429 --> 02:20:19,840

make sure that it's uh

3388

02:20:22,309 --> 02:20:21,439

trying to make sure whether or not it's

3389

02:20:23,910 --> 02:20:22,319

actually

3390

02:20:25,429 --> 02:20:23,920

in the capsule or it might be in the

3391

02:20:27,990 --> 02:20:25,439

measuring equipment that they're holding

3392

02:20:30,469 --> 02:20:28,000

on to so you can see right now the latch

3393

02:20:31,590 --> 02:20:30,479

thanks for the hatch has come open

3394

02:20:33,510 --> 02:20:31,600

and they are beginning the

3395

02:20:36,230 --> 02:20:33,520

troubleshooting taking a look around the

3396

02:20:37,590 --> 02:20:36,240

sales of the timeline

3397

02:20:39,910 --> 02:20:37,600

yeah i just wanted to let you know that

3398

02:20:41,670 --> 02:20:39,920

we do have about 12 about 10 minutes of

3399

02:20:46,710 --> 02:20:41,680

margin in the schedule for this

3400

02:20:50,070 --> 02:20:48,309

and 10 minutes before they need to start

3401

02:20:51,990 --> 02:20:50,080

closing the hatch again

3402

02:20:53,510 --> 02:20:52,000

that is correct yeah 10 minutes to hatch

3403

02:20:59,510 --> 02:20:53,520

close and they are taking a look at the

3404

02:20:59,520 --> 02:22:11,750

uh i'm only listening to program now

3405

02:22:16,550 --> 02:22:13,990

hey marie this is john uh did you ask me

3406

02:22:19,270 --> 02:22:16,560

a question i didn't pick it up

3407

02:22:21,590 --> 02:22:19,280

um yeah i was i wanted to uh first just

3408

02:22:23,270 --> 02:22:21,600

acknowledge that we heard um on the call

3409

02:22:24,950 --> 02:22:23,280

outs that they said there were that they

3410

02:22:26,790 --> 02:22:24,960

had about 10 minutes of margin in the

3411

02:22:29,670 --> 02:22:26,800

schedule so not necessarily going to

3412

02:22:31,270 --> 02:22:29,680

throw the timeline off track but is this

3413

02:22:32,630 --> 02:22:31,280

something i know that people that are

3414

02:22:33,910 --> 02:22:32,640

watching this live have got to be

3415

02:22:35,510 --> 02:22:33,920

wondering is this something that can

3416

02:22:38,870 --> 02:22:35,520

cause a scrub or you know how

3417

02:22:40,710 --> 02:22:38,880

significant is this issue right now

3418

02:22:42,630 --> 02:22:40,720

well i'd say from a

3419

02:22:44,950 --> 02:22:42,640

crew safety standpoint which is what

3420

02:22:46,870 --> 02:22:44,960

we're always looking out for if we could

3421

02:22:48,550 --> 02:22:46,880

not resolve the issue if we thought we

3422

02:22:51,510 --> 02:22:48,560

were actually measuring a leak then that

3423

02:22:52,550 --> 02:22:51,520

would be a probable scrub issue for

3424

02:22:54,309 --> 02:22:52,560

today

3425

02:22:55,670 --> 02:22:54,319

however it's premature to say that

3426

02:22:57,750 --> 02:22:55,680

they're doing the first round of

3427

02:22:59,349 --> 02:22:57,760

troubleshooting and yeah i also heard

3428

02:23:01,429 --> 02:22:59,359

the comment we've got about 10 minutes

3429

02:23:03,270 --> 02:23:01,439

but as a reminder the spacex team

3430

02:23:05,910 --> 02:23:03,280

doesn't actually leave the crew access

3431

02:23:07,910 --> 02:23:05,920

arm until t minus 60 minutes

3432

02:23:10,070 --> 02:23:07,920

so while we've got standard margin they

3433

02:23:11,830 --> 02:23:10,080

may be able to compress other activities

3434

02:23:14,870 --> 02:23:11,840

since they're still 50 minutes before

3435

02:23:17,349 --> 02:23:14,880

the crew that you see there in the

3436

02:23:19,670 --> 02:23:17,359

black pad access uniforms actually has

3437

02:23:20,469 --> 02:23:19,680

to get out of the area

3438

02:23:22,469 --> 02:23:20,479

sure

3439

02:23:24,389 --> 02:23:22,479

and you know when we um

3440

02:23:26,790 --> 02:23:24,399

we put out the mission timeline ahead of

3441

02:23:28,389 --> 02:23:26,800

time so folks can follow along but we

3442

02:23:29,750 --> 02:23:28,399

understand and we try to impress upon

3443

02:23:31,349 --> 02:23:29,760

others that these are the kinds of

3444

02:23:34,790 --> 02:23:31,359

things that can come up and so this

3445

02:23:37,190 --> 02:23:34,800

timeline while it's a guide it is fluid

3446

02:23:38,790 --> 02:23:37,200

for sure thinking back to the demo too

3447

02:23:40,469 --> 02:23:38,800

if i remember correctly they were also

3448

02:23:42,230 --> 02:23:40,479

running ahead of schedule in terms of

3449

02:23:44,469 --> 02:23:42,240

when bob and doug got in their seats and

3450

02:23:47,750 --> 02:23:44,479

strapped in and closed the hatch

3451
02:23:50,550 --> 02:23:47,760
so obviously given an instantaneous

3452
02:23:53,510 --> 02:23:50,560
launch window uh for the space station

3453
02:23:55,910 --> 02:23:53,520
launches um if we were if we didn't have

3454
02:23:58,389 --> 02:23:55,920
margin that would be a potential scrub

3455
02:23:59,990 --> 02:23:58,399
scenario uh but like we heard at the

3456
02:24:02,070 --> 02:24:00,000
callout earlier we're about 10 minutes

3457
02:24:05,670 --> 02:24:02,080
ahead of schedule so

3458
02:24:09,590 --> 02:24:07,349
and just to add on to what kate was

3459
02:24:11,750 --> 02:24:09,600
saying looking back over my notes when

3460
02:24:13,510 --> 02:24:11,760
we did the first demo 2 launch it wasn't

3461
02:24:15,429 --> 02:24:13,520
until about right now in the countdown

3462
02:24:16,630 --> 02:24:15,439
that the first hatch leak check uh

3463
02:24:19,910 --> 02:24:16,640

completed

3464

02:24:21,910 --> 02:24:19,920

so uh by that schedule uh which we were

3465

02:24:24,070 --> 02:24:21,920

ready to support launch right on time

3466

02:24:26,230 --> 02:24:24,080

until the weather got us

3467

02:24:29,190 --> 02:24:26,240

uh we're we're still looking good i

3468

02:24:30,630 --> 02:24:29,200

think in the countdown

3469

02:24:32,950 --> 02:24:30,640

something i want to point out you heard

3470

02:24:34,870 --> 02:24:32,960

me mention earlier that the team is

3471

02:24:36,630 --> 02:24:34,880

working off of tablets following along

3472

02:24:38,630 --> 02:24:36,640

with the procedures

3473

02:24:40,630 --> 02:24:38,640

this is considered the kind of

3474

02:24:43,030 --> 02:24:40,640

contingency procedure that is written

3475

02:24:45,270 --> 02:24:43,040

into the procedure so what we're seeing

3476

02:24:46,550 --> 02:24:45,280

them go through on screen now

3477

02:24:48,309 --> 02:24:46,560

they're not while they are

3478

02:24:49,830 --> 02:24:48,319

troubleshooting live we do have a

3479

02:24:52,389 --> 02:24:49,840

procedure written for this type of

3480

02:24:54,150 --> 02:24:52,399

contingency so it's a matter of working

3481

02:24:59,510 --> 02:24:54,160

through those those side steps

3482

02:25:04,469 --> 02:25:02,150

nicole i i wonder um

3483

02:25:05,670 --> 02:25:04,479

did you have any issues that had to be

3484

02:25:07,750 --> 02:25:05,680

worked through

3485

02:25:08,950 --> 02:25:07,760

real time on either of your shuttle

3486

02:25:11,270 --> 02:25:08,960

missions

3487

02:25:13,110 --> 02:25:11,280

that that might might have been similar

3488

02:25:15,910 --> 02:25:13,120

to something like this

3489

02:25:17,590 --> 02:25:15,920

yeah i think in in both cases actually

3490

02:25:19,510 --> 02:25:17,600

and it's really amazing how the team

3491

02:25:22,150 --> 02:25:19,520

just comes together and works those

3492

02:25:23,110 --> 02:25:22,160

procedures like like um kate mentioned

3493

02:25:25,030 --> 02:25:23,120

where

3494

02:25:27,190 --> 02:25:25,040

you know we've we've tried our best to

3495

02:25:28,550 --> 02:25:27,200

think about what could go wrong and you

3496

02:25:30,630 --> 02:25:28,560

know in these different scenarios and

3497

02:25:31,990 --> 02:25:30,640

then put those procedures in place to

3498

02:25:34,070 --> 02:25:32,000

work it and

3499

02:25:35,590 --> 02:25:34,080

um and as a crew inside unless there's

3500

02:25:37,190 --> 02:25:35,600

something that we can actively

3501

02:25:39,110 --> 02:25:37,200

participate in we're just following

3502

02:25:40,550 --> 02:25:39,120

along to make sure that

3503

02:25:42,710 --> 02:25:40,560

you know everything is picking back up

3504

02:25:44,710 --> 02:25:42,720

onto the timeline and then

3505

02:25:46,870 --> 02:25:44,720

waiting in case there is some switch to

3506

02:25:56,230 --> 02:25:46,880

throw or you know communication to have

3507

02:26:00,950 --> 02:25:58,070

okay so again if you're if you're just

3508

02:26:04,230 --> 02:26:00,960

joining us we're at t minus one hour and

3509

02:26:07,670 --> 02:26:04,240

47 minutes uh we did not hear the call

3510

02:26:08,950 --> 02:26:07,680

out of hatch closure yet because

3511

02:26:11,030 --> 02:26:08,960

when they were going through the leak

3512

02:26:11,990 --> 02:26:11,040

check process they noticed a pressure

3513

02:26:14,469 --> 02:26:12,000

drop

3514

02:26:15,910 --> 02:26:14,479

inside the capsule so they opened the

3515

02:26:18,230 --> 02:26:15,920

hatch back up

3516

02:26:20,630 --> 02:26:18,240

and as john i explained there is some

3517

02:26:22,309 --> 02:26:20,640

margin in the schedule and so this is

3518

02:26:24,950 --> 02:26:22,319

not necessarily a show stopper it would

3519

02:26:26,870 --> 02:26:24,960

be premature to speculate about any of

3520

02:26:28,070 --> 02:26:26,880

that so far we are still on track for

3521

02:26:29,750 --> 02:26:28,080

launch we're just

3522

02:26:34,469 --> 02:26:29,760

watching some troubleshooting in real

3523

02:26:37,270 --> 02:26:35,990

on the right hand side of the screen we

3524

02:26:41,510 --> 02:26:37,280

can see the crew sitting pretty

3525

02:26:44,230 --> 02:26:43,190

something i didn't get to mention

3526
02:26:48,389 --> 02:26:44,240
earlier

3527
02:26:51,510 --> 02:26:48,399
is that the seats themselves are custom

3528
02:26:53,830 --> 02:26:51,520
sized for each astronaut so not only is

3529
02:26:55,830 --> 02:26:53,840
the length of the bucket so basically

3530
02:26:56,950 --> 02:26:55,840
the length from the tailbone to your

3531
02:26:59,190 --> 02:26:56,960
shoulders

3532
02:27:01,110 --> 02:26:59,200
that is specific for each astronaut but

3533
02:27:02,550 --> 02:27:01,120
so is the foot rest as well as the

3534
02:27:03,429 --> 02:27:02,560
armrest

3535
02:27:05,510 --> 02:27:03,439
so

3536
02:27:06,790 --> 02:27:05,520
expecting to fly people of many

3537
02:27:08,150 --> 02:27:06,800
different heights and wanting to make

3538
02:27:09,429 --> 02:27:08,160

sure that

3539

02:27:12,230 --> 02:27:09,439

their positioning is not only

3540

02:27:13,750 --> 02:27:12,240

operational but comfortable as well

3541

02:27:16,150 --> 02:27:13,760

it seems like everyone's pretty comfy in

3542

02:27:18,309 --> 02:27:16,160

there

3543

02:27:20,790 --> 02:27:18,319

and we can't overstate how

3544

02:27:22,469 --> 02:27:20,800

important the job is of this pad

3545

02:27:24,389 --> 02:27:22,479

closeout team who

3546

02:27:26,950 --> 02:27:24,399

is doing these leak checks and making

3547

02:27:29,110 --> 02:27:26,960

sure that that hatch is secure

3548

02:27:31,190 --> 02:27:29,120

and behaving the way it should be before

3549

02:27:32,950 --> 02:27:31,200

they leave the pad because

3550

02:27:34,469 --> 02:27:32,960

these four astronauts are inside a

3551

02:27:36,870 --> 02:27:34,479

capsule that

3552

02:27:39,110 --> 02:27:36,880

is going to be fueled in a little over

3553

02:27:40,950 --> 02:27:39,120

an hour and head off to space and so

3554

02:27:42,469 --> 02:27:40,960

it's the job of

3555

02:27:44,790 --> 02:27:42,479

these people that you see on the left of

3556

02:27:46,710 --> 02:27:44,800

your screen in addition to hundreds and

3557

02:27:48,710 --> 02:27:46,720

thousands more around the country that

3558

02:27:50,630 --> 02:27:48,720

have been working so hard

3559

02:27:51,750 --> 02:27:50,640

for months and years to keep this crew

3560

02:27:54,550 --> 02:27:51,760

safe

3561

02:27:57,510 --> 02:27:54,560

again this is the first operational or

3562

02:27:58,630 --> 02:27:57,520

rotation mission of four people on crew

3563

02:28:01,750 --> 02:27:58,640

dragon

3564

02:28:03,429 --> 02:28:01,760

the first of hopefully many more to come

3565

02:28:05,510 --> 02:28:03,439

and so

3566

02:28:06,469 --> 02:28:05,520

the team has to has to keep the crew

3567

02:28:08,790 --> 02:28:06,479

safe

3568

02:28:10,790 --> 02:28:08,800

so i'm now hearing that that closeout

3569

02:28:12,389 --> 02:28:10,800

team that we saw there were able to

3570

02:28:15,110 --> 02:28:12,399

check the seals and clean them a little

3571

02:28:16,870 --> 02:28:15,120

bit they found a little piece of fod

3572

02:28:18,309 --> 02:28:16,880

there in the seal so that's probably

3573

02:28:21,510 --> 02:28:18,319

what was causing

3574

02:28:25,110 --> 02:28:21,520

the the hatch to not maintain pressure

3575

02:28:27,750 --> 02:28:25,120

so they are about to i can't quite tell

3576

02:28:29,510 --> 02:28:27,760

on the screen but they will be

3577

02:28:31,190 --> 02:28:29,520

starting to close that

3578

02:28:35,190 --> 02:28:31,200

and what is fod for people who don't

3579

02:28:37,349 --> 02:28:35,200

know the acronym foreign object debris

3580

02:28:38,469 --> 02:28:37,359

so what's an example of what that could

3581

02:28:41,990 --> 02:28:38,479

be

3582

02:28:44,790 --> 02:28:42,000

depends on the environment but something

3583

02:28:46,389 --> 02:28:44,800

as small as a piece of lint to you know

3584

02:28:48,710 --> 02:28:46,399

something like a cell phone or an

3585

02:28:51,670 --> 02:28:48,720

earring so that's part of the reason why

3586

02:28:53,190 --> 02:28:51,680

earlier in the um in the webcast i

3587

02:28:55,990 --> 02:28:53,200

mentioned that the

3588

02:28:57,590 --> 02:28:56,000

closeout excuse me the suit technician

3589

02:29:00,230 --> 02:28:57,600

team are checking to make sure nobody's

3590

02:29:02,070 --> 02:29:00,240

wearing unapproved earrings or jewelry

3591

02:29:03,750 --> 02:29:02,080

those are all considered fodd or foreign

3592

02:29:05,030 --> 02:29:03,760

object debris but it looks like we're

3593

02:29:07,030 --> 02:29:05,040

going to

3594

02:29:08,950 --> 02:29:07,040

be closing that hatch again if it's not

3595

02:29:09,830 --> 02:29:08,960

already and re-performing that leak

3596

02:29:11,670 --> 02:29:09,840

check

3597

02:29:13,510 --> 02:29:11,680

like i mentioned before we do have

3598

02:29:15,830 --> 02:29:13,520

contingencies built into our procedures

3599

02:29:18,389 --> 02:29:15,840

we are running ahead of schedule

3600

02:29:20,309 --> 02:29:18,399

so nothing to speculate causing an abort

3601
02:29:21,110 --> 02:29:20,319
at this time

3602
02:29:23,190 --> 02:29:21,120
but

3603
02:29:25,750 --> 02:29:23,200
that being said uh we will be

3604
02:29:27,830 --> 02:29:25,760
re-pressurizing that that hatch um and i

3605
02:29:29,670 --> 02:29:27,840
should say that it's not like we bring

3606
02:29:31,590 --> 02:29:29,680
it to pressure and check it it's good

3607
02:29:33,030 --> 02:29:31,600
you want to bring it to pressure allow

3608
02:29:35,349 --> 02:29:33,040
it to sit there for a couple of minutes

3609
02:29:40,230 --> 02:29:35,359
and watch whatever the decay is if any

3610
02:29:45,429 --> 02:29:43,030
hey go ahead for dragon

3611
02:29:47,510 --> 02:29:45,439
yeah the team did find a possible root

3612
02:29:48,790 --> 02:29:47,520
cause uh they are checking cabin

3613
02:29:53,750 --> 02:29:48,800

environments and we're getting ready to

3614

02:29:58,870 --> 02:29:56,230

okay dragon copies and we see paddocks

3615

02:29:58,880 --> 02:30:05,510

copy

3616

02:30:12,070 --> 02:30:09,429

so just the ground crew uh corps can

3617

02:30:14,150 --> 02:30:12,080

communicating to the crew inside dragon

3618

02:30:16,150 --> 02:30:14,160

giving them a status update

3619

02:30:17,910 --> 02:30:16,160

letting them know that potential root

3620

02:30:19,990 --> 02:30:17,920

cause has been found and that they will

3621

02:30:43,590 --> 02:30:20,000

be closing that hatch and beginning the

3622

02:30:48,150 --> 02:30:45,030

so we heard that they may have

3623

02:30:49,590 --> 02:30:48,160

identified the root cause

3624

02:30:50,389 --> 02:30:49,600

but we haven't heard what that root

3625

02:30:52,790 --> 02:30:50,399

cause

3626

02:30:54,870 --> 02:30:52,800

is or what they suspect it is yet so if

3627

02:30:56,630 --> 02:30:54,880

we hear that we will relay that to you

3628

02:31:05,910 --> 02:30:56,640

but that is not information that we have

3629

02:31:05,920 --> 02:31:11,750

and dragon spacex hatch is closed

3630

02:31:11,760 --> 02:31:22,469

copy

3631

02:31:27,750 --> 02:31:24,950

okay so we heard hatches closed

3632

02:31:29,910 --> 02:31:27,760

and so we expect a leak check

3633

02:31:52,950 --> 02:31:29,920

to be

3634

02:31:52,960 --> 02:32:00,950

hmm

3635

02:32:05,030 --> 02:32:03,190

again we've got the pad closeout team on

3636

02:32:07,349 --> 02:32:05,040

the left of your screen

3637

02:32:09,510 --> 02:32:07,359

closing the dragon side hatch for the

3638

02:32:11,030 --> 02:32:09,520

second time getting ready to do

3639

02:32:12,950 --> 02:32:11,040

another leak check

3640

02:32:18,150 --> 02:32:12,960

and the crew is sitting tight on the

3641

02:32:23,590 --> 02:32:20,550

so we see them performing the mechanical

3642

02:32:25,110 --> 02:32:23,600

sealing of the hatch

3643

02:32:32,309 --> 02:32:25,120

after this is complete we'll begin the

3644

02:32:35,990 --> 02:32:35,190

we are at t minus 1 hour and 40 minutes

3645

02:32:42,070 --> 02:32:36,000

so

3646

02:32:44,150 --> 02:32:42,080

throw the rest of the launch timeline

3647

02:32:46,469 --> 02:32:44,160

off track but we're just standing by to

3648

02:32:53,270 --> 02:32:46,479

see if the teams can get this

3649

02:32:53,280 --> 02:33:16,309

um

3650

02:33:19,750 --> 02:33:17,830

okay it sounds like we've got an update

3651
02:33:22,710 --> 02:33:19,760
from john insprucker and hawthorne john

3652
02:33:26,710 --> 02:33:24,790
well marie right now we're just inside

3653
02:33:29,510 --> 02:33:26,720
100 minutes

3654
02:33:30,870 --> 02:33:29,520
until the falcon 9 launch

3655
02:33:32,550 --> 02:33:30,880
we're waiting right now to hear the

3656
02:33:34,710 --> 02:33:32,560
results of the hatch leak check the

3657
02:33:36,469 --> 02:33:34,720
second one one's going on uh as we've

3658
02:33:38,550 --> 02:33:36,479
mentioned we think we found a little bit

3659
02:33:40,870 --> 02:33:38,560
of debris in the seal

3660
02:33:42,870 --> 02:33:40,880
and uh fingers crossed that we're going

3661
02:33:45,510 --> 02:33:42,880
to do that we're also waiting to hear

3662
02:33:48,070 --> 02:33:45,520
the leak the comp checks between the

3663
02:33:50,070 --> 02:33:48,080

dragon crew and the falcon 9 launch team

3664

02:33:52,389 --> 02:33:50,080

uh the responsible engineers down in the

3665

02:33:53,990 --> 02:33:52,399

firing dragon spacex for status uh to

3666

02:33:55,910 --> 02:33:54,000

catch up right now as i mentioned we're

3667

02:33:57,750 --> 02:33:55,920

just inside of 100 minutes and go ahead

3668

02:33:59,110 --> 02:33:57,760

for dragon

3669

02:34:00,950 --> 02:33:59,120

okay the lead check hardware is

3670

02:34:05,750 --> 02:34:00,960

connected and we're holding pressure now

3671

02:34:05,760 --> 02:34:11,590

dragging copies and that's good news

3672

02:34:17,670 --> 02:34:14,150

and i i will provide some more words on

3673

02:34:23,030 --> 02:34:17,680

what they identified uh once we

3674

02:34:28,389 --> 02:34:25,349

okay dragon copies and i assume we still

3675

02:34:30,389 --> 02:34:28,399

have some more time on the leap check

3676

02:34:35,349 --> 02:34:30,399

that's a firm yeah they're still uh

3677

02:34:54,309 --> 02:34:50,309

okay

3678

02:34:56,710 --> 02:34:54,319

i'm not sure if y'all picked it up on

3679

02:34:59,429 --> 02:34:56,720

the webcast but they talked briefly to

3680

02:35:01,429 --> 02:34:59,439

the crew gave them an update similar to

3681

02:35:03,830 --> 02:35:01,439

when we were just presenting y'all

3682

02:35:05,349 --> 02:35:03,840

the good news is that they are farther

3683

02:35:08,309 --> 02:35:05,359

along in a leak check right now than

3684

02:35:10,230 --> 02:35:08,319

they got the first time so again

3685

02:35:12,150 --> 02:35:10,240

things are going in the right direction

3686

02:35:15,349 --> 02:35:12,160

the second time around they're also

3687

02:35:16,950 --> 02:35:15,359

looking at the timeline for the uh crew

3688

02:35:19,830 --> 02:35:16,960

ingress team that you see there on the

3689

02:35:21,110 --> 02:35:19,840

left monitor the spacex folks they will

3690

02:35:22,150 --> 02:35:21,120

be able to leave

3691

02:35:24,550 --> 02:35:22,160

a little bit

3692

02:35:26,150 --> 02:35:24,560

later than t minus one hour and still be

3693

02:35:28,070 --> 02:35:26,160

able to get clear of the area and plenty

3694

02:35:30,469 --> 02:35:28,080

of time for us to do uh propellant

3695

02:35:32,389 --> 02:35:30,479

loading and the launch

3696

02:35:34,309 --> 02:35:32,399

now right now on the falcon 9 we're

3697

02:35:36,870 --> 02:35:34,319

waiting to do the comm checks with the

3698

02:35:48,550 --> 02:35:36,880

crew uh our launch engineers for the

3699

02:35:54,710 --> 02:35:50,070

if you are ready we are going to kick

3700

02:35:54,720 --> 02:36:07,030

dragon's ready

3701

02:36:07,040 --> 02:36:13,590

dragon gnc countdown one comm check

3702

02:36:18,150 --> 02:36:15,750

and gnp this is dragon on countdown one

3703

02:36:20,790 --> 02:36:18,160

have you loud and clear

3704

02:36:36,309 --> 02:36:20,800

gnc loud and clear stand by for comcheck

3705

02:36:36,319 --> 02:36:42,070

dragon prop on countdown one calm check

3706

02:37:17,030 --> 02:36:44,230

and prop dragon on countdown one have

3707

02:37:22,389 --> 02:37:19,110

loud and clear stand by for comm check

3708

02:37:27,750 --> 02:37:24,469

dragon avionics on countdown one comp

3709

02:37:31,670 --> 02:37:29,670

avionics this is dragon on countdown one

3710

02:37:33,270 --> 02:37:31,680

i have a lot clear clearer

3711

02:37:34,389 --> 02:37:33,280

avionics loud and clear stand by for

3712

02:37:37,270 --> 02:37:34,399

calm check by the ground segment

3713

02:37:42,389 --> 02:37:38,950

dragon ground segment on countdown one

3714

02:37:46,630 --> 02:37:43,830

we're outside the christie's dragon on

3715

02:37:48,230 --> 02:37:46,640

countdown one we have you live clear

3716

02:37:51,429 --> 02:37:48,240

on segment loading clear standby for

3717

02:37:53,190 --> 02:37:51,439

contract by launch control

3718

02:37:56,389 --> 02:37:53,200

dragon launch control on countdown one

3719

02:38:01,190 --> 02:37:57,750

launch control this is dragon on

3720

02:38:02,710 --> 02:38:01,200

countdown one cloud clear

3721

02:38:07,030 --> 02:38:02,720

launch control loud and clear standby

3722

02:38:12,950 --> 02:38:08,630

see you on countdown

3723

02:38:18,950 --> 02:38:15,270

ce this is dragon hans we have you loud

3724

02:38:23,110 --> 02:38:20,710

ce love and clear this completes the

3725

02:38:26,830 --> 02:38:23,120

falcon 9 responsible engineer contracts

3726

02:38:26,840 --> 02:38:41,429

flight okay

3727

02:38:44,950 --> 02:38:43,190

okay the good news is we've gotten

3728

02:38:47,830 --> 02:38:44,960

through the comp checks between the

3729

02:38:51,190 --> 02:38:47,840

spacex team and the dragon capsule now

3730

02:38:53,830 --> 02:38:51,200

we're at t-minus one hour and 34 minutes

3731

02:38:56,710 --> 02:38:53,840

on the falcon 9 everything comes thanks

3732

02:39:01,830 --> 02:38:59,910

as we get uh inside t minus 35 minutes

3733

02:39:03,910 --> 02:39:01,840

and go drag inside

3734

02:39:05,830 --> 02:39:03,920

checklist

3735

02:39:07,590 --> 02:39:05,840

okay resilience at this time we're going

3736

02:39:09,670 --> 02:39:07,600

to commence health check for the launch

3737

02:39:11,270 --> 02:39:09,680

escape system you can expect a momentary

3738

02:39:13,110 --> 02:39:11,280

flight computer state change following

3739

02:39:17,429 --> 02:39:13,120

by followed by a transition back to bad

3740

02:39:17,439 --> 02:39:28,309

dragging copies and we're monitoring

3741

02:39:32,710 --> 02:39:30,469

okay i think we've got a moment now uh

3742

02:39:35,990 --> 02:39:32,720

listening to them talk to the crew

3743

02:39:38,150 --> 02:39:36,000

on dragon other than the uh side hatch

3744

02:39:40,389 --> 02:39:38,160

leak check that's been going underway

3745

02:39:41,429 --> 02:39:40,399

everything else has been looking good

3746

02:39:45,190 --> 02:39:41,439

on the

3747

02:39:46,790 --> 02:39:45,200

the good news is that while we've been

3748

02:39:48,950 --> 02:39:46,800

watching for rain showers in the

3749

02:39:51,830 --> 02:39:48,960

trajectory of the falcon 9 we've been

3750

02:39:53,910 --> 02:39:51,840

locked watching for heavy rain or thick

3751

02:39:55,990 --> 02:39:53,920

clouds currently everything does

3752

02:39:58,230 --> 02:39:56,000

continue to cooperate as we were hoping

3753

02:40:00,150 --> 02:39:58,240

the frontal boundary was slowing down

3754

02:40:01,830 --> 02:40:00,160

and may not reach kennedy space center

3755

02:40:03,910 --> 02:40:01,840

by the time of launch

3756

02:40:05,670 --> 02:40:03,920

and right now that continues to look

3757

02:40:06,950 --> 02:40:05,680

like it's going to happen

3758

02:40:09,190 --> 02:40:06,960

so the

3759

02:40:11,110 --> 02:40:09,200

local conditions are good

3760

02:40:13,030 --> 02:40:11,120

upper altitude winds we're looking at

3761

02:40:15,830 --> 02:40:13,040

the balloons we've been

3762

02:40:18,389 --> 02:40:15,840

releasing and those show us that

3763

02:40:22,150 --> 02:40:18,399

conditions in the upper altitude for

3764

02:40:22,870 --> 02:40:22,160

stability are good so we ought to be go

3765

02:40:24,950 --> 02:40:22,880

for

3766

02:40:26,950 --> 02:40:24,960

launch in about 92 minutes if the

3767

02:40:28,710 --> 02:40:26,960

weather cooperates and of course the

3768

02:40:30,309 --> 02:40:28,720

range is ready to go

3769

02:40:32,790 --> 02:40:30,319

so right now we're going to throw it

3770

02:40:35,190 --> 02:40:32,800

back to daryl while we wait for

3771

02:40:36,550 --> 02:40:35,200

follow-on discussions

3772

02:40:38,070 --> 02:40:36,560

john i thank you very much for that

3773

02:40:39,670 --> 02:40:38,080

update and uh we're here at the kennedy

3774

02:40:41,670 --> 02:40:39,680

space center of course and i can confirm

3775

02:40:43,510 --> 02:40:41,680

for you john weather is looking good

3776

02:40:45,510 --> 02:40:43,520

right here just a thin layer of clouds

3777

02:40:47,510 --> 02:40:45,520

overhead right here at the launch

3778

02:40:49,910 --> 02:40:47,520

complex i'm joined now by deputy

3779

02:40:51,990 --> 02:40:49,920

administrator jim morhard for nasa here

3780

02:40:54,469 --> 02:40:52,000

and we appreciate him coming to talk a

3781

02:40:56,309 --> 02:40:54,479

little bit about licensing of these

3782

02:40:57,750 --> 02:40:56,319

launches and that's a new thing around

3783

02:40:59,429 --> 02:40:57,760

here jim because

3784

02:41:01,670 --> 02:40:59,439

previously that's not something that we

3785

02:41:04,469 --> 02:41:01,680

heard a lot about but we understand that

3786

02:41:07,510 --> 02:41:04,479

this launch is the first commercially

3787

02:41:09,910 --> 02:41:07,520

licensed launch by the faa so explain to

3788

02:41:12,309 --> 02:41:09,920

me why that is and how that works you

3789

02:41:14,630 --> 02:41:12,319

know general it's a work

3790

02:41:15,590 --> 02:41:14,640

it has just been certified for the first

3791

02:41:19,030 --> 02:41:15,600

time

3792

02:41:22,389 --> 02:41:19,040

we licensed a lot of launches we had 29

3793

02:41:26,389 --> 02:41:22,399

launches that were licensed in 2020

3794

02:41:29,510 --> 02:41:26,399

and we're expecting another 56 in 2021

3795

02:41:31,269 --> 02:41:29,520

so it's it's going exponential

3796

02:41:33,030 --> 02:41:31,279

and we're excited about that we've

3797

02:41:35,429 --> 02:41:33,040

really collaborated

3798

02:41:37,030 --> 02:41:35,439

with the federal aviation administration

3799

02:41:39,590 --> 02:41:37,040

which is part of the department of

3800

02:41:41,990 --> 02:41:39,600

transportation uh steve dixon is the

3801
02:41:44,469 --> 02:41:42,000
administrator he's here right now he's

3802
02:41:46,550 --> 02:41:44,479
been with us through the week working

3803
02:41:48,790 --> 02:41:46,560
with us which is just tremendous there's

3804
02:41:50,550 --> 02:41:48,800
a great collaboration between the two

3805
02:41:52,309 --> 02:41:50,560
agencies so help the public kind of

3806
02:41:53,910 --> 02:41:52,319
understand what this means i think you

3807
02:41:55,590 --> 02:41:53,920
know generally speaking we all

3808
02:41:58,550 --> 02:41:55,600
understand that we get aboard a

3809
02:42:02,469 --> 02:41:58,560
commercial aircraft it's that carrier is

3810
02:42:03,910 --> 02:42:02,479
faa licensed so now uh we're licensing

3811
02:42:06,150 --> 02:42:03,920
space flight you know launches

3812
02:42:07,750 --> 02:42:06,160
commercial ones with people on board so

3813
02:42:09,510 --> 02:42:07,760

what does that mean you know what what

3814

02:42:11,670 --> 02:42:09,520

does the public take away from that you

3815

02:42:14,870 --> 02:42:11,680

know you think about it we have the most

3816

02:42:16,389 --> 02:42:14,880

complex airspace in the world over the

3817

02:42:18,230 --> 02:42:16,399

united states

3818

02:42:19,110 --> 02:42:18,240

and now we're going to expand it even

3819

02:42:20,309 --> 02:42:19,120

more

3820

02:42:22,950 --> 02:42:20,319

into space

3821

02:42:26,389 --> 02:42:22,960

and so we're really integrating both

3822

02:42:28,230 --> 02:42:26,399

our aeronautics our aircraft that we fly

3823

02:42:30,710 --> 02:42:28,240

enjoy every day

3824

02:42:32,230 --> 02:42:30,720

with space operations

3825

02:42:34,150 --> 02:42:32,240

so we're going to have both those things

3826

02:42:34,870 --> 02:42:34,160

happening at the same time

3827

02:42:36,550 --> 02:42:34,880

with

3828

02:42:38,710 --> 02:42:36,560

human space flight

3829

02:42:40,309 --> 02:42:38,720

and that's what we're doing here today

3830

02:42:42,309 --> 02:42:40,319

at the kennedy space center that's

3831

02:42:44,070 --> 02:42:42,319

impressive and just you when you you

3832

02:42:46,950 --> 02:42:44,080

mentioned the airspace

3833

02:42:48,790 --> 02:42:46,960

in flight right very crowded place space

3834

02:42:51,110 --> 02:42:48,800

just getting getting started and as you

3835

02:42:52,469 --> 02:42:51,120

mentioned growing where do you see this

3836

02:42:53,590 --> 02:42:52,479

you know when you just kind of dream a

3837

02:42:55,670 --> 02:42:53,600

little bit where do you see this going

3838

02:42:58,070 --> 02:42:55,680

one day you know daryl you think about

3839

02:43:00,389 --> 02:42:58,080

it first off

3840

02:43:01,830 --> 02:43:00,399

it's both federal aviation

3841

02:43:04,550 --> 02:43:01,840

administration

3842

02:43:05,670 --> 02:43:04,560

but at nasa also our number one priority

3843

02:43:07,590 --> 02:43:05,680

is safety

3844

02:43:09,830 --> 02:43:07,600

that's what we're focused on

3845

02:43:13,110 --> 02:43:09,840

but in the in the meantime

3846

02:43:16,790 --> 02:43:13,120

we're commercializing low earth orbit

3847

02:43:19,269 --> 02:43:16,800

right now we have a 350 billion dollar

3848

02:43:21,349 --> 02:43:19,279

space economy in low earth orbit that's

3849

02:43:23,269 --> 02:43:21,359

just that's a big number it is billion

3850

02:43:25,990 --> 02:43:23,279

number 350 billion and people are

3851
02:43:27,190 --> 02:43:26,000
talking in the future at going to over a

3852
02:43:30,630 --> 02:43:27,200
trillion

3853
02:43:32,790 --> 02:43:30,640
and so it it is just we're starting the

3854
02:43:34,950 --> 02:43:32,800
dawn of a new space age and quickly i

3855
02:43:37,349 --> 02:43:34,960
think you were telling me that this also

3856
02:43:38,710 --> 02:43:37,359
increases our ability to do science on

3857
02:43:40,309 --> 02:43:38,720
the international space station right

3858
02:43:42,950 --> 02:43:40,319
you know with these four great

3859
02:43:45,110 --> 02:43:42,960
astronauts and and jim breidenstein and

3860
02:43:46,309 --> 02:43:45,120
i met with them yesterday and and they

3861
02:43:47,830 --> 02:43:46,319
want to fly

3862
02:43:50,630 --> 02:43:47,840
you know and we want to make sure they

3863
02:43:52,550 --> 02:43:50,640

fly safely um but with that

3864

02:43:55,190 --> 02:43:52,560

when they get to the space station we've

3865

02:43:57,750 --> 02:43:55,200

got one astronaut there right now

3866

02:44:01,269 --> 02:43:57,760

it's going to increase our research

3867

02:44:03,670 --> 02:44:01,279

efforts up there by 300 percent

3868

02:44:05,670 --> 02:44:03,680

and we really believe that that's that

3869

02:44:07,750 --> 02:44:05,680

demand is going to grow

3870

02:44:10,230 --> 02:44:07,760

and the hope is ultimately that we'll

3871

02:44:11,269 --> 02:44:10,240

have commercial space stations that are

3872

02:44:13,269 --> 02:44:11,279

built

3873

02:44:14,309 --> 02:44:13,279

by our space industry in the united

3874

02:44:16,389 --> 02:44:14,319

states

3875

02:44:18,790 --> 02:44:16,399

and so because there's so much research

3876

02:44:21,030 --> 02:44:18,800

to be done all right well very good

3877

02:44:23,830 --> 02:44:21,040

illuminating uh information about uh the

3878

02:44:25,190 --> 02:44:23,840

licensing of spaceports appreciate your

3879

02:44:26,790 --> 02:44:25,200

efforts and all your work in getting

3880

02:44:28,630 --> 02:44:26,800

these the government agencies to work

3881

02:44:30,150 --> 02:44:28,640

together and and talk to each other and

3882

02:44:32,070 --> 02:44:30,160

come together with some consensus there

3883

02:44:33,830 --> 02:44:32,080

that's that's good stuff it's my honor

3884

02:44:35,429 --> 02:44:33,840

but this is about safety and we're going

3885

02:44:37,429 --> 02:44:35,439

to keep doing it excellent keep up the

3886

02:44:39,590 --> 02:44:37,439

good work thank you jim jim moreheart

3887

02:44:41,590 --> 02:44:39,600

deputy administrator with nasa and we

3888

02:44:44,070 --> 02:44:41,600

are now at t-minus one hour and 28

3889

02:44:46,469 --> 02:44:44,080

minutes we'll toss it back to john i in

3890

02:44:49,030 --> 02:44:46,479

hawthorne california john

3891

02:44:51,110 --> 02:44:49,040

well maybe not john

3892

02:44:53,830 --> 02:44:51,120

we'll go to marie right here across the

3893

02:44:55,190 --> 02:44:53,840

way at ksc

3894

02:44:56,790 --> 02:44:55,200

all right thanks daryl i've got a

3895

02:45:00,469 --> 02:44:56,800

brother named john so i'll answer to

3896

02:45:05,429 --> 02:45:00,479

either um we are standing by for um a

3897

02:45:05,439 --> 02:45:10,630

side patch league check

3898

02:45:15,269 --> 02:45:13,110

hey go ahead actually check

3899

02:45:18,389 --> 02:45:15,279

okay good news uh the leak check has

3900

02:45:20,389 --> 02:45:18,399

passed and we're we saw uh consistent

3901

02:45:25,110 --> 02:45:20,399

readings to what we saw on dry dress so

3902

02:45:25,120 --> 02:45:32,070

that's great too stay sexy

3903

02:45:35,030 --> 02:45:33,349

so what you just heard there was the

3904

02:45:38,230 --> 02:45:35,040

core team briefing the crew letting them

3905

02:45:39,990 --> 02:45:38,240

know that the leak check passed and

3906

02:45:42,469 --> 02:45:40,000

we're going to be moving along in the

3907

02:45:44,710 --> 02:45:42,479

timeline here they're now attaching the

3908

02:45:54,150 --> 02:45:44,720

final exterior cover there on the side

3909

02:45:58,550 --> 02:45:56,469

and they mentioned that the um the

3910

02:46:01,110 --> 02:45:58,560

levels that they checked were consistent

3911

02:46:03,910 --> 02:46:01,120

with dry dress they were referring to

3912

02:46:05,910 --> 02:46:03,920

the rehearsal that was conducted uh

3913

02:46:07,750 --> 02:46:05,920

thursday so just a couple of days ago

3914

02:46:09,510 --> 02:46:07,760

they went through this process

3915

02:46:11,990 --> 02:46:09,520

it's called the dry dress rehearsal

3916

02:46:14,230 --> 02:46:12,000

because they do everything except

3917

02:46:14,950 --> 02:46:14,240

fuel up the rocket and of course launch

3918

02:46:16,550 --> 02:46:14,960

so

3919

02:46:18,790 --> 02:46:16,560

when they did the checks that day

3920

02:46:20,309 --> 02:46:18,800

obviously things were nominal

3921

02:46:22,550 --> 02:46:20,319

the first time they closed the side

3922

02:46:23,910 --> 02:46:22,560

hatch they noticed a drop in pressure

3923

02:46:25,990 --> 02:46:23,920

when they did the leak check so they

3924

02:46:26,790 --> 02:46:26,000

opened the hatch back up uh discovered

3925

02:46:28,630 --> 02:46:26,800

some

3926

02:46:30,870 --> 02:46:28,640

foreign object debris or what we call

3927

02:46:33,190 --> 02:46:30,880

fod uh cleared that out we don't know

3928

02:46:34,790 --> 02:46:33,200

what exactly it was yet we we might hear

3929

02:46:37,269 --> 02:46:34,800

about that um in the post ingress

3930

02:46:39,750 --> 02:46:37,279

briefing but they closed the hatch back

3931

02:46:41,110 --> 02:46:39,760

up did another leak check everything

3932

02:46:42,870 --> 02:46:41,120

looks nominal and that's what we just

3933

02:46:44,950 --> 02:46:42,880

heard confirmation of so that they said

3934

02:46:48,870 --> 02:46:44,960

that was great news so it sounds like

3935

02:46:53,030 --> 02:46:50,950

so look like that closeout team member

3936

02:46:56,870 --> 02:46:53,040

just took the the final closeout photo

3937

02:46:57,830 --> 02:46:56,880

there or one of final and we are moving

3938

02:46:59,349 --> 02:46:57,840

along

3939

02:47:00,870 --> 02:46:59,359

if you look closely on the right hand

3940

02:47:02,870 --> 02:47:00,880

side you might be able to make out some

3941

02:47:18,950 --> 02:47:02,880

signatures there on the wall of our

3942

02:47:22,950 --> 02:47:20,870

and certainly the astronauts uh sitting

3943

02:47:25,830 --> 02:47:22,960

inside the crew dragon capsule right now

3944

02:47:29,110 --> 02:47:25,840

appreciate the attention to detail

3945

02:47:30,950 --> 02:47:29,120

uh of this pad close-out team

3946

02:47:32,469 --> 02:47:30,960

yeah i'll tell you marie it's it's

3947

02:47:34,710 --> 02:47:32,479

interesting i think one of the things we

3948

02:47:37,030 --> 02:47:34,720

definitely appreciate is that

3949

02:47:39,269 --> 02:47:37,040

the team that works here with us omni

3950

02:47:40,870 --> 02:47:39,279

spacecraft absolutely believe that the

3951

02:47:43,349 --> 02:47:40,880

care and feeding of those spacecraft is

3952

02:47:44,710 --> 02:47:43,359

their responsibility and um and we know

3953

02:47:46,150 --> 02:47:44,720

that you can tell as they're working

3954

02:47:47,429 --> 02:47:46,160

with you and

3955

02:47:50,790 --> 02:47:47,439

cure them outside the hatch and on the

3956

02:47:54,950 --> 02:47:52,550

now kate can you explain what we're

3957

02:47:56,950 --> 02:47:54,960

seeing now

3958

02:48:01,590 --> 02:47:56,960

uh it's a little difficult for me to see

3959

02:48:05,030 --> 02:48:03,110

so i sorry i can't tell what they're

3960

02:48:06,950 --> 02:48:05,040

doing

3961

02:48:08,950 --> 02:48:06,960

it is a little off you know it's it's

3962

02:48:10,309 --> 02:48:08,960

above the frame of the camera view that

3963

02:48:11,590 --> 02:48:10,319

we can see

3964

02:48:13,349 --> 02:48:11,600

are there things they have to remove

3965

02:48:14,950 --> 02:48:13,359

before the um

3966

02:48:27,269 --> 02:48:14,960

the

3967

02:48:28,870 --> 02:48:27,279

but do i would like to point out again

3968

02:48:30,389 --> 02:48:28,880

we're not only taking into consideration

3969

02:48:32,710 --> 02:48:30,399

the safety of the crew but the safety of

3970

02:48:34,230 --> 02:48:32,720

our team members as well you can see uh

3971

02:48:36,469 --> 02:48:34,240

the straps there i believe what they're

3972

02:48:39,030 --> 02:48:36,479

doing is they're basically allowing

3973

02:48:40,710 --> 02:48:39,040

so there's a mechanism there on the crew

3974

02:48:43,670 --> 02:48:40,720

access arm

3975

02:48:45,349 --> 02:48:43,680

it there's kind of like an airplane door

3976

02:48:46,630 --> 02:48:45,359

it doesn't you know the metallic pieces

3977

02:48:49,190 --> 02:48:46,640

don't go anywhere near close to the

3978

02:48:51,429 --> 02:48:49,200

airplane but there's a little bit of a

3979

02:48:54,309 --> 02:48:51,439

a seal there to try and control the

3980

02:48:55,349 --> 02:48:54,319

environment again dealing with humidity

3981

02:48:56,950 --> 02:48:55,359

and rain

3982

02:48:58,950 --> 02:48:56,960

and bugs here in florida trying to keep

3983

02:49:00,790 --> 02:48:58,960

all of that out and keep the environment

3984

02:49:03,830 --> 02:49:00,800

secure

3985

02:49:06,630 --> 02:49:03,840

stable and under control there but yeah

3986

02:49:09,110 --> 02:49:06,640

so they are now preparing to move that

3987

02:49:11,429 --> 02:49:09,120

all of that fixturing away

3988

02:49:12,630 --> 02:49:11,439

and they are leaning out over towards

3989

02:49:15,349 --> 02:49:12,640

essentially

3990

02:49:16,710 --> 02:49:15,359

the side of the rocket so we have those

3991

02:49:21,910 --> 02:49:16,720

wires in place

3992

02:49:27,110 --> 02:49:24,070

so we should be hearing

3993

02:49:29,830 --> 02:49:27,120

any time now a post ingress briefing

3994

02:49:31,990 --> 02:49:29,840

that's what we're expecting uh for the

3995

02:49:39,030 --> 02:49:32,000

crew inside to kind of get a

3996

02:49:42,950 --> 02:49:40,630

okay so maybe a couple more minutes

3997

02:49:44,790 --> 02:49:42,960

before we hear that briefing so uh we're

3998

02:49:47,590 --> 02:49:44,800

going to to move on temporarily we've

3999

02:49:49,510 --> 02:49:47,600

made mention of the first crew to launch

4000

02:49:51,910 --> 02:49:49,520

in crew dragon a little earlier this

4001
02:49:53,990 --> 02:49:51,920
year and you may remember them as the

4002
02:49:56,230 --> 02:49:54,000
space dads as they are affectionately

4003
02:49:57,349 --> 02:49:56,240
known by the nasa and spacex teams who

4004
02:49:59,349 --> 02:49:57,359
work with them

4005
02:50:02,550 --> 02:49:59,359
we watched them lift off from this very

4006
02:50:05,269 --> 02:50:02,560
spot back in may ending a nine-year gap

4007
02:50:07,349 --> 02:50:05,279
in human space flight from american soil

4008
02:50:09,670 --> 02:50:07,359
and we want to honor the courage of nasa

4009
02:50:12,070 --> 02:50:09,680
astronauts bob benkin and doug hurley

4010
02:50:47,670 --> 02:50:12,080
with a look at their historic demo 2

4011
02:50:54,469 --> 02:50:50,790
good morning welcome aboard dragon

4012
02:50:57,110 --> 02:50:54,479
spacex com check ground stations

4013
02:50:59,110 --> 02:50:57,120

spacex dragon we're go for launch let's

4014

02:51:00,230 --> 02:50:59,120

light this candle

4015

02:51:01,030 --> 02:51:00,240

three

4016

02:51:03,990 --> 02:51:01,040

two

4017

02:51:07,269 --> 02:51:04,000

one

4018

02:51:16,790 --> 02:51:07,279

of the falcon 9 and crew

4019

02:51:20,230 --> 02:51:18,469

we're on behalf of the entire launch

4020

02:51:21,910 --> 02:51:20,240

team thanks for flying the falcon 9

4021

02:51:23,510 --> 02:51:21,920

today we hope you enjoyed the ride and

4022

02:51:25,750 --> 02:51:23,520

wish you a great mission

4023

02:51:29,590 --> 02:51:25,760

we would like to uh welcome you aboard

4024

02:51:30,790 --> 02:51:29,600

capsule endeavor we do have a friend on

4025

02:51:33,110 --> 02:51:30,800

board with us

4026
02:51:35,590 --> 02:51:33,120
trimmer the apatosaurus i think i was

4027
02:51:37,269 --> 02:51:35,600
requested to do a back flip good night

4028
02:51:53,990 --> 02:51:37,279
megan and theo

4029
02:51:58,309 --> 02:51:56,150
md houston fight houston is go for

4030
02:52:02,550 --> 02:51:58,319
undocking and departure

4031
02:52:08,389 --> 02:52:04,950
spacex dragon on dragon to ground we are

4032
02:52:10,469 --> 02:52:08,399
ready for the system's breeze

4033
02:52:12,389 --> 02:52:10,479
coffee as stated dragon's in a healthy

4034
02:52:14,710 --> 02:52:12,399
state we are proceeding toward the

4035
02:52:25,190 --> 02:52:14,720
primary landing site and your timeline

4036
02:52:25,200 --> 02:52:33,510
visual two drones out

4037
02:52:37,830 --> 02:52:35,910
on behalf of the spacex and nasa teams

4038
02:52:41,150 --> 02:52:37,840

welcome back to planet earth thanks for

4039

02:52:47,590 --> 02:52:41,160

flying spacex

4040

02:52:49,750 --> 02:52:47,600

[Music]

4041

02:52:53,269 --> 02:52:49,760

so it's a humbling experience to be a

4042

02:52:55,429 --> 02:52:53,279

part of what was accomplished

4043

02:52:56,870 --> 02:52:55,439

it's great to see how excited everybody

4044

02:52:58,309 --> 02:52:56,880

was

4045

02:53:03,990 --> 02:52:58,319

we hope it brings a little bit of

4046

02:53:08,150 --> 02:53:05,830

wow i don't know about you guys but that

4047

02:53:10,230 --> 02:53:08,160

gives me goosebumps watching that recap

4048

02:53:12,070 --> 02:53:10,240

absolutely my my family and i made a

4049

02:53:14,550 --> 02:53:12,080

point to drive over here to the east

4050

02:53:16,070 --> 02:53:14,560

coast uh to watch launch from just down

4051
02:53:17,429 --> 02:53:16,080
the road in cocoa beach with our dear

4052
02:53:19,990 --> 02:53:17,439
friends the honey cuts a name that's

4053
02:53:21,030 --> 02:53:20,000
familiar to the the kennedy space center

4054
02:53:22,870 --> 02:53:21,040
family

4055
02:53:25,030 --> 02:53:22,880
and i'll tell you it was a real joy to

4056
02:53:26,870 --> 02:53:25,040
watch bob and doug in space and then to

4057
02:53:29,670 --> 02:53:26,880
have them safely back on the planet with

4058
02:53:31,590 --> 02:53:29,680
us and now special treat we're going to

4059
02:53:34,710 --> 02:53:31,600
hear from my dear friends and fellow

4060
02:53:36,389 --> 02:53:34,720
bugs aka the space dads themselves uh

4061
02:53:39,190 --> 02:53:36,399
daryl is standing by to talk with them

4062
02:53:41,830 --> 02:53:39,200
daryl that's right nicole we have bob

4063
02:53:44,630 --> 02:53:41,840

banking and doug hurley the space dads

4064

02:53:46,309 --> 02:53:44,640

with us live from houston texas

4065

02:53:48,309 --> 02:53:46,319

gentlemen thank you so much for joining

4066

02:53:54,790 --> 02:53:48,319

us on yet another historic day here at

4067

02:53:59,269 --> 02:53:56,950

hey daryl howdy daryl good to see you

4068

02:54:01,510 --> 02:53:59,279

guys good to see you so you know this

4069

02:54:03,349 --> 02:54:01,520

moment you you remembered i'm sure well

4070

02:54:05,990 --> 02:54:03,359

when we came to this moment in time

4071

02:54:08,309 --> 02:54:06,000

where the the capsule the uh the door

4072

02:54:10,389 --> 02:54:08,319

was closed tell us what you guys were

4073

02:54:12,389 --> 02:54:10,399

thinking in this moment as we see

4074

02:54:17,510 --> 02:54:12,399

astronauts the the four crew one

4075

02:54:21,190 --> 02:54:19,429

well you're just thinking about

4076
02:54:23,110 --> 02:54:21,200
the mission ahead what you need to do to

4077
02:54:24,790 --> 02:54:23,120
get through the next hour to the

4078
02:54:27,110 --> 02:54:24,800
timeline i mean

4079
02:54:29,190 --> 02:54:27,120
you know you don't have a lot of time to

4080
02:54:31,830 --> 02:54:29,200
think about a lot else you've kind of

4081
02:54:33,670 --> 02:54:31,840
wrapped everything up before you

4082
02:54:35,030 --> 02:54:33,680
walked down and walked out got to the

4083
02:54:36,870 --> 02:54:35,040
pad so we're just going through the

4084
02:54:39,349 --> 02:54:36,880
checks with the teams following along

4085
02:54:41,030 --> 02:54:39,359
and doing the things that we need to do

4086
02:54:42,710 --> 02:54:41,040
you just saw that video that was put

4087
02:54:44,630 --> 02:54:42,720
together about the whole

4088
02:54:46,630 --> 02:54:44,640

mission that you guys did is there

4089

02:54:48,230 --> 02:54:46,640

anything that as you watch that stands

4090

02:54:53,590 --> 02:54:48,240

out to you as you know that was my

4091

02:54:57,510 --> 02:54:55,110

i think for both of us our favorite

4092

02:54:59,269 --> 02:54:57,520

moment was after splashdown when we were

4093

02:55:01,429 --> 02:54:59,279

able to get the hatch open and climb out

4094

02:55:03,190 --> 02:55:01,439

of the vehicle as you might imagine as

4095

02:55:05,349 --> 02:55:03,200

you embark on a test flight you've got

4096

02:55:07,190 --> 02:55:05,359

to have a lot of things go very smoothly

4097

02:55:09,349 --> 02:55:07,200

and you got to get them all done and get

4098

02:55:11,110 --> 02:55:09,359

to the final test point that's out there

4099

02:55:13,110 --> 02:55:11,120

which was the splashdown and coming home

4100

02:55:15,590 --> 02:55:13,120

and so i think we were there's a little

4101

02:55:17,830 --> 02:55:15,600

bit of relief but uh kind of a big kind

4102

02:55:20,150 --> 02:55:17,840

of a let our emotions come out i think

4103

02:55:21,670 --> 02:55:20,160

at that point after being really focused

4104

02:55:23,429 --> 02:55:21,680

on you know the mission in hand all the

4105

02:55:28,630 --> 02:55:23,439

way up to that point

4106

02:55:34,469 --> 02:55:31,110

well i agree with bob you know we

4107

02:55:36,309 --> 02:55:34,479

invested five years with the teams uh we

4108

02:55:38,790 --> 02:55:36,319

went out to hawthorne almost every week

4109

02:55:40,309 --> 02:55:38,800

the last two years that we uh before we

4110

02:55:42,150 --> 02:55:40,319

launched and so

4111

02:55:43,750 --> 02:55:42,160

you know just a culmination of an

4112

02:55:45,990 --> 02:55:43,760

incredible amount of work by so many

4113

02:55:47,429 --> 02:55:46,000

people and to be just a small part of it

4114

02:55:48,790 --> 02:55:47,439

and then to complete the mission

4115

02:55:50,950 --> 02:55:48,800

successfully

4116

02:55:53,349 --> 02:55:50,960

and and have the type of mission that we

4117

02:55:55,110 --> 02:55:53,359

had where we were able to do a whole

4118

02:55:58,230 --> 02:55:55,120

bunch of work on board space station

4119

02:56:00,870 --> 02:55:58,240

including four spacewalks and then

4120

02:56:03,990 --> 02:56:00,880

complete the test flight of crew dragon

4121

02:56:05,590 --> 02:56:04,000

and get it ready for this crew it just

4122

02:56:08,309 --> 02:56:05,600

you know it's indescribable to be a part

4123

02:56:10,150 --> 02:56:08,319

of that type of event and

4124

02:56:11,830 --> 02:56:10,160

you know we're just excited to see

4125

02:56:12,950 --> 02:56:11,840

what's going to happen hopefully here in

4126
02:56:18,070 --> 02:56:12,960
just

4127
02:56:20,150 --> 02:56:18,080
minutes until launch and so i want to

4128
02:56:22,469 --> 02:56:20,160
know about a conversation that you guys

4129
02:56:24,150 --> 02:56:22,479
had you had some important conversations

4130
02:56:25,990 --> 02:56:24,160
with this crew

4131
02:56:30,150 --> 02:56:26,000
what did you tell them what advice did

4132
02:56:33,910 --> 02:56:32,230
well doug and i got a chance to sit down

4133
02:56:36,469 --> 02:56:33,920
with the crew one folks just like

4134
02:56:39,030 --> 02:56:36,479
everybody else has these days over the

4135
02:56:40,870 --> 02:56:39,040
across a video conference soon after we

4136
02:56:42,950 --> 02:56:40,880
returned and we tried to give them the

4137
02:56:44,950 --> 02:56:42,960
benefit of the experiences that we had

4138
02:56:46,550 --> 02:56:44,960

had and some suggestions on some things

4139

02:56:48,150 --> 02:56:46,560

that might help their mission go a

4140

02:56:49,910 --> 02:56:48,160

little bit smoother but i think the

4141

02:56:52,150 --> 02:56:49,920

biggest message that we passed on to him

4142

02:56:54,389 --> 02:56:52,160

was that there was a good ship here and

4143

02:56:56,550 --> 02:56:54,399

it did a great job getting us to space

4144

02:56:58,389 --> 02:56:56,560

station and back and they should have

4145

02:57:00,710 --> 02:56:58,399

confidence in the team as they go off

4146

02:57:02,469 --> 02:57:00,720

and execute their mission and so there

4147

02:57:04,550 --> 02:57:02,479

are things that can be improved after

4148

02:57:07,190 --> 02:57:04,560

our test flight and they took a lot of

4149

02:57:09,190 --> 02:57:07,200

those minor things to heart but overall

4150

02:57:10,950 --> 02:57:09,200

we just really passed on just a lot of

4151
02:57:12,469 --> 02:57:10,960
confidence in the vehicle and that you

4152
02:57:15,590 --> 02:57:12,479
know that goes a long way for a team

4153
02:57:16,950 --> 02:57:15,600
that's got a lot of uh things to do as

4154
02:57:18,790 --> 02:57:16,960
they lead up to the mission that they're

4155
02:57:20,950 --> 02:57:18,800
about to launch on today and not a lot

4156
02:57:22,550 --> 02:57:20,960
of time if you look at how quickly the

4157
02:57:25,190 --> 02:57:22,560
vehicle

4158
02:57:27,269 --> 02:57:25,200
got assessed and changes were made in

4159
02:57:29,269 --> 02:57:27,279
preparation for this mission it was just

4160
02:57:31,110 --> 02:57:29,279
a short uh short couple couple months

4161
02:57:33,510 --> 02:57:31,120
ago i think at this point

4162
02:57:35,269 --> 02:57:33,520
since we came home and we just really

4163
02:57:37,110 --> 02:57:35,279

wanted to pass our confidence onto them

4164

02:57:38,950 --> 02:57:37,120

as they got ready for their mission

4165

02:57:40,630 --> 02:57:38,960

and commander hopkins in fact said that

4166

02:57:42,550 --> 02:57:40,640

he appreciated uh

4167

02:57:44,309 --> 02:57:42,560

doug hurley telling him that when when

4168

02:57:46,790 --> 02:57:44,319

he was commanding the landing that he

4169

02:57:49,269 --> 02:57:46,800

was a head of the spacecraft

4170

02:57:55,670 --> 02:57:49,279

describe what that means and and why you

4171

02:58:00,550 --> 02:57:57,269

well you know it was a little bit drawn

4172

02:58:02,469 --> 02:58:00,560

on my experience as a shuttle pilot

4173

02:58:04,389 --> 02:58:02,479

you know my first flight i just felt

4174

02:58:05,990 --> 02:58:04,399

like i had to work really hard to keep

4175

02:58:07,750 --> 02:58:06,000

up with the shuttle as we were

4176

02:58:09,429 --> 02:58:07,760

re-entering and

4177

02:58:12,150 --> 02:58:09,439

you know it's a it's a little bit of how

4178

02:58:14,230 --> 02:58:12,160

you operate on orbit and then the uh

4179

02:58:16,550 --> 02:58:14,240

the quickness of the events that you

4180

02:58:18,710 --> 02:58:16,560

deal with on re-entry everything happens

4181

02:58:20,710 --> 02:58:18,720

pretty fast so just mentally knowing

4182

02:58:22,790 --> 02:58:20,720

that that was coming i tried to enforce

4183

02:58:24,230 --> 02:58:22,800

that with the hopper and just say hey

4184

02:58:26,550 --> 02:58:24,240

look it's you know you're going to be in

4185

02:58:29,510 --> 02:58:26,560

orbit for a while your brain slows down

4186

02:58:31,750 --> 02:58:29,520

in a sense but then when re-entry occurs

4187

02:58:33,269 --> 02:58:31,760

those events really happen fast from the

4188

02:58:35,429 --> 02:58:33,279

time that you separate from the trunk

4189

02:58:37,670 --> 02:58:35,439

all the way to splashdown happens it

4190

02:58:39,750 --> 02:58:37,680

seems like in an instant so we talked a

4191

02:58:42,230 --> 02:58:39,760

lot about that and just i just wanted

4192

02:58:44,309 --> 02:58:42,240

him to be calibrated and be ahead of

4193

02:58:46,230 --> 02:58:44,319

dragon as best he could and then

4194

02:58:47,750 --> 02:58:46,240

communicate that obviously to his crew

4195

02:58:50,230 --> 02:58:47,760

he's got a great crew and they'll be

4196

02:58:52,870 --> 02:58:50,240

ready for it when uh they they come back

4197

02:58:54,950 --> 02:58:52,880

in next spring and in fact he said that

4198

02:58:56,790 --> 02:58:54,960

as a result of that statement that he

4199

02:58:59,269 --> 02:58:56,800

studied hard because he knew he had to

4200

02:59:01,349 --> 02:58:59,279

be ahead of it in order uh for

4201
02:59:03,670 --> 02:59:01,359
when these events happen to be ready for

4202
02:59:06,070 --> 02:59:03,680
them as they come bob and doug

4203
02:59:08,070 --> 02:59:06,080
hurley astronauts with nasa and the crew

4204
02:59:10,630 --> 02:59:08,080
of demo one we appreciate you guys i'm

4205
02:59:13,510 --> 02:59:10,640
demo number two sorry i appreciate you

4206
02:59:15,349 --> 02:59:13,520
guys being here thank you very much and

4207
02:59:16,630 --> 02:59:15,359
enjoy the launch

4208
02:59:18,389 --> 02:59:16,640
and now we're going to send it back to

4209
02:59:20,469 --> 02:59:18,399
the desk

4210
02:59:22,950 --> 02:59:20,479
all right thank you daryl it is t minus

4211
02:59:25,269 --> 02:59:22,960
1 hour and 13 minutes and we understand

4212
02:59:27,990 --> 02:59:25,279
uh john i has been listening in has some

4213
02:59:29,750 --> 02:59:28,000

more information to pass along on what's

4214

02:59:32,230 --> 02:59:29,760

been going on what information the crew

4215

02:59:34,950 --> 02:59:32,240

has so john i let's uh hand it over to

4216

02:59:37,750 --> 02:59:34,960

you and hawthorne

4217

02:59:40,790 --> 02:59:37,760

thank you marie it's uh as she said t

4218

02:59:43,429 --> 02:59:40,800

minus 1 hour 13 minutes 24 seconds the

4219

02:59:45,670 --> 02:59:43,439

good news is we are on the timeline

4220

02:59:47,429 --> 02:59:45,680

while we were interviewing bob and doug

4221

02:59:50,950 --> 02:59:47,439

we did hear some discussion with the

4222

02:59:52,150 --> 02:59:50,960

crew over the uh spacex to dragon crew

4223

02:59:53,910 --> 02:59:52,160

net

4224

02:59:55,910 --> 02:59:53,920

they gave them an update on a couple of

4225

02:59:57,830 --> 02:59:55,920

issues that we've been working the one

4226
02:59:59,269 --> 02:59:57,840
of great interest right now has been the

4227
03:00:00,870 --> 02:59:59,279
hatch close

4228
03:00:02,870 --> 03:00:00,880
they summarize that

4229
03:00:04,070 --> 03:00:02,880
as you saw on the monitors we did reopen

4230
03:00:06,070 --> 03:00:04,080
the hatch

4231
03:00:08,630 --> 03:00:06,080
they found a small piece of fod and they

4232
03:00:10,309 --> 03:00:08,640
also worked on the seal around the hatch

4233
03:00:11,510 --> 03:00:10,319
they also did add a little bit of

4234
03:00:13,590 --> 03:00:11,520
lubricant

4235
03:00:15,269 --> 03:00:13,600
they closed the hatch and then re-ran

4236
03:00:18,150 --> 03:00:15,279
the five-minute leak check and they got

4237
03:00:21,030 --> 03:00:18,160
a good result so the crew heard that and

4238
03:00:23,030 --> 03:00:21,040

they are supportive and that issue is

4239

03:00:25,030 --> 03:00:23,040

now resolved and behind us

4240

03:00:27,429 --> 03:00:25,040

the other issue that we've been working

4241

03:00:29,269 --> 03:00:27,439

that they briefed the crew on is just

4242

03:00:31,349 --> 03:00:29,279

above the first stage where the

4243

03:00:33,590 --> 03:00:31,359

propellant tanks in the inner stage meet

4244

03:00:35,830 --> 03:00:33,600

you can't see on your monitor there but

4245

03:00:37,830 --> 03:00:35,840

there are some weep holes and what we've

4246

03:00:39,750 --> 03:00:37,840

seen is some water i think from maybe

4247

03:00:41,750 --> 03:00:39,760

rain that has gotten in there has

4248

03:00:43,910 --> 03:00:41,760

drained out and that gave a little bit

4249

03:00:45,590 --> 03:00:43,920

of discoloration they wanted to make

4250

03:00:47,590 --> 03:00:45,600

sure that might not be something else

4251
03:00:49,990 --> 03:00:47,600
like the rp-1 fuel that's on board the

4252
03:00:53,510 --> 03:00:50,000
rocket so they've done some they've done

4253
03:00:56,150 --> 03:00:53,520
some review of data they see no issues

4254
03:00:57,830 --> 03:00:56,160
with the fuel system or in this case

4255
03:01:00,070 --> 03:00:57,840
it's the grid fence system that's in

4256
03:01:02,389 --> 03:01:00,080
proximity in that area they believe it's

4257
03:01:04,309 --> 03:01:02,399
water they brief the crew and again that

4258
03:01:06,870 --> 03:01:04,319
issue is now closed out

4259
03:01:09,190 --> 03:01:06,880
so coming up on uh just inside t minus

4260
03:01:11,510 --> 03:01:09,200
one hour and 12 minutes we've closed up

4261
03:01:13,670 --> 03:01:11,520
our couple issues and as we also heard

4262
03:01:16,150 --> 03:01:13,680
just a couple minutes ago the closeout

4263
03:01:18,309 --> 03:01:16,160

team has left the crew access arm so

4264

03:01:21,510 --> 03:01:18,319

we're looking good on schedule

4265

03:01:23,750 --> 03:01:21,520

so jesse everything uh in the very busy

4266

03:01:25,830 --> 03:01:23,760

last 20 minutes or so has come together

4267

03:01:27,670 --> 03:01:25,840

and closed out what else has been going

4268

03:01:30,150 --> 03:01:27,680

on

4269

03:01:33,269 --> 03:01:30,160

that is awesome news john thank you for

4270

03:01:36,870 --> 03:01:33,279

that very detailed update uh we're just

4271

03:01:38,710 --> 03:01:36,880

one hour and 11 minutes from launch and

4272

03:01:40,469 --> 03:01:38,720

it just keeps getting more and more

4273

03:01:42,389 --> 03:01:40,479

exciting especially with those updates

4274

03:01:44,389 --> 03:01:42,399

coming in since arriving at the

4275

03:01:46,150 --> 03:01:44,399

spacecraft the crew were helped by our

4276

03:01:48,230 --> 03:01:46,160

closeout engineers to get into their

4277

03:01:50,230 --> 03:01:48,240

seats attach their suits to special

4278

03:01:52,150 --> 03:01:50,240

umbilicals that provide breathing air

4279

03:01:54,550 --> 03:01:52,160

and a communication link to dragon

4280

03:01:56,630 --> 03:01:54,560

systems they conducted leak checks which

4281

03:01:58,870 --> 03:01:56,640

were successful in communications checks

4282

03:02:00,070 --> 03:01:58,880

with the core here in hawthorne which is

4283

03:02:01,990 --> 03:02:00,080

the person who will speak to them

4284

03:02:04,389 --> 03:02:02,000

directly throughout the mission as well

4285

03:02:05,750 --> 03:02:04,399

as the launch director in florida this

4286

03:02:07,670 --> 03:02:05,760

is where they are checking their com

4287

03:02:09,830 --> 03:02:07,680

path through both ground stations and

4288

03:02:12,150 --> 03:02:09,840

tracking and data relay satellites that

4289

03:02:13,750 --> 03:02:12,160

we'll use to talk to the crew the entire

4290

03:02:15,429 --> 03:02:13,760

way to the station

4291

03:02:18,550 --> 03:02:15,439

and after those suit checks we were

4292

03:02:21,030 --> 03:02:18,560

looking for the leak check on the hatch

4293

03:02:22,550 --> 03:02:21,040

so we closed the hatch and as john i

4294

03:02:24,790 --> 03:02:22,560

explained there were some pressure

4295

03:02:26,469 --> 03:02:24,800

changes and so they reopened the hatch

4296

03:02:29,349 --> 03:02:26,479

removed what appears to be a piece of

4297

03:02:31,190 --> 03:02:29,359

foreign object debris or fod reclose the

4298

03:02:33,830 --> 03:02:31,200

hatch conducted those leak checks and

4299

03:02:35,990 --> 03:02:33,840

everything has come out well so the

4300

03:02:37,750 --> 03:02:36,000

closeout team is departing the pad and

4301
03:02:40,230 --> 03:02:37,760
weather operators are kicking off the

4302
03:02:42,150 --> 03:02:40,240
final check on wind speeds at the pad

4303
03:02:44,950 --> 03:02:42,160
and that will be used for the final go

4304
03:02:47,429 --> 03:02:44,960
no go pole for launch before we get to

4305
03:02:50,230 --> 03:02:47,439
that final go no go the various teams

4306
03:02:52,630 --> 03:02:50,240
that both nasa and spacex will do an

4307
03:02:55,110 --> 03:02:52,640
internal go pole making sure conditions

4308
03:02:57,830 --> 03:02:55,120
are right with the falcon 9 the dragon

4309
03:03:00,389 --> 03:02:57,840
the crew the range and the space station

4310
03:03:02,710 --> 03:03:00,399
before the final go is given so let's

4311
03:03:04,710 --> 03:03:02,720
check back in on houston for a status on

4312
03:03:10,550 --> 03:03:04,720
the team supporting the space station on

4313
03:03:14,550 --> 03:03:12,230

thanks Leah the team here in mission

4314

03:03:16,469 --> 03:03:14,560

control Houston remains go for launch

4315

03:03:19,030 --> 03:03:16,479

all systems onboard the station that

4316

03:03:21,110 --> 03:03:19,040

required for to be healthy for mission

4317

03:03:22,710 --> 03:03:21,120

are continuing to look good before the

4318

03:03:24,630 --> 03:03:22,720

station team is go for launch they

4319

03:03:27,510 --> 03:03:24,640

verify that key systems on board the

4320

03:03:29,030 --> 03:03:27,520

station are functioning as expected this

4321

03:03:31,750 --> 03:03:29,040

includes life support systems like

4322

03:03:33,510 --> 03:03:31,760

oxygen generation carbon dioxide removal

4323

03:03:36,070 --> 03:03:33,520

and the water recycling system that

4324

03:03:38,389 --> 03:03:36,080

allows us to reuse about nine percent of

4325

03:03:40,150 --> 03:03:38,399

the water we send to station

4326
03:03:41,830 --> 03:03:40,160
we're also ensuring that the computers

4327
03:03:43,830 --> 03:03:41,840
that allow us to command the station's

4328
03:03:45,670 --> 03:03:43,840
major subsystems essentially the

4329
03:03:47,990 --> 03:03:45,680
station's nervous system are functioning

4330
03:03:49,910 --> 03:03:48,000
normally we also work with our russian

4331
03:03:51,990 --> 03:03:49,920
counterparts to ensure both methods of

4332
03:03:54,389 --> 03:03:52,000
controlling the station's attitude or

4333
03:03:56,630 --> 03:03:54,399
the direction station is pointing

4334
03:03:59,429 --> 03:03:56,640
are fully functional

4335
03:04:00,950 --> 03:03:59,439
this includes the large u.s gyroscopes

4336
03:04:03,110 --> 03:04:00,960
and the thrusters found in the russian

4337
03:04:05,110 --> 03:04:03,120
segments both systems play a critical

4338
03:04:06,950 --> 03:04:05,120

role during dragon stocking

4339

03:04:08,550 --> 03:04:06,960

mission control houston will be closely

4340

03:04:10,230 --> 03:04:08,560

monitoring the crew's flight and

4341

03:04:11,110 --> 03:04:10,240

checking off milestones for most of the

4342

03:04:13,510 --> 03:04:11,120

journey

4343

03:04:15,590 --> 03:04:13,520

lead nasa flight director crew of crew

4344

03:04:17,590 --> 03:04:15,600

one anthony varya will lead flight

4345

03:04:19,990 --> 03:04:17,600

controllers in houston for launch and

4346

03:04:22,469 --> 03:04:20,000

they will be all back they will all be

4347

03:04:25,830 --> 03:04:22,479

coming back tomorrow for docking where

4348

03:04:28,150 --> 03:04:25,840

we join joint operations with spacex

4349

03:04:33,670 --> 03:04:28,160

so i'll send it back over to you marie

4350

03:04:37,910 --> 03:04:35,590

all right thank you shaniqua if you are

4351
03:04:40,550 --> 03:04:37,920
just now joining us you picked a great

4352
03:04:43,590 --> 03:04:40,560
time as we are now at t-minus eight

4353
03:04:45,269 --> 03:04:43,600
minutes and 22 seconds until launch

4354
03:04:48,389 --> 03:04:45,279
welcome to coverage for the mission

4355
03:04:49,990 --> 03:04:48,399
known as crew one nasa and spacex's

4356
03:04:51,990 --> 03:04:50,000
second flight with crew to the

4357
03:04:54,870 --> 03:04:52,000
international space station

4358
03:04:57,110 --> 03:04:54,880
liftoff time is still holding for 7 27

4359
03:04:59,429 --> 03:04:57,120
pm eastern time instantaneous launch

4360
03:05:02,550 --> 03:04:59,439
window and we are tracking no issues

4361
03:05:04,309 --> 03:05:02,560
currently with falcon 9 or crew dragon

4362
03:05:06,870 --> 03:05:04,319
the range is green and weather is

4363
03:05:08,469 --> 03:05:06,880

cooperating so far uh last check it was

4364

03:05:10,710 --> 03:05:08,479

50 percent go

4365

03:05:12,870 --> 03:05:10,720

over the last three hours our crew of

4366

03:05:15,429 --> 03:05:12,880

victor glover mike hopkins shannon

4367

03:05:17,910 --> 03:05:15,439

walker and suichi naguchi donned their

4368

03:05:20,150 --> 03:05:17,920

spacex spacesuits in the historic crew

4369

03:05:22,070 --> 03:05:20,160

quarter suit-up room they walked out of

4370

03:05:24,309 --> 03:05:22,080

that crew quarters building just as

4371

03:05:26,230 --> 03:05:24,319

every astronaut to fly from this

4372

03:05:28,950 --> 03:05:26,240

spaceport in florida has done since

4373

03:05:30,950 --> 03:05:28,960

apollo 7. they were then transported to

4374

03:05:33,750 --> 03:05:30,960

the pad where our crew entered the

4375

03:05:35,830 --> 03:05:33,760

spacex crew dragon spacecraft you see

4376

03:05:37,349 --> 03:05:35,840

live on your screen atop the falcon 9

4377

03:05:39,910 --> 03:05:37,359

rocket

4378

03:05:42,389 --> 03:05:39,920

well this is spacex's second time flying

4379

03:05:44,870 --> 03:05:42,399

astronauts in crew dragon it will also

4380

03:05:47,269 --> 03:05:44,880

be the first time a private company will

4381

03:05:48,309 --> 03:05:47,279

fly a crew of four people to the space

4382

03:05:50,389 --> 03:05:48,319

station

4383

03:05:52,469 --> 03:05:50,399

if you remember back in may we launched

4384

03:05:54,389 --> 03:05:52,479

nasa astronauts doug hurley and bob

4385

03:05:57,030 --> 03:05:54,399

benkin to the space station in the

4386

03:05:59,190 --> 03:05:57,040

historic demo 2 mission and then brought

4387

03:06:01,269 --> 03:05:59,200

them safely home in august

4388

03:06:03,670 --> 03:06:01,279

over the next hour we will conduct a

4389

03:06:06,070 --> 03:06:03,680

series of polls to get ready for launch

4390

03:06:07,910 --> 03:06:06,080

have the crew arm and the launch escape

4391

03:06:10,630 --> 03:06:07,920

system

4392

03:06:14,070 --> 03:06:10,640

and will begin fueling falcon 9.

4393

03:06:16,950 --> 03:06:14,080

launch is set for 7 27 pm eastern this

4394

03:06:19,910 --> 03:06:16,960

will include a 12 minute flight to orbit

4395

03:06:21,349 --> 03:06:19,920

and then a 27 and a half hour flight to

4396

03:06:25,429 --> 03:06:21,359

dock with the international space

4397

03:06:27,990 --> 03:06:25,439

station set for monday at 11 pm eastern

4398

03:06:30,790 --> 03:06:28,000

so nicole you know we're coming up uh on

4399

03:06:32,070 --> 03:06:30,800

t minus one hour in about six minutes um

4400

03:06:34,710 --> 03:06:32,080

and i know when we were we were

4401
03:06:36,389 --> 03:06:34,720
listening to daryl talked to bob and

4402
03:06:38,230 --> 03:06:36,399
doug um

4403
03:06:39,750 --> 03:06:38,240
he talked about doug talked about how

4404
03:06:41,269 --> 03:06:39,760
you know there's not a lot of time to

4405
03:06:42,870 --> 03:06:41,279
think about your emotions you're just

4406
03:06:44,950 --> 03:06:42,880
you're focused on the operation and your

4407
03:06:46,710 --> 03:06:44,960
procedures yeah yeah your emotions are

4408
03:06:48,550 --> 03:06:46,720
kind of in you at this point and you're

4409
03:06:50,150 --> 03:06:48,560
just um trying to make sure you're as

4410
03:06:52,469 --> 03:06:50,160
best prepared for

4411
03:06:54,469 --> 03:06:52,479
you know what's about to happen sure and

4412
03:06:56,630 --> 03:06:54,479
today's flight is the first of six

4413
03:06:58,550 --> 03:06:56,640

planned rotational missions nasa has

4414

03:07:00,710 --> 03:06:58,560

contracted with spacex as part of the

4415

03:07:03,030 --> 03:07:00,720

agency's commercial crew program the

4416

03:07:05,269 --> 03:07:03,040

success of the demo2 mission allowed for

4417

03:07:08,070 --> 03:07:05,279

nasa to complete certification for

4418

03:07:10,790 --> 03:07:08,080

spacex to fly astronauts regularly to

4419

03:07:13,349 --> 03:07:10,800

and from the iss bringing back this

4420

03:07:16,309 --> 03:07:13,359

critic critical capability of launching

4421

03:07:18,230 --> 03:07:16,319

from american soil which we haven't had

4422

03:07:21,429 --> 03:07:18,240

the ability to do regularly since the

4423

03:07:22,790 --> 03:07:21,439

retirement of the space shuttle in 2011.

4424

03:07:24,550 --> 03:07:22,800

if you've been following along you've

4425

03:07:27,269 --> 03:07:24,560

been able to hear that we have been

4426
03:07:29,510 --> 03:07:27,279
hearing a little bit from crew on board

4427
03:07:31,190 --> 03:07:29,520
dragon resilience currently strapped

4428
03:07:33,190 --> 03:07:31,200
into their seats and they've already

4429
03:07:34,950 --> 03:07:33,200
gone through all of their communication

4430
03:07:37,030 --> 03:07:34,960
and suit leak checks

4431
03:07:39,269 --> 03:07:37,040
now they are able to follow along with

4432
03:07:42,150 --> 03:07:39,279
all of the action still ahead on the

4433
03:07:43,830 --> 03:07:42,160
displays that are just above them

4434
03:07:46,309 --> 03:07:43,840
there are a couple of touch screen

4435
03:07:48,309 --> 03:07:46,319
displays and that allows them to get

4436
03:07:50,630 --> 03:07:48,319
insight into all of the dragon and

4437
03:07:53,269 --> 03:07:50,640
falcon 9 systems as we proceed down

4438
03:07:55,990 --> 03:07:53,279

towards launch so we're currently at t

4439

03:07:57,910 --> 03:07:56,000

minus one hour and five minutes

4440

03:07:59,990 --> 03:07:57,920

let's check in with john inspector for

4441

03:08:04,550 --> 03:08:00,000

another status update on both vehicles

4442

03:08:09,590 --> 03:08:06,870

one hour five minutes close out team to

4443

03:08:10,790 --> 03:08:09,600

clear the vda once that's complete

4444

03:08:13,030 --> 03:08:10,800

we're going to

4445

03:08:14,630 --> 03:08:13,040

cycle the tank valves to equalize the

4446

03:08:17,269 --> 03:08:14,640

manifold pressure this is the same thing

4447

03:08:25,110 --> 03:08:17,279

we executed yesterday during or earlier

4448

03:08:30,070 --> 03:08:27,590

okay uh we copy that and uh jay your

4449

03:08:31,349 --> 03:08:30,080

call's coming in a little bit soft and

4450

03:08:34,550 --> 03:08:31,359

we're losing it kind of at the end of

4451

03:08:37,910 --> 03:08:36,389

copy all on that call and i'll let you

4452

03:08:41,190 --> 03:08:37,920

know when we're ready for that tank five

4453

03:08:45,910 --> 03:08:43,110

okay dragon copies and that was much

4454

03:08:50,070 --> 03:08:47,269

okay we've just heard a little bit of

4455

03:08:52,870 --> 03:08:50,080

the dialogue between uh the crew inside

4456

03:08:55,590 --> 03:08:52,880

the dragon capsule resilience uh and the

4457

03:08:57,349 --> 03:08:55,600

uh spacex dragon team looks like they're

4458

03:08:59,510 --> 03:08:57,359

gonna be uh cycling a little bit of

4459

03:09:02,389 --> 03:08:59,520

pressure giving the crew a heads up i

4460

03:09:04,710 --> 03:09:02,399

probably hear some of that noise

4461

03:09:07,030 --> 03:09:04,720

now as i've mentioned we're t minus one

4462

03:09:08,870 --> 03:09:07,040

hour and four minutes counting down good

4463

03:09:10,389 --> 03:09:08,880

news is as you heard a few minutes ago

4464

03:09:12,150 --> 03:09:10,399

we've resolved a couple issues we were

4465

03:09:13,110 --> 03:09:12,160

working earlier in account

4466

03:09:14,870 --> 03:09:13,120

and

4467

03:09:16,790 --> 03:09:14,880

while the pace was busy before now it's

4468

03:09:18,870 --> 03:09:16,800

going to begin to pick up again

4469

03:09:20,870 --> 03:09:18,880

falcon 9 is into its

4470

03:09:23,190 --> 03:09:20,880

checkouts of first and second stage

4471

03:09:25,349 --> 03:09:23,200

propulsion systems and engines that's in

4472

03:09:27,750 --> 03:09:25,359

preparation for propellant loading we're

4473

03:09:30,389 --> 03:09:27,760

going to hear polls between t minus 47 t

4474

03:09:32,150 --> 03:09:30,399

minus 45 minutes on readiness

4475

03:09:33,190 --> 03:09:32,160

for propellant loading and then on to

4476
03:09:34,870 --> 03:09:33,200
launch

4477
03:09:37,349 --> 03:09:34,880
and then at t minus 35 minutes

4478
03:09:39,590 --> 03:09:37,359
propellant loading will begin

4479
03:09:41,269 --> 03:09:39,600
now on dragon we've done our checkouts

4480
03:09:43,349 --> 03:09:41,279
everything is looking good the

4481
03:09:45,269 --> 03:09:43,359
astronauts are currently inside dragon

4482
03:09:47,110 --> 03:09:45,279
hatch is closed and the leak check is

4483
03:09:49,349 --> 03:09:47,120
successfully complete

4484
03:09:51,190 --> 03:09:49,359
the spacex folks have left the access

4485
03:09:53,510 --> 03:09:51,200
area and i believe are now clear of the

4486
03:09:55,910 --> 03:09:53,520
blast area so we'll have two major

4487
03:09:58,469 --> 03:09:55,920
events coming up on dragon between t

4488
03:10:00,389 --> 03:09:58,479

minus 45 and t minus 42 minutes we're

4489

03:10:01,990 --> 03:10:00,399

going to see that crew access arm

4490

03:10:03,990 --> 03:10:02,000

currently alongside dragon that's going

4491

03:10:05,349 --> 03:10:04,000

to retract away from the capsule and

4492

03:10:07,030 --> 03:10:05,359

then we'll follow that pretty much

4493

03:10:09,110 --> 03:10:07,040

immediately by arming of the dragon

4494

03:10:11,190 --> 03:10:09,120

launch escape system that needs to be

4495

03:10:12,870 --> 03:10:11,200

armed prior to loading propellant onto

4496

03:10:15,110 --> 03:10:12,880

the falcon 9.

4497

03:10:16,790 --> 03:10:15,120

we're launching out of historic pad 39a

4498

03:10:18,950 --> 03:10:16,800

from the eastern range the range is

4499

03:10:20,950 --> 03:10:18,960

green and go to support launch not only

4500

03:10:22,710 --> 03:10:20,960

here also the worldwide network of

4501

03:10:24,630 --> 03:10:22,720

ground stations and the on-orbit

4502

03:10:26,389 --> 03:10:24,640

tracking and data relay satellites are

4503

03:10:28,150 --> 03:10:26,399

ready to support dragon as it heads to

4504

03:10:29,830 --> 03:10:28,160

orbit and the good news weather

4505

03:10:31,750 --> 03:10:29,840

continues to be acceptable both at

4506

03:10:33,910 --> 03:10:31,760

ground level and the upper altitude and

4507

03:10:40,870 --> 03:10:33,920

spacex we are cycling the overtank

4508

03:10:45,750 --> 03:10:42,550

they're cycling the valves to equalize

4509

03:10:49,670 --> 03:10:47,190

now as a reminder we have an

4510

03:10:52,070 --> 03:10:49,680

instantaneous launch window today at 27

4511

03:10:53,510 --> 03:10:52,080

minutes 17 seconds after the hour so

4512

03:10:56,070 --> 03:10:53,520

once we get into propellant loading

4513

03:10:57,910 --> 03:10:56,080

there's no opportunity to change the t0

4514

03:10:59,510 --> 03:10:57,920

uh once we get into propellant loading

4515

03:11:02,150 --> 03:10:59,520

and actually right now uh we're

4516

03:11:04,309 --> 03:11:02,160

committed uh we can't slow down or add

4517

03:11:06,550 --> 03:11:04,319

some more margin time we've got to

4518

03:11:09,510 --> 03:11:06,560

finish up the last 62 minutes but the

4519

03:11:13,830 --> 03:11:09,520

good news jesse at just inside t minus

4520

03:11:18,070 --> 03:11:16,150

it's great to hear john sounds like

4521

03:11:19,910 --> 03:11:18,080

everything is going back to normal is

4522

03:11:22,070 --> 03:11:19,920

that right

4523

03:11:24,389 --> 03:11:22,080

we've got an extensive history now of

4524

03:11:26,229 --> 03:11:24,399

flying falcon 9 from the florida coast

4525

03:11:29,110 --> 03:11:26,239

and earlier this year we completed a

4526

03:11:31,269 --> 03:11:29,120

test run of the mission that were less

4527

03:11:33,349 --> 03:11:31,279

just an hour away

4528

03:11:34,870 --> 03:11:33,359

from beginning here today and the

4529

03:11:37,030 --> 03:11:34,880

purpose of that mission was to

4530

03:11:39,670 --> 03:11:37,040

demonstrate dragon's capability to

4531

03:11:42,229 --> 03:11:39,680

safely and reliably fly humans to and

4532

03:11:45,030 --> 03:11:42,239

from the international space station the

4533

03:11:47,030 --> 03:11:45,040

success of demo 2 was a truly exciting

4534

03:11:48,870 --> 03:11:47,040

moment and paved the way for today's

4535

03:11:55,990 --> 03:11:48,880

mission dragon spacex valve cycling is

4536

03:12:00,070 --> 03:11:58,469

and good words from core to the crew but

4537

03:12:02,550 --> 03:12:00,080

that mission paved the way for where we

4538

03:12:04,630 --> 03:12:02,560

are today sending this full crew for a

4539

03:12:06,469 --> 03:12:04,640

long duration expedition aboard the

4540

03:12:08,790 --> 03:12:06,479

international space station

4541

03:12:10,710 --> 03:12:08,800

dragon and falcon 9 together have years

4542

03:12:13,110 --> 03:12:10,720

of operational experience or what we

4543

03:12:14,870 --> 03:12:13,120

refer to as flight heritage as leah

4544

03:12:16,950 --> 03:12:14,880

mentioned earlier spacex has

4545

03:12:19,830 --> 03:12:16,960

successfully completed 23 flights of

4546

03:12:22,469 --> 03:12:19,840

dragon to and from orbit since 2010

4547

03:12:24,790 --> 03:12:22,479

including 22 trips to the international

4548

03:12:27,269 --> 03:12:24,800

space station not only have we conducted

4549

03:12:28,950 --> 03:12:27,279

thousands of hours of testing we've also

4550

03:12:30,870 --> 03:12:28,960

enhanced and added a number of safety

4551
03:12:33,030 --> 03:12:30,880
features to dragon much of what was

4552
03:12:35,910 --> 03:12:33,040
learned with cargo dragon was leveraged

4553
03:12:37,910 --> 03:12:35,920
in the design of this vehicle it's fully

4554
03:12:41,110 --> 03:12:37,920
autonomous which means it can basically

4555
03:12:42,790 --> 03:12:41,120
fly itself but also features full manual

4556
03:12:45,349 --> 03:12:42,800
override capabilities in case of

4557
03:12:47,269 --> 03:12:45,359
emergency bob banken and doug hurley

4558
03:12:49,830 --> 03:12:47,279
tested these capabilities during the

4559
03:12:51,429 --> 03:12:49,840
demo 2 mission to the station

4560
03:12:53,750 --> 03:12:51,439
many of the other enhancements helped

4561
03:12:56,389 --> 03:12:53,760
towards spacex's goal of reusability and

4562
03:12:57,910 --> 03:12:56,399
less refurbishment time between missions

4563
03:13:00,950 --> 03:12:57,920

so let's take a closer look at some of

4564

03:13:02,950 --> 03:13:00,960

these advancements standing at almost 27

4565

03:13:05,110 --> 03:13:02,960

feet tall from bottom of the trunk to

4566

03:13:07,670 --> 03:13:05,120

top of the nose cone crew dragon is

4567

03:13:09,830 --> 03:13:07,680

composed of two main elements spacex

4568

03:13:12,070 --> 03:13:09,840

just passing t minus one hour your goal

4569

03:13:15,830 --> 03:13:12,080

for section six when ready report go for

4570

03:13:15,840 --> 03:13:20,150

dragon copy section six is in work

4571

03:13:24,469 --> 03:13:22,710

t-minus one hour we're getting there but

4572

03:13:26,710 --> 03:13:24,479

the capsule that the crew is flying on

4573

03:13:28,950 --> 03:13:26,720

today is designed to hold crew and

4574

03:13:31,910 --> 03:13:28,960

pressurized cargo and it also has an

4575

03:13:33,750 --> 03:13:31,920

unpressurized section known as the trunk

4576
03:13:35,670 --> 03:13:33,760
the nose cone at the top of the capsule

4577
03:13:37,670 --> 03:13:35,680
protects the docking system and also the

4578
03:13:40,550 --> 03:13:37,680
guidance navigation control system or

4579
03:13:42,469 --> 03:13:40,560
what we call gnc the nosecone opens for

4580
03:13:44,469 --> 03:13:42,479
docking and remains attached to the crew

4581
03:13:46,389 --> 03:13:44,479
dragon spacecraft unlike the previous

4582
03:13:48,710 --> 03:13:46,399
version of dragon and that helps towards

4583
03:13:50,710 --> 03:13:48,720
our reusability efforts opposite the

4584
03:13:52,790 --> 03:13:50,720
nosecone is the trunk it provides

4585
03:13:55,990 --> 03:13:52,800
attachment points for falcon 9 the

4586
03:13:57,510 --> 03:13:56,000
dragon capsule and cargo on the outside

4587
03:13:59,510 --> 03:13:57,520
one half of the trunk contains a

4588
03:14:02,070 --> 03:13:59,520

radiator that rejects heat from the

4589

03:14:04,710 --> 03:14:02,080

active thermal control system to space

4590

03:14:07,590 --> 03:14:04,720

using spacex's new pica tiling

4591

03:14:09,510 --> 03:14:07,600

technology the other half contains solar

4592

03:14:10,550 --> 03:14:09,520

cells used to charge the spacecraft's

4593

03:14:12,150 --> 03:14:10,560

batteries

4594

03:14:14,309 --> 03:14:12,160

the spacecraft is designed to

4595

03:14:16,070 --> 03:14:14,319

accommodate up to seven crew members

4596

03:14:18,469 --> 03:14:16,080

with modular seats that can be removed

4597

03:14:21,269 --> 03:14:18,479

and replaced by additional cargo

4598

03:14:24,229 --> 03:14:21,279

and spacex this is dragon resilience for

4599

03:14:25,830 --> 03:14:24,239

six decimal four four dot one hundred

4600

03:14:29,990 --> 03:14:25,840

launch prep

4601
03:14:34,150 --> 03:14:31,990
copy go for launch yeah we're looking

4602
03:14:37,349 --> 03:14:34,160
good on weather and you can expect the

4603
03:14:41,830 --> 03:14:37,359
next call to be the ld the sea

4604
03:14:41,840 --> 03:14:45,349
and very exciting

4605
03:14:49,750 --> 03:14:47,349
very exciting we just got confirmation

4606
03:14:51,910 --> 03:14:49,760
that dragon is go for launch the next

4607
03:14:55,030 --> 03:14:51,920
call coming up will be from the launch

4608
03:14:57,990 --> 03:14:55,040
director so exciting that we are on

4609
03:14:59,429 --> 03:14:58,000
target for t0 today

4610
03:15:01,990 --> 03:14:59,439
back to what we were talking about the

4611
03:15:03,910 --> 03:15:02,000
seats are made of carbon fiber and will

4612
03:15:05,590 --> 03:15:03,920
be custom sized for any crew members

4613
03:15:07,670 --> 03:15:05,600

flying on board

4614

03:15:09,429 --> 03:15:07,680

that control panel is centered between

4615

03:15:10,790 --> 03:15:09,439

the pilot and the commander seats you

4616

03:15:13,110 --> 03:15:10,800

can see it a little bit here on the

4617

03:15:15,510 --> 03:15:13,120

right side of your screen that consists

4618

03:15:17,910 --> 03:15:15,520

of three touch screen displays allowing

4619

03:15:19,510 --> 03:15:17,920

the crew to operate the vehicle and fly

4620

03:15:21,910 --> 03:15:19,520

it manually

4621

03:15:24,150 --> 03:15:21,920

and finally our super draco launch

4622

03:15:26,150 --> 03:15:24,160

escape system is a key safety feature of

4623

03:15:28,309 --> 03:15:26,160

crew dragon giving the crew the ability

4624

03:15:32,830 --> 03:15:28,319

to safely escape from the time of launch

4625

03:15:39,429 --> 03:15:37,429

orbit we are now t minus 57 minutes from

4626
03:15:41,190 --> 03:15:39,439
launch this day is the beginning of

4627
03:15:43,590 --> 03:15:41,200
regular crew flights to the space

4628
03:15:45,750 --> 03:15:43,600
station from u.s soil nasa having

4629
03:15:48,389 --> 03:15:45,760
certified spacex for these missions

4630
03:15:50,309 --> 03:15:48,399
after the successful demo 2 flight test

4631
03:15:52,070 --> 03:15:50,319
which launched in may and splashed down

4632
03:15:53,990 --> 03:15:52,080
safely in august

4633
03:15:56,550 --> 03:15:54,000
today's mission will be crew dragon's

4634
03:15:59,190 --> 03:15:56,560
second mission with astronauts aboard

4635
03:16:01,110 --> 03:15:59,200
and its first long-duration mission to

4636
03:16:03,750 --> 03:16:01,120
the international space station

4637
03:16:05,750 --> 03:16:03,760
it's been an awesome countdown so far

4638
03:16:07,750 --> 03:16:05,760

weather is still looking good we just

4639

03:16:09,830 --> 03:16:07,760

countdown the technical team has been

4640

03:16:11,349 --> 03:16:09,840

pulled and is ready to proceed into the

4641

03:16:17,190 --> 03:16:11,359

propellant load

4642

03:16:21,110 --> 03:16:19,510

and not only is weather good but

4643

03:16:23,190 --> 03:16:21,120

sounds like we're proceeding into

4644

03:16:27,190 --> 03:16:23,200

propellant load

4645

03:16:29,030 --> 03:16:27,200

so we're at t minus 56 minutes and 37

4646

03:16:31,429 --> 03:16:29,040

seconds and we're just getting closer

4647

03:16:32,950 --> 03:16:31,439

and closer to that t-zero so exciting

4648

03:16:35,110 --> 03:16:32,960

yeah absolutely we've had a great

4649

03:16:37,190 --> 03:16:35,120

countdown today of course a few things

4650

03:16:40,070 --> 03:16:37,200

we didn't expect but nonetheless

4651
03:16:42,150 --> 03:16:40,080
everything's continuing uh on schedule

4652
03:16:44,469 --> 03:16:42,160
so starting with suit up just over three

4653
03:16:46,469 --> 03:16:44,479
hours ago the spacex team helped the

4654
03:16:49,349 --> 03:16:46,479
crew put on their suits and conduct

4655
03:16:51,190 --> 03:16:49,359
initial checkouts before crew walkout

4656
03:16:52,870 --> 03:16:51,200
crew walkout was where victor glover

4657
03:16:55,590 --> 03:16:52,880
mike hawkins shannon walker and

4658
03:16:57,510 --> 03:16:55,600
suicinaguchi gave final goodbyes with

4659
03:16:59,670 --> 03:16:57,520
friends and family gathered outside the

4660
03:17:01,830 --> 03:16:59,680
operations and checkout building before

4661
03:17:04,070 --> 03:17:01,840
they began that roughly 20 minute ride

4662
03:17:07,030 --> 03:17:04,080
to pad 39a

4663
03:17:08,229 --> 03:17:07,040

and what a cool ride that was

4664

03:17:10,830 --> 03:17:08,239

what you're seeing on your screen is

4665

03:17:13,990 --> 03:17:10,840

them getting into their vehicles waving

4666

03:17:15,910 --> 03:17:14,000

goodbye we got some great footage of

4667

03:17:17,910 --> 03:17:15,920

those teslas heading down the nasa

4668

03:17:19,110 --> 03:17:17,920

causeway before the crew arrived at the

4669

03:17:23,590 --> 03:17:19,120

pad

4670

03:17:25,590 --> 03:17:23,600

minute to take in the sights

4671

03:17:27,190 --> 03:17:25,600

there you could see on your screen

4672

03:17:28,790 --> 03:17:27,200

they took some pictures and then they

4673

03:17:31,030 --> 03:17:28,800

headed up into the fixed service

4674

03:17:32,710 --> 03:17:31,040

structure to begin a process known as

4675

03:17:34,710 --> 03:17:32,720

crew ingress where the astronauts

4676
03:17:36,950 --> 03:17:34,720
entered the vehicle and the spacex team

4677
03:17:39,510 --> 03:17:36,960
performed a series of checks to ensure

4678
03:17:41,110 --> 03:17:39,520
their suits the seats and the vehicle

4679
03:17:42,229 --> 03:17:41,120
interactions were all functioning

4680
03:17:45,030 --> 03:17:42,239
properly

4681
03:17:51,269 --> 03:17:45,040
and about five reminders that 55.72 is

4682
03:17:55,510 --> 03:17:53,030
that's the team continuing to discuss

4683
03:17:57,590 --> 03:17:55,520
the go no go for propellant load but

4684
03:17:59,510 --> 03:17:57,600
about 15 minutes ago the team closed

4685
03:18:03,110 --> 03:17:59,520
dragon's hatch with the crew safely

4686
03:18:05,670 --> 03:18:03,120
inside so with about 55 minutes to go

4687
03:18:07,590 --> 03:18:05,680
until dragon starts breathing fire

4688
03:18:09,590 --> 03:18:07,600

things will pick up as we get close to

4689

03:18:11,429 --> 03:18:09,600

that go no go to begin propellant

4690

03:18:12,710 --> 03:18:11,439

loading and arming the launch escape

4691

03:18:14,710 --> 03:18:12,720

system

4692

03:18:16,870 --> 03:18:14,720

the crew will pull for readiness which

4693

03:18:17,750 --> 03:18:16,880

was completed just about five minutes

4694

03:18:26,309 --> 03:18:17,760

ago

4695

03:18:28,469 --> 03:18:26,319

next up at t minus 45 minutes will be an

4696

03:18:30,150 --> 03:18:28,479

internal mission control hawthorne pole

4697

03:18:32,550 --> 03:18:30,160

and then the launch director's pole for

4698

03:18:34,790 --> 03:18:32,560

propellant loading when we get to about

4699

03:18:36,710 --> 03:18:34,800

t minus 40 minutes the crew access arm

4700

03:18:38,790 --> 03:18:36,720

will retract and the crew will get the

4701
03:18:40,870 --> 03:18:38,800
call to close their visors and arm the

4702
03:18:42,630 --> 03:18:40,880
launch escape system this is the

4703
03:18:45,030 --> 03:18:42,640
automated system in place that can fire

4704
03:18:46,870 --> 03:18:45,040
the eight super draco thrusters on

4705
03:18:49,030 --> 03:18:46,880
dragon to quickly separate the crew from

4706
03:18:51,190 --> 03:18:49,040
the rocket either on the pad or during

4707
03:18:53,429 --> 03:18:51,200
the flight on the ride uphill

4708
03:18:55,750 --> 03:18:53,439
and then once we reach about t minus 35

4709
03:18:57,429 --> 03:18:55,760
minutes propellant loading for falcon 9

4710
03:18:59,269 --> 03:18:57,439
will begin we've heard some chatter

4711
03:19:01,349 --> 03:18:59,279
about whether they're going to go

4712
03:19:02,870 --> 03:19:01,359
continuing those polls and throughout

4713
03:19:04,469 --> 03:19:02,880

the countdown we've been getting some

4714

03:19:06,950 --> 03:19:04,479

pretty incredible views of the

4715

03:19:08,710 --> 03:19:06,960

astronauts inside dragon making their

4716

03:19:11,190 --> 03:19:08,720

final preparations as well as some

4717

03:19:13,030 --> 03:19:11,200

close-up views of the suits the teams

4718

03:19:15,510 --> 03:19:13,040

have often described those suits as an

4719

03:19:17,990 --> 03:19:15,520

extension of the dragon spacecraft it's

4720

03:19:19,510 --> 03:19:18,000

almost a mini spacecraft inside a

4721

03:19:21,990 --> 03:19:19,520

spacecraft

4722

03:19:24,550 --> 03:19:22,000

they're all custom fitted just as we

4723

03:19:27,030 --> 03:19:24,560

were discussing earlier and i think it's

4724

03:19:29,590 --> 03:19:27,040

very interesting as well their seats are

4725

03:19:31,349 --> 03:19:29,600

custom fitted too so nobody gets to

4726

03:19:35,030 --> 03:19:31,359

really choose where they sit today it's

4727

03:19:36,550 --> 03:19:35,040

already it's already been decided

4728

03:19:43,190 --> 03:19:36,560

and with that we want to hear a little

4729

03:19:46,950 --> 03:19:45,349

hey go ahead for displays

4730

03:19:48,229 --> 03:19:46,960

we just wanted to check we didn't notice

4731

03:19:50,790 --> 03:19:48,239

that on the left side of the display

4732

03:19:52,710 --> 03:19:50,800

looks like possibly one of the ipads

4733

03:19:53,910 --> 03:19:52,720

when that tablets are still in there is

4734

03:19:55,030 --> 03:19:53,920

there uh

4735

03:19:58,150 --> 03:19:55,040

when are you planning on bringing that

4736

03:20:02,070 --> 03:20:00,070

and we're going to get that uh right

4737

03:20:09,190 --> 03:20:02,080

prior to uh

4738

03:20:13,510 --> 03:20:11,110

that's the core speaking with dragon the

4739

03:20:16,550 --> 03:20:13,520

crew also has some tablets they can use

4740

03:20:17,910 --> 03:20:16,560

to monitor the milestones of the mission

4741

03:20:20,550 --> 03:20:17,920

but for right now we want to hear a

4742

03:20:22,070 --> 03:20:20,560

little bit more from the ksc side so

4743

03:20:23,429 --> 03:20:22,080

daryl

4744

03:20:25,830 --> 03:20:23,439

thank you very much back here at the

4745

03:20:27,349 --> 03:20:25,840

kennedy interview desk and uh you know

4746

03:20:28,550 --> 03:20:27,359

we talk a lot about the astronauts what

4747

03:20:29,910 --> 03:20:28,560

they're doing in the preparation for

4748

03:20:31,429 --> 03:20:29,920

good reason but they have a lot of work

4749

03:20:33,910 --> 03:20:31,439

to do they're going to be doing some

4750

03:20:35,990 --> 03:20:33,920

science and joining me now is dr lucy

4751
03:20:38,150 --> 03:20:36,000
lowe from the national institutes of

4752
03:20:39,269 --> 03:20:38,160
health with one of the hundreds of

4753
03:20:41,030 --> 03:20:39,279
experience

4754
03:20:43,190 --> 03:20:41,040
experiments that our astronauts are

4755
03:20:45,190 --> 03:20:43,200
going to be working on and so one of

4756
03:20:48,630 --> 03:20:45,200
them the big one that you're working on

4757
03:20:50,469 --> 03:20:48,640
and studying is called tissue chips so

4758
03:20:53,110 --> 03:20:50,479
lucy what is that what exactly is a

4759
03:20:54,550 --> 03:20:53,120
tissue chip so yeah great question daryl

4760
03:20:56,550 --> 03:20:54,560
thanks very much great to be here this

4761
03:20:58,950 --> 03:20:56,560
evening so a tissue chip this is an

4762
03:21:01,269 --> 03:20:58,960
example of a tissue chip it's a tiny

4763
03:21:03,510 --> 03:21:01,279

bioengineered device that contains human

4764

03:21:05,269 --> 03:21:03,520

cells and it's designed so that it

4765

03:21:07,670 --> 03:21:05,279

mimics the structure and function of

4766

03:21:09,830 --> 03:21:07,680

human cells and organs in this tiny

4767

03:21:11,830 --> 03:21:09,840

little device and so the idea is is that

4768

03:21:13,990 --> 03:21:11,840

we can use these to understand human

4769

03:21:15,910 --> 03:21:14,000

physiology we can use them to model

4770

03:21:18,790 --> 03:21:15,920

diseases and we can even use them to

4771

03:21:21,269 --> 03:21:18,800

test drugs and therapeutics in human

4772

03:21:23,269 --> 03:21:21,279

systems before they go into humans for

4773

03:21:24,790 --> 03:21:23,279

example in clinical trials so really

4774

03:21:27,349 --> 03:21:24,800

they're just models that we can use to

4775

03:21:29,750 --> 03:21:27,359

model disease and then test therapeutics

4776
03:21:31,510 --> 03:21:29,760
for safety and efficiency taking actual

4777
03:21:33,110 --> 03:21:31,520
tissue that's been genetically

4778
03:21:34,950 --> 03:21:33,120
engineered right and to see how

4779
03:21:36,550 --> 03:21:34,960
necessarily no so there's lots of

4780
03:21:39,190 --> 03:21:36,560
different ways that you can put cells on

4781
03:21:41,190 --> 03:21:39,200
these chips you can buy them but you can

4782
03:21:43,510 --> 03:21:41,200
also use stem cell technologies to

4783
03:21:45,510 --> 03:21:43,520
actually create cells from all kinds of

4784
03:21:48,229 --> 03:21:45,520
different organs and tissues heart liver

4785
03:21:49,590 --> 03:21:48,239
lungs skin brain bone lots and lots of

4786
03:21:51,830 --> 03:21:49,600
different kinds of tissues can be

4787
03:21:53,990 --> 03:21:51,840
created from stem cells and they can be

4788
03:21:55,349 --> 03:21:54,000

put onto these tissue chips and then you

4789

03:21:57,590 --> 03:21:55,359

can model

4790

03:21:58,950 --> 03:21:57,600

diseases and all sorts on a little chip

4791

03:22:00,710 --> 03:21:58,960

like this fascinating we're looking at

4792

03:22:02,309 --> 03:22:00,720

some video i believe of one of these

4793

03:22:03,590 --> 03:22:02,319

tissue chips being put together kind of

4794

03:22:05,269 --> 03:22:03,600

just brings us through what's what we're

4795

03:22:07,590 --> 03:22:05,279

seeing so what you're seeing there is

4796

03:22:09,269 --> 03:22:07,600

one of our kidney chips that the tissue

4797

03:22:10,630 --> 03:22:09,279

chips in space program from the national

4798

03:22:12,389 --> 03:22:10,640

institutes of health and the iss

4799

03:22:14,389 --> 03:22:12,399

national lab has been funding

4800

03:22:16,150 --> 03:22:14,399

so this chip here is actually is being

4801
03:22:17,590 --> 03:22:16,160
seeded here you're seeing that blue

4802
03:22:19,910 --> 03:22:17,600
fluid coming through in those little

4803
03:22:22,070 --> 03:22:19,920
triangles those little squares are cells

4804
03:22:23,429 --> 03:22:22,080
that are being placed into the chip

4805
03:22:25,429 --> 03:22:23,439
and they're put in there with this pink

4806
03:22:27,110 --> 03:22:25,439
stuff this extracellular matrix that

4807
03:22:29,510 --> 03:22:27,120
keeps them alive and keeps them bubbling

4808
03:22:31,349 --> 03:22:29,520
away happily chatting to each other over

4809
03:22:32,950 --> 03:22:31,359
the course of a few weeks and so what

4810
03:22:35,030 --> 03:22:32,960
you're seeing there then with the blue

4811
03:22:36,309 --> 03:22:35,040
fluid coming through is how we feed

4812
03:22:37,670 --> 03:22:36,319
those cells during that time that

4813
03:22:39,830 --> 03:22:37,680

they're up on the space station got to

4814

03:22:41,110 --> 03:22:39,840

keep them alive exactly they need all

4815

03:22:42,469 --> 03:22:41,120

their nutrients they need all their

4816

03:22:44,630 --> 03:22:42,479

stuff that keeps them feeling good up

4817

03:22:46,389 --> 03:22:44,640

there so what is the benefit of an

4818

03:22:48,469 --> 03:22:46,399

experiment like this what can we glean

4819

03:22:50,309 --> 03:22:48,479

from this and hopefully yeah so that's a

4820

03:22:51,670 --> 03:22:50,319

great question daryl so when astronauts

4821

03:22:53,269 --> 03:22:51,680

go up to the space station they have a

4822

03:22:55,670 --> 03:22:53,279

lot of changes that they see in their

4823

03:22:57,670 --> 03:22:55,680

bodies that look very similar to certain

4824

03:23:00,070 --> 03:22:57,680

kinds of disease states or even aging

4825

03:23:01,750 --> 03:23:00,080

down here on earth so when we put cells

4826
03:23:03,910 --> 03:23:01,760
onto tissue chips and we send them to

4827
03:23:05,510 --> 03:23:03,920
the space station we're able to see the

4828
03:23:07,190 --> 03:23:05,520
same kinds of changes that might happen

4829
03:23:09,670 --> 03:23:07,200
to the astronauts but on a very very

4830
03:23:11,830 --> 03:23:09,680
short time scale so for example diseases

4831
03:23:13,590 --> 03:23:11,840
that might take months or or years or

4832
03:23:16,150 --> 03:23:13,600
even decades to actually be a clinical

4833
03:23:18,070 --> 03:23:16,160
problem down here on space on earth can

4834
03:23:19,830 --> 03:23:18,080
actually be modeled in space in just a

4835
03:23:22,070 --> 03:23:19,840
couple of weeks so we can really

4836
03:23:23,429 --> 03:23:22,080
accelerate the disease modeling using

4837
03:23:24,950 --> 03:23:23,439
these tissue chips and then see how

4838
03:23:27,349 --> 03:23:24,960

different drugs and therapies act on

4839

03:23:28,790 --> 03:23:27,359

them so we're super excited that some of

4840

03:23:30,950 --> 03:23:28,800

the crew one folks might be doing some

4841

03:23:32,790 --> 03:23:30,960

research for us so thanks very much guys

4842

03:23:34,790 --> 03:23:32,800

fascinating and thank you very much dr

4843

03:23:36,870 --> 03:23:34,800

lucy low for being uh with us here from

4844

03:23:38,710 --> 03:23:36,880

the national institutes of health that

4845

03:23:40,309 --> 03:23:38,720

was a fascinating experiment and we hope

4846

03:23:43,030 --> 03:23:40,319

the astronauts get some good work on it

4847

03:23:44,870 --> 03:23:43,040

so that you can further develop uh your

4848

03:23:46,630 --> 03:23:44,880

research wonderful thank you daryl all

4849

03:23:48,790 --> 03:23:46,640

right very good and so now we'll toss it

4850

03:23:51,510 --> 03:23:48,800

back to hawthorne california and john i

4851
03:23:53,910 --> 03:23:51,520
for the latest at t-minus in 49 minutes

4852
03:23:56,790 --> 03:23:53,920
and counting

4853
03:23:59,110 --> 03:23:56,800
thank you daryl t minus 49 minutes seven

4854
03:24:00,630 --> 03:23:59,120
seconds continuing to count down

4855
03:24:02,309 --> 03:24:00,640
right now the launch director launch

4856
03:24:04,550 --> 03:24:02,319
team are preparing for the readiness for

4857
03:24:06,469 --> 03:24:04,560
propellant load and launch poll

4858
03:24:08,469 --> 03:24:06,479
the spacex launch director has checked

4859
03:24:10,830 --> 03:24:08,479
with the dragon mission director and the

4860
03:24:12,790 --> 03:24:10,840
nasa launch manager they are ready to

4861
03:24:14,630 --> 03:24:12,800
proceed currently we're doing an

4862
03:24:17,110 --> 03:24:14,640
electronic poll of the seven members of

4863
03:24:19,030 --> 03:24:17,120

the spacex launch team for their go to

4864

03:24:21,349 --> 03:24:19,040

load propellant and then to press on

4865

03:24:23,349 --> 03:24:21,359

with launch

4866

03:24:25,349 --> 03:24:23,359

now the falcon launch crew is located in

4867

03:24:27,750 --> 03:24:25,359

firing room four in the launch control

4868

03:24:29,510 --> 03:24:27,760

center adjacent to the historic vehicle

4869

03:24:31,429 --> 03:24:29,520

assembly building at kennedy space

4870

03:24:32,790 --> 03:24:31,439

center

4871

03:24:34,790 --> 03:24:32,800

key nasa

4872

03:24:36,550 --> 03:24:34,800

launch members are also located in the

4873

03:24:37,990 --> 03:24:36,560

firing room

4874

03:24:40,389 --> 03:24:38,000

now what we're waiting for right now is

4875

03:24:44,550 --> 03:24:40,399

we expected about t minus 47 minutes to

4876
03:24:48,950 --> 03:24:46,550
while we're waiting to hear that

4877
03:24:51,269 --> 03:24:48,960
a couple other status items

4878
03:24:53,190 --> 03:24:51,279
the crew is currently on board

4879
03:24:55,670 --> 03:24:53,200
and the crew access arm is about to be

4880
03:24:58,309 --> 03:24:55,680
retracted you can see the axis arm

4881
03:25:00,469 --> 03:24:58,319
currently in the pre-launch position

4882
03:25:02,550 --> 03:25:00,479
alongside the dragon capsule we'll

4883
03:25:04,630 --> 03:25:02,560
rotate that out of the way then we'll

4884
03:25:06,389 --> 03:25:04,640
arm the launch escape system on dragon

4885
03:25:09,429 --> 03:25:06,399
before we go into loading propellant on

4886
03:25:13,190 --> 03:25:09,439
the falcon 9. we're launching out of pad

4887
03:25:15,670 --> 03:25:13,200
39a heading northeast out of the eastern

4888
03:25:17,750 --> 03:25:15,680

range the range continues to be go for

4889

03:25:19,830 --> 03:25:17,760

launch they're monitoring clearance area

4890

03:25:21,670 --> 03:25:19,840

around the launch pad as well as the air

4891

03:25:22,870 --> 03:25:21,680

and space space around the flight

4892

03:25:25,269 --> 03:25:22,880

corridor

4893

03:25:27,429 --> 03:25:25,279

now the good news on the weather front

4894

03:25:29,750 --> 03:25:27,439

we have been given a new probability of

4895

03:25:32,070 --> 03:25:29,760

violation of only 20 percent or as the

4896

03:25:33,670 --> 03:25:32,080

optimist would say 80 percent chance of

4897

03:25:35,510 --> 03:25:33,680

good weather

4898

03:25:37,030 --> 03:25:35,520

there's a small chance of a shower but

4899

03:25:38,630 --> 03:25:37,040

it would have to pop up pretty much

4900

03:25:40,150 --> 03:25:38,640

right over the pad here at the last

4901
03:25:41,830 --> 03:25:40,160
minute

4902
03:25:43,590 --> 03:25:41,840
they're looking ground winds are

4903
03:25:46,229 --> 03:25:43,600
cooperating upper altitude winds are

4904
03:25:48,870 --> 03:25:46,239
cooperating so the weather officer gave

4905
03:25:51,750 --> 03:25:48,880
us some good news about 10 minutes ago

4906
03:25:53,910 --> 03:25:51,760
as we got inside of t minus one hour

4907
03:25:56,790 --> 03:25:53,920
now we're coming up on t minus 47

4908
03:25:58,630 --> 03:25:56,800
minutes and the spacex team is finishing

4909
03:26:00,550 --> 03:25:58,640
up their go no go polls we're waiting

4910
03:26:03,030 --> 03:26:00,560
for a few more people to give the

4911
03:26:06,070 --> 03:26:03,040
electronic thumbs up so that then the

4912
03:26:08,469 --> 03:26:06,080
spacex launch director can uh

4913
03:26:10,710 --> 03:26:08,479

check that item off and then proceed

4914

03:26:13,030 --> 03:26:10,720

into the remainder of the countdown

4915

03:26:15,190 --> 03:26:13,040

which will include propellant loading at

4916

03:26:16,790 --> 03:26:15,200

t minus 35 minutes

4917

03:26:29,830 --> 03:26:16,800

so let's listen in for a moment to the

4918

03:26:29,840 --> 03:26:35,910

dragon spacex for arm timeline

4919

03:26:39,590 --> 03:26:38,229

and go ahead for the arm timeline

4920

03:26:41,190 --> 03:26:39,600

yeah we're just talking here about the

4921

03:26:44,630 --> 03:26:41,200

tablet and how much time you'll have to

4922

03:26:47,030 --> 03:26:44,640

put it away essentially as soon as the

4923

03:26:49,590 --> 03:26:47,040

t-minus 45-minute brief occurs we're

4924

03:26:51,030 --> 03:26:49,600

going to begin retracting the arm and

4925

03:26:52,870 --> 03:26:51,040

we'd like to be ready to arm the

4926
03:26:57,110 --> 03:26:52,880
landscape system immediately as soon as

4927
03:27:04,389 --> 03:26:59,510
and dragon copies we will go ahead and

4928
03:27:04,399 --> 03:27:11,190
copy all thank you

4929
03:27:14,870 --> 03:27:12,630
heard a little bit of dialogue there

4930
03:27:15,910 --> 03:27:14,880
between core and the dragon crew looking

4931
03:27:20,389 --> 03:27:15,920
at

4932
03:27:22,469 --> 03:27:20,399
ready to put away letting the crew know

4933
03:27:24,870 --> 03:27:22,479
what the timeline would be once we

4934
03:27:26,309 --> 03:27:24,880
finish the go no go poll and we give the

4935
03:27:29,190 --> 03:27:26,319
instructions to the launch team at t

4936
03:27:30,950 --> 03:27:29,200
minus 45 then we'll proceed into retract

4937
03:27:32,950 --> 03:27:30,960
of the axis arm you can see it's

4938
03:27:34,950 --> 03:27:32,960

currently alongside of dragon and then

4939

03:27:37,429 --> 03:27:34,960

we'll go into arming of the escape tower

4940

03:27:39,990 --> 03:27:37,439

escape system pardon me

4941

03:27:42,229 --> 03:27:40,000

years of previous experience

4942

03:27:53,750 --> 03:27:42,239

and then finally we will get into

4943

03:27:57,190 --> 03:27:55,190

right now they're getting just the last

4944

03:27:59,110 --> 03:27:57,200

thumbs up people have been looking at

4945

03:28:01,190 --> 03:27:59,120

data that we were gathering just outside

4946

03:28:03,510 --> 03:28:01,200

of t minus one hour as we were doing

4947

03:28:05,429 --> 03:28:03,520

final check outs of the falcon 9 on the

4948

03:28:07,590 --> 03:28:05,439

propulsion and engine systems before we

4949

03:28:09,510 --> 03:28:07,600

got into propellant load all is complete

4950

03:28:11,990 --> 03:28:09,520

and the team is ready for crew access

4951
03:28:14,389 --> 03:28:12,000
arm retract propel loading and launch

4952
03:28:16,870 --> 03:28:14,399
or non-urgent no-go conditions brief the

4953
03:28:18,309 --> 03:28:16,880
ce or ld and they will approve aborting

4954
03:28:19,990 --> 03:28:18,319
the launch auto sequence and proceed

4955
03:28:21,910 --> 03:28:20,000
into launch abort

4956
03:28:23,750 --> 03:28:21,920
for urgent issues affecting the safety

4957
03:28:26,630 --> 03:28:23,760
of the operation operators shall call

4958
03:28:28,070 --> 03:28:26,640
hold hold hold on the countdown net

4959
03:28:29,830 --> 03:28:28,080
launch control will abort the launch

4960
03:28:32,070 --> 03:28:29,840
auto sequence immediately and proceed

4961
03:28:33,750 --> 03:28:32,080
into the launch aboard auto sequence

4962
03:28:35,349 --> 03:28:33,760
operators advise launch director whether

4963
03:28:37,110 --> 03:28:35,359

structural breakup or fire is imminent

4964

03:28:38,469 --> 03:28:37,120

or occurring for dragon manual escape

4965

03:28:41,030 --> 03:28:38,479

flight rules

4966

03:28:43,349 --> 03:28:41,040

in the event of a firing fire alarm at

4967

03:28:45,429 --> 03:28:43,359

firing for today key operators noted

4968

03:28:47,910 --> 03:28:45,439

below will remain at their post while

4969

03:28:50,070 --> 03:28:47,920

the alarm is evaluated in the event that

4970

03:28:52,229 --> 03:28:50,080

personnel safety is threatened evacuate

4971

03:28:54,229 --> 03:28:52,239

to the south facing emergency exit which

4972

03:28:55,750 --> 03:28:54,239

leads directly south

4973

03:28:57,750 --> 03:28:55,760

launch control you may proceed with

4974

03:29:04,550 --> 03:28:57,760

arming the crew arm for movement

4975

03:29:08,790 --> 03:29:06,550

and there you've heard it just inside 44

4976
03:29:10,950 --> 03:29:08,800
minutes the spacex launch director has

4977
03:29:12,870 --> 03:29:10,960
announced polls are complete we'll go to

4978
03:29:14,950 --> 03:29:12,880
head into propellant load the dragon

4979
03:29:16,309 --> 03:29:14,960
team is going to begin retract of the

4980
03:29:18,309 --> 03:29:16,319
crew access

4981
03:29:19,750 --> 03:29:18,319
so kate with that everything continue to

4982
03:29:25,110 --> 03:29:19,760
look good we're right on time in the

4983
03:29:25,120 --> 03:29:28,309
thanks for that john i

4984
03:29:31,590 --> 03:29:29,910
and it looks like the crew access arm

4985
03:29:35,110 --> 03:29:31,600
has already begun

4986
03:29:37,990 --> 03:29:35,120
to retract away just a beautiful sight

4987
03:29:40,950 --> 03:29:38,000
so this is one of the last major visual

4988
03:29:42,790 --> 03:29:40,960

milestones that we have before launch so

4989

03:29:46,309 --> 03:29:42,800

the crew access arm

4990

03:29:51,110 --> 03:29:46,319

now moving away and we are t minus 43

4991

03:29:54,389 --> 03:29:52,550

we're standing by

4992

03:30:00,389 --> 03:29:54,399

as we wait for

4993

03:30:04,550 --> 03:30:02,309

shortly thereafter we should hear the

4994

03:30:06,870 --> 03:30:04,560

call out that the launch escape system

4995

03:30:09,830 --> 03:30:06,880

is armed

4996

03:30:12,229 --> 03:30:09,840

and after that we will hear that f9 prop

4997

03:30:14,710 --> 03:30:12,239

loading has begun

4998

03:30:16,790 --> 03:30:14,720

and now earlier this evening we saw nasa

4999

03:30:18,229 --> 03:30:16,800

astronauts victor glover mike hopkins

5000

03:30:20,710 --> 03:30:18,239

shannon walker

5001
03:30:22,950 --> 03:30:20,720
at jaxa astronaut suicinaguchi suit up

5002
03:30:26,070 --> 03:30:22,960
that was about three hours ago they made

5003
03:30:28,630 --> 03:30:26,080
the drive out to launch complex 39a

5004
03:30:31,590 --> 03:30:28,640
uh ingressed crew dragon about two hours

5005
03:30:33,830 --> 03:30:31,600
ago and this uh the spacecraft hatch was

5006
03:30:36,150 --> 03:30:33,840
closed a second time after a six and

5007
03:30:38,070 --> 03:30:36,160
then they had a successful leak check um

5008
03:30:39,830 --> 03:30:38,080
and again we've just seen the crew

5009
03:30:42,229 --> 03:30:39,840
access arm retract

5010
03:30:44,070 --> 03:30:42,239
and what we heard a few moments ago was

5011
03:30:46,150 --> 03:30:44,080
that once this process is complete they

5012
03:30:53,830 --> 03:30:46,160
are going to go ahead and

5013
03:30:57,190 --> 03:30:55,590

so we're going to wait

5014

03:30:59,510 --> 03:30:57,200

to hear the call out that the crew

5015

03:31:00,790 --> 03:30:59,520

access arm retraction is complete and

5016

03:31:03,349 --> 03:31:00,800

then we'll explain a little bit more

5017

03:31:05,830 --> 03:31:03,359

about this uh launch escape system what

5018

03:31:37,269 --> 03:31:05,840

it what it is uh why it's armed at this

5019

03:31:43,110 --> 03:31:40,469

so again we're at t minus 41 minutes 23

5020

03:31:45,910 --> 03:31:43,120

seconds and counting we've just watched

5021

03:31:49,670 --> 03:31:45,920

the crew access arm retract that is the

5022

03:31:50,469 --> 03:31:49,680

uh suspended walkway that attaches um

5023

03:31:53,190 --> 03:31:50,479

the

5024

03:31:54,710 --> 03:31:53,200

rotating service structure to um fix

5025

03:31:57,830 --> 03:31:54,720

service the fixed service structure

5026

03:32:00,550 --> 03:31:57,840

excuse me i'm talking shuttle speak um

5027

03:32:02,710 --> 03:32:00,560

to the crew dragon capsule so we watched

5028

03:32:05,429 --> 03:32:02,720

uh the arm retract away so now we see

5029

03:32:06,830 --> 03:32:05,439

crew dragon um all right

5030

03:32:09,750 --> 03:32:06,840

is

5031

03:32:12,229 --> 03:32:09,760

complete and we heard confirmation that

5032

03:32:14,630 --> 03:32:12,239

crew are movements spacex with that call

5033

03:32:19,190 --> 03:32:14,640

your goal for section 7 closed visors

5034

03:32:23,830 --> 03:32:20,950

okay attacking copy is moving to section

5035

03:32:28,950 --> 03:32:25,910

so there confirmation from core telling

5036

03:32:30,950 --> 03:32:28,960

crew that they are allowed to move on um

5037

03:32:33,349 --> 03:32:30,960

you hear us mention move on to section

5038

03:32:34,790 --> 03:32:33,359

six section seven that's simply uh

5039

03:32:36,630 --> 03:32:34,800

making sure that everyone's on the same

5040

03:32:38,710 --> 03:32:36,640

page in terms of which procedure we are

5041

03:32:41,269 --> 03:32:38,720

now working toward so that was just the

5042

03:32:42,710 --> 03:32:41,279

core who is uh the person that is

5043

03:32:45,349 --> 03:32:42,720

essentially the single voice

5044

03:32:47,269 --> 03:32:45,359

communicating to the the crew inside my

5045

03:32:54,790 --> 03:32:47,279

dragon advisors are closed we are arming

5046

03:32:54,800 --> 03:32:57,990

and there we heard commander

5047

03:33:03,110 --> 03:33:00,710

mike hopkins thank you

5048

03:33:05,349 --> 03:33:03,120

commander mike hopkins uh informed that

5049

03:33:07,429 --> 03:33:05,359

we are that they are now closing their

5050

03:33:09,990 --> 03:33:07,439

visors and now commanding the launch

5051
03:33:12,950 --> 03:33:10,000
escape system to be armed now the launch

5052
03:33:15,349 --> 03:33:12,960
escape system is basically the cruise

5053
03:33:17,510 --> 03:33:15,359
path to safety in the event of an

5054
03:33:19,910 --> 03:33:17,520
anomaly quite simply um

5055
03:33:22,710 --> 03:33:19,920
if we were to have an abort scenario

5056
03:33:25,590 --> 03:33:22,720
here on the pad we we have demonstrated

5057
03:33:27,269 --> 03:33:25,600
the efficiency and

5058
03:33:29,670 --> 03:33:27,279
success of that system having done a

5059
03:33:31,750 --> 03:33:29,680
paddleboard test previously we did a

5060
03:33:33,670 --> 03:33:31,760
launch escape system test

5061
03:33:35,750 --> 03:33:33,680
mid-flight earlier i believe it was

5062
03:33:38,790 --> 03:33:35,760
january of this year mazar essentially

5063
03:33:39,830 --> 03:33:38,800

this is the um the system that all the

5064

03:33:41,910 --> 03:33:39,840

way from

5065

03:33:45,349 --> 03:33:41,920

on now on the pad until they are in

5066

03:33:48,389 --> 03:33:45,359

orbit uh the crew is would be able to

5067

03:33:50,710 --> 03:33:48,399

escape safely in the event of an anomaly

5068

03:33:52,630 --> 03:33:50,720

um that's why it is so important that we

5069

03:33:54,229 --> 03:33:52,640

check the weather all around the world

5070

03:33:55,750 --> 03:33:54,239

really it's not just the weather here at

5071

03:33:58,870 --> 03:33:55,760

the cape that we're looking at in order

5072

03:33:59,590 --> 03:33:58,880

to determine if we're go or no go it is

5073

03:34:02,790 --> 03:33:59,600

the

5074

03:34:05,429 --> 03:34:02,800

corridor

5075

03:34:07,830 --> 03:34:05,439

right and as kate was mentioning um

5076
03:34:10,630 --> 03:34:07,840
again the launch escape system is armed

5077
03:34:13,349 --> 03:34:10,640
that has to happen before the spacex

5078
03:34:15,750 --> 03:34:13,359
teams will proceed with fueling falcon 9

5079
03:34:18,469 --> 03:34:15,760
and so that propellant loading process

5080
03:34:20,710 --> 03:34:18,479
is set to begin at t minus 35 minutes so

5081
03:34:23,190 --> 03:34:20,720
just a few minutes from now and what

5082
03:34:25,030 --> 03:34:23,200
that looks like um kate you talked about

5083
03:34:27,190 --> 03:34:25,040
the tests that were done you did a pad

5084
03:34:28,710 --> 03:34:27,200
abort test back in 2015 you did an

5085
03:34:31,269 --> 03:34:28,720
in-flight abort test the beginning of

5086
03:34:33,830 --> 03:34:31,279
this year and so what that looks like in

5087
03:34:36,070 --> 03:34:33,840
action if it were to happen

5088
03:34:38,950 --> 03:34:36,080

a pad abort test or excuse me a pad

5089

03:34:40,229 --> 03:34:38,960

abort would be before liftoff at any

5090

03:34:42,469 --> 03:34:40,239

point

5091

03:34:45,030 --> 03:34:42,479

from propellant loading which begins in

5092

03:34:47,110 --> 03:34:45,040

just under three minutes now uh until

5093

03:34:50,150 --> 03:34:47,120

the moment of liftoff if something were

5094

03:34:52,710 --> 03:34:50,160

to go wrong and the crew were in danger

5095

03:34:55,349 --> 03:34:52,720

crew dragon can kind of act as a rocket

5096

03:34:57,670 --> 03:34:55,359

on top of a rocket and propel itself off

5097

03:35:00,150 --> 03:34:57,680

of falcon 9 using its eight built-in

5098

03:35:03,110 --> 03:35:00,160

super draco thrusters right and so the

5099

03:35:05,429 --> 03:35:03,120

idea is that if that happens crew dragon

5100

03:35:08,790 --> 03:35:05,439

would splash down off the coast um and

5101
03:35:10,469 --> 03:35:08,800
then we would have a rescue scenario and

5102
03:35:12,550 --> 03:35:10,479
so we've rehearsed that

5103
03:35:14,550 --> 03:35:12,560
ahead of time we coordinate very closely

5104
03:35:16,389 --> 03:35:14,560
the nasa and spacex teams with the

5105
03:35:19,030 --> 03:35:16,399
department of defense detachment three

5106
03:35:21,269 --> 03:35:19,040
to prepare for a scenario such as that

5107
03:35:23,990 --> 03:35:21,279
um we're also prepared for

5108
03:35:26,550 --> 03:35:24,000
if there were to be a need for a launch

5109
03:35:28,870 --> 03:35:26,560
escape after the point of liftoff at any

5110
03:35:31,269 --> 03:35:28,880
point from liftoff until

5111
03:35:34,469 --> 03:35:31,279
they reach orbit about roughly 12

5112
03:35:35,910 --> 03:35:34,479
minutes after liftoff at any point

5113
03:35:38,309 --> 03:35:35,920

in that sequence

5114

03:35:40,630 --> 03:35:38,319

crew dragon could still launch itself

5115

03:35:43,429 --> 03:35:40,640

off of the falcon 9 rocket and in that

5116

03:35:45,269 --> 03:35:43,439

scenario crew dragon would splash down

5117

03:35:46,710 --> 03:35:45,279

at some other location further down

5118

03:35:49,510 --> 03:35:46,720

range farther away from florida

5119

03:35:52,070 --> 03:35:49,520

obviously and that's why the weather uh

5120

03:35:53,830 --> 03:35:52,080

downrange is just as important as the

5121

03:35:55,750 --> 03:35:53,840

weather around the pad for liftoff

5122

03:35:57,349 --> 03:35:55,760

because they're they're thinking about

5123

03:35:59,750 --> 03:35:57,359

how are we going to rescue the crew if

5124

03:36:02,229 --> 03:35:59,760

we get into a scenario like that exactly

5125

03:36:04,550 --> 03:36:02,239

so it's really complicated

5126
03:36:06,870 --> 03:36:04,560
but you know it is a system that we have

5127
03:36:08,229 --> 03:36:06,880
spent a lot of time designing and

5128
03:36:10,070 --> 03:36:08,239
testing

5129
03:36:12,150 --> 03:36:10,080
and it's you know it's definitely

5130
03:36:15,990 --> 03:36:12,160
something to consider in terms of that

5131
03:36:21,910 --> 03:36:19,269
and so now at t minus 36 minutes and 20

5132
03:36:23,510 --> 03:36:21,920
seconds in just over a minute we should

5133
03:36:24,630 --> 03:36:23,520
be hearing

5134
03:36:27,910 --> 03:36:24,640
that

5135
03:36:30,469 --> 03:36:27,920
falcon 9 is ready for propellant loading

5136
03:36:32,870 --> 03:36:30,479
that'll be with the rp1 which is rocket

5137
03:36:35,910 --> 03:36:32,880
grade kerosene and then also

5138
03:36:42,710 --> 03:36:35,920

simultaneously the liquid oxygen loading

5139

03:36:47,670 --> 03:36:44,870

once we begin loading that liquid oxygen

5140

03:36:49,110 --> 03:36:47,680

we'll see plumes of what will appear to

5141

03:36:50,469 --> 03:36:49,120

be white smoke

5142

03:36:52,870 --> 03:36:50,479

it's actually

5143

03:36:54,389 --> 03:36:52,880

the liquid oxygen

5144

03:36:57,590 --> 03:36:54,399

vaporizing

5145

03:37:00,790 --> 03:36:57,600

turning from liquid form into gas form

5146

03:37:03,190 --> 03:37:00,800

around the rocket itself in the

5147

03:37:05,030 --> 03:37:03,200

rather humid florida air

5148

03:37:07,750 --> 03:37:05,040

and nicole i know you know we're just

5149

03:37:09,510 --> 03:37:07,760

about 30 seconds from fueling but um

5150

03:37:12,150 --> 03:37:09,520

from your perspective you know obviously

5151
03:37:14,229 --> 03:37:12,160
this uh launch escape capability is not

5152
03:37:16,710 --> 03:37:14,239
something that the space shuttle had so

5153
03:37:18,870 --> 03:37:16,720
uh from an astronaut's perspective um

5154
03:37:21,910 --> 03:37:18,880
what's your take on having the ability

5155
03:37:24,150 --> 03:37:21,920
to abort from the pad or in flight yeah

5156
03:37:25,349 --> 03:37:24,160
i mean it's awesome it's it's um it's

5157
03:37:27,830 --> 03:37:25,359
what we need to be doing with our

5158
03:37:31,670 --> 03:37:27,840
spacecraft and i think anytime you can

5159
03:37:34,389 --> 03:37:31,680
better ensure the survival of your crew

5160
03:37:36,389 --> 03:37:34,399
in any situation during you know launch

5161
03:37:41,030 --> 03:37:36,399
and on the way to space the

5162
03:37:50,550 --> 03:37:42,469
launch other sequences started

5163
03:37:54,469 --> 03:37:51,830

so we just heard that call that

5164

03:38:02,550 --> 03:37:54,479

propellant load has started that means

5165

03:38:07,910 --> 03:38:05,590

okay so we are now at t minus 34 minutes

5166

03:38:09,910 --> 03:38:07,920

uh 34 seconds and counting

5167

03:38:12,710 --> 03:38:09,920

fueling of falcon 9 is underway the

5168

03:38:14,950 --> 03:38:12,720

launch escape system is armed and again

5169

03:38:16,630 --> 03:38:14,960

uh today is the first in a series of six

5170

03:38:19,110 --> 03:38:16,640

month missions for nasa's commercial

5171

03:38:21,349 --> 03:38:19,120

crew program

5172

03:38:24,389 --> 03:38:21,359

and the dragon capsule was loaded with

5173

03:38:27,670 --> 03:38:24,399

propellants about a week and a half ago

5174

03:38:28,790 --> 03:38:27,680

just a few miles down the road from us

5175

03:38:30,950 --> 03:38:28,800

yeah that's an area that we

5176

03:38:34,070 --> 03:38:30,960

affectionately refer to as dragon land

5177

03:38:39,189 --> 03:38:36,309

and in order to fly uh dragon needs fuel

5178

03:38:40,950 --> 03:38:39,199

and an oxidizer uh so for the fuel we

5179

03:38:42,870 --> 03:38:40,960

use uh kate you're gonna have to help me

5180

03:38:46,790 --> 03:38:42,880

with these words i can't pronounce them

5181

03:38:50,229 --> 03:38:46,800

yeah so it's monomethylhydrazine or mmh

5182

03:38:53,590 --> 03:38:50,239

and nitrogen tetroxide or tetro

5183

03:38:56,229 --> 03:38:53,600

tetroxide for also known as nto for the

5184

03:38:58,309 --> 03:38:56,239

oxidizer these are two propellants a

5185

03:38:59,830 --> 03:38:58,319

fuel and an oxidizer that when they come

5186

03:39:01,429 --> 03:38:59,840

into contact they combust

5187

03:39:03,269 --> 03:39:01,439

instantaneously so it's a great

5188

03:39:05,110 --> 03:39:03,279

propellant to use in space flight

5189

03:39:06,870 --> 03:39:05,120

because you don't need an ignition and

5190

03:39:09,590 --> 03:39:06,880

ignition source

5191

03:39:12,550 --> 03:39:09,600

so we use uh that those propellants to

5192

03:39:14,469 --> 03:39:12,560

maneuver dragon on orbit uh and those

5193

03:39:17,110 --> 03:39:14,479

and that those propellants super

5194

03:39:19,510 --> 03:39:17,120

power the draco engines as well as the

5195

03:39:22,070 --> 03:39:19,520

eight super draco engines that would be

5196

03:39:23,990 --> 03:39:22,080

utilized in the launch escape system in

5197

03:39:26,309 --> 03:39:24,000

an abort scenario

5198

03:39:28,710 --> 03:39:26,319

and again we want to be crystal clear

5199

03:39:31,510 --> 03:39:28,720

now that fueling for falcon 9 has

5200

03:39:34,550 --> 03:39:31,520

started that means that the eight super

5201

03:39:37,189 --> 03:39:34,560

draco engines built into crew dragon are

5202

03:39:39,269 --> 03:39:37,199

ready if needed to launch the capsule

5203

03:39:41,030 --> 03:39:39,279

away from the falcon 9 rocket in an

5204

03:39:43,269 --> 03:39:41,040

instant if there is any kind of

5205

03:39:44,469 --> 03:39:43,279

emergency associated with the rocket or

5206

03:39:47,110 --> 03:39:44,479

on the pad

5207

03:39:49,910 --> 03:39:47,120

now let's go over to spacex headquarters

5208

03:39:51,910 --> 03:39:49,920

in hawthorne for an operations update

5209

03:39:53,670 --> 03:39:51,920

john

5210

03:39:55,510 --> 03:39:53,680

well we are counting down those final

5211

03:39:57,750 --> 03:39:55,520

minutes and everything is still looking

5212

03:40:00,710 --> 03:39:57,760

good for falcon 9 and dragon for an

5213

03:40:01,750 --> 03:40:00,720

on-time launch just under 33 minutes

5214

03:40:03,830 --> 03:40:01,760

from now

5215

03:40:05,990 --> 03:40:03,840

as you heard falcon 9 began propellant

5216

03:40:06,870 --> 03:40:06,000

loading right on time at t minus 35

5217

03:40:08,630 --> 03:40:06,880

minutes

5218

03:40:10,469 --> 03:40:08,640

now the propellants that feed the merlin

5219

03:40:13,189 --> 03:40:10,479

engines that power falcon 9 are two

5220

03:40:15,670 --> 03:40:13,199

liquids one liquid is the fuel the other

5221

03:40:18,630 --> 03:40:15,680

is an oxidizer and that fuel is a

5222

03:40:20,389 --> 03:40:18,640

refined form of kerosene also referred

5223

03:40:22,950 --> 03:40:20,399

to as rp1

5224

03:40:25,269 --> 03:40:22,960

now our oxidizer is densified liquid

5225

03:40:27,510 --> 03:40:25,279

oxygen also called lox

5226

03:40:29,750 --> 03:40:27,520

densified means it is kept much colder

5227

03:40:32,229 --> 03:40:29,760

than typical for launch vehicles and it

5228

03:40:34,309 --> 03:40:32,239

takes up less volume this allows for

5229

03:40:36,630 --> 03:40:34,319

more oxidizer to be loaded into the

5230

03:40:38,630 --> 03:40:36,640

first and second stages

5231

03:40:40,469 --> 03:40:38,640

now to ignite the fuel and oxidizer in

5232

03:40:42,790 --> 03:40:40,479

the merlin rocket engine we use an

5233

03:40:45,269 --> 03:40:42,800

ignition fluid called t-tub

5234

03:40:47,349 --> 03:40:45,279

when t-tab comes in contact with oxygen

5235

03:40:48,710 --> 03:40:47,359

it ignites and it gives off a green

5236

03:40:50,630 --> 03:40:48,720

colored flame

5237

03:40:52,469 --> 03:40:50,640

once we've got the flame going we can

5238

03:40:54,710 --> 03:40:52,479

then add the kerosene fuel into the

5239

03:40:55,750 --> 03:40:54,720

chamber and the engine goes to main

5240

03:40:57,750 --> 03:40:55,760

power

5241

03:41:00,150 --> 03:40:57,760

you might see the green flash just as

5242

03:41:02,229 --> 03:41:00,160

the second stage engine ignites

5243

03:41:05,189 --> 03:41:02,239

following stage separation two minutes

5244

03:41:06,710 --> 03:41:05,199

48 seconds into tonight's flight

5245

03:41:08,469 --> 03:41:06,720

now currently we're early in the

5246

03:41:10,710 --> 03:41:08,479

propellant loading the first stage fuel

5247

03:41:12,630 --> 03:41:10,720

tank is about 10 percent full

5248

03:41:14,150 --> 03:41:12,640

and that first stage is the bottom two

5249

03:41:16,870 --> 03:41:14,160

thirds of the vehicle you can see on

5250

03:41:18,630 --> 03:41:16,880

your screen you've got the black carbon

5251
03:41:20,710 --> 03:41:18,640
fiber landing legs then the white

5252
03:41:22,710 --> 03:41:20,720
propellant tanks of the first stage

5253
03:41:24,309 --> 03:41:22,720
topped off by that black cylinder the

5254
03:41:26,630 --> 03:41:24,319
inner stage

5255
03:41:29,349 --> 03:41:26,640
now liquid oxygen loading is also

5256
03:41:31,349 --> 03:41:29,359
underway on the first stage that loading

5257
03:41:33,349 --> 03:41:31,359
will begin on the second stage which you

5258
03:41:35,030 --> 03:41:33,359
can see on your monitor which is the

5259
03:41:36,469 --> 03:41:35,040
cylinder the white cylinder just above

5260
03:41:37,910 --> 03:41:36,479
that black

5261
03:41:39,670 --> 03:41:37,920
interstage

5262
03:41:41,429 --> 03:41:39,680
liquid oxygen loading on stage two

5263
03:41:42,469 --> 03:41:41,439

begins at t minus sixteen and a half

5264

03:41:44,550 --> 03:41:42,479
minutes

5265

03:41:46,309 --> 03:41:44,560
and we'll continue loading liquid oxygen

5266

03:41:48,630 --> 03:41:46,319
on both stages until the last few

5267

03:41:50,550 --> 03:41:48,640
minutes of the countdown

5268

03:41:52,070 --> 03:41:50,560
helium loading into pressure vessels is

5269

03:41:54,070 --> 03:41:52,080
also underway

5270

03:41:55,990 --> 03:41:54,080
we use that to pressurize the tanks in

5271

03:41:58,389 --> 03:41:56,000
flight as the propellant is pulled out

5272

03:42:00,309 --> 03:41:58,399
by the merlin turbo pumps

5273

03:42:02,229 --> 03:42:00,319
now on board the dragon spacecraft the

5274

03:42:04,229 --> 03:42:02,239
astronauts are monitoring systems while

5275

03:42:05,990 --> 03:42:04,239
propellant is loaded

5276

03:42:07,830 --> 03:42:06,000

load

5277

03:42:08,950 --> 03:42:07,840

into the falcon 9 and the call out you

5278

03:42:10,870 --> 03:42:08,960

just heard

5279

03:42:13,110 --> 03:42:10,880

ground letting the crew know that helium

5280

03:42:14,870 --> 03:42:13,120

loading is going on the vehicle right

5281

03:42:16,389 --> 03:42:14,880

now

5282

03:42:18,070 --> 03:42:16,399

so as i mentioned the astronauts are

5283

03:42:19,910 --> 03:42:18,080

listening to this right now as part of

5284

03:42:21,590 --> 03:42:19,920

their training in the simulator we also

5285

03:42:23,510 --> 03:42:21,600

can give them the playback of sounds

5286

03:42:25,189 --> 03:42:23,520

that we've recorded and dragon capsule

5287

03:42:27,349 --> 03:42:25,199

during recent flights

5288

03:42:29,510 --> 03:42:27,359

plus they also had a discussion with bob

5289

03:42:31,349 --> 03:42:29,520

and doug after their flight who related

5290

03:42:33,750 --> 03:42:31,359

what their flight experience was like

5291

03:42:35,830 --> 03:42:33,760

earlier this year

5292

03:42:37,750 --> 03:42:35,840

now out on the eastern range we continue

5293

03:42:39,910 --> 03:42:37,760

to hear they're green ready to go there

5294

03:42:41,030 --> 03:42:39,920

are no problems and they are go for

5295

03:42:42,630 --> 03:42:41,040

launch

5296

03:42:44,870 --> 03:42:42,640

and finally the weather as i mentioned a

5297

03:42:46,550 --> 03:42:44,880

little while ago it's actually improved

5298

03:42:48,790 --> 03:42:46,560

during the day we're down to 20 percent

5299

03:42:50,790 --> 03:42:48,800

probability of violation the biggest

5300

03:42:52,469 --> 03:42:50,800

thing we're watching is just in case in

5301

03:42:54,469 --> 03:42:52,479

these last half hour

5302

03:42:56,710 --> 03:42:54,479

if a rain shower might spring up within

5303

03:42:58,870 --> 03:42:56,720

a mile or two of the launch pad but

5304

03:43:01,269 --> 03:42:58,880

currently the rain looks like it's

5305

03:43:04,229 --> 03:43:01,279

holding off the upper altitude winds are

5306

03:43:06,070 --> 03:43:04,239

good and the ground winds are very light

5307

03:43:08,070 --> 03:43:06,080

now as a reminder today we have an

5308

03:43:10,309 --> 03:43:08,080

instantaneous launch time so at this

5309

03:43:12,070 --> 03:43:10,319

point if we hear a hold for any reason

5310

03:43:14,790 --> 03:43:12,080

we'll have to stand down and target our

5311

03:43:16,550 --> 03:43:14,800

backup launch opportunity just under

5312

03:43:18,550 --> 03:43:16,560

three days from now

5313

03:43:22,150 --> 03:43:18,560

but let's turn it over to jesse and Leah

5314

03:43:23,349 --> 03:43:22,160

for an overview of events after liftoff

5315

03:43:25,349 --> 03:43:23,359

thanks John

5316

03:43:27,670 --> 03:43:25,359

for crew one the astronauts flight to

5317

03:43:29,750 --> 03:43:27,680

station will take about 27 and a half

5318

03:43:32,229 --> 03:43:29,760

hours and their journey is much longer

5319

03:43:34,150 --> 03:43:32,239

but fairly similar to the trip NASA

5320

03:43:36,150 --> 03:43:34,160

astronauts Doug Hurley and Bob Bankin

5321

03:43:38,229 --> 03:43:36,160

made earlier this year in crew Dragon's

5322

03:43:42,070 --> 03:43:38,239

first mission with humans aboard

5323

03:43:44,229 --> 03:43:42,080

as we await t-0 in just about 29 minutes

5324

03:43:46,389 --> 03:43:44,239

the ground operations teams are doing a

5325

03:43:49,030 --> 03:43:46,399

series of system checks to make sure

5326
03:43:51,110 --> 03:43:49,040
both dragon and falcon 9 are ready for

5327
03:43:53,110 --> 03:43:51,120
launch you're looking at a live view of

5328
03:43:55,429 --> 03:43:53,120
our teams at the cape as they prepare

5329
03:43:57,349 --> 03:43:55,439
for liftoff now as we wait for the

5330
03:43:59,590 --> 03:43:57,359
launch clock to hit zero we wanted to

5331
03:44:02,389 --> 03:43:59,600
give you an overview of what the ascent

5332
03:44:05,269 --> 03:44:02,399
portion of the mission will look like

5333
03:44:07,750 --> 03:44:05,279
once we hit t0 and a successful launch

5334
03:44:10,630 --> 03:44:07,760
occurs we will watch falcon 9 and dragon

5335
03:44:12,950 --> 03:44:10,640
lift off from historic launch pad 39a

5336
03:44:16,229 --> 03:44:12,960
and make their ascent at about 50

5337
03:44:18,389 --> 03:44:16,239
seconds into flight falcon 9's falcons 9

5338
03:44:20,469 --> 03:44:18,399

engines will throttle down to help pass

5339

03:44:22,469 --> 03:44:20,479

through the period of maximum dynamic

5340

03:44:25,349 --> 03:44:22,479

pressure on the rocket or what we

5341

03:44:27,349 --> 03:44:25,359

typically refer to as max q it's worth

5342

03:44:30,469 --> 03:44:27,359

noting that once we hit max q the

5343

03:44:32,070 --> 03:44:30,479

vehicle will be going supersonic

5344

03:44:33,510 --> 03:44:32,080

once we are through the period of

5345

03:44:36,309 --> 03:44:33,520

maximum

5346

03:44:38,710 --> 03:44:36,319

dynamic pressure we can throttle up our

5347

03:44:40,710 --> 03:44:38,720

merlin engines again and from there at

5348

03:44:42,550 --> 03:44:40,720

about two and a half minutes into flight

5349

03:44:44,870 --> 03:44:42,560

we have a series of three events that

5350

03:44:47,349 --> 03:44:44,880

will happen in rapid succession

5351
03:44:50,309 --> 03:44:47,359
first is mikko or main engine cut off

5352
03:44:52,870 --> 03:44:50,319
this is where all nine merlin n1d

5353
03:44:55,429 --> 03:44:52,880
engines shut off in preparation for

5354
03:44:57,830 --> 03:44:55,439
stage separation which is our second

5355
03:44:59,750 --> 03:44:57,840
event this is where the first stage

5356
03:45:01,830 --> 03:44:59,760
detaches from the second stage with the

5357
03:45:03,910 --> 03:45:01,840
first stage making its way back to earth

5358
03:45:06,070 --> 03:45:03,920
for landing as the second stage

5359
03:45:07,189 --> 03:45:06,080
continues on its journey with the third

5360
03:45:10,229 --> 03:45:07,199
event

5361
03:45:13,030 --> 03:45:10,239
ses or second is second stage engine

5362
03:45:15,429 --> 03:45:13,040
start one is where the mvac engine

5363
03:45:17,670 --> 03:45:15,439

lights up and propels the second stage

5364

03:45:19,030 --> 03:45:17,680

along with our crew one astronaut to

5365

03:45:21,189 --> 03:45:19,040

orbit

5366

03:45:23,590 --> 03:45:21,199

as stage two heads towards its targeted

5367

03:45:25,590 --> 03:45:23,600

drop-off orbit stage one will execute

5368

03:45:28,309 --> 03:45:25,600

two burns in order to make its way back

5369

03:45:30,309 --> 03:45:28,319

to earth the first is the entry burn

5370

03:45:32,630 --> 03:45:30,319

where three of the m1d engines will

5371

03:45:34,550 --> 03:45:32,640

reignite and then shut down this helps

5372

03:45:36,150 --> 03:45:34,560

to slow the stage down in preparation

5373

03:45:37,510 --> 03:45:36,160

for entry back into the earth's

5374

03:45:39,269 --> 03:45:37,520

atmosphere

5375

03:45:41,429 --> 03:45:39,279

while the first stage is heading back to

5376

03:45:43,910 --> 03:45:41,439

earth the second stage will cut off it's

5377

03:45:46,630 --> 03:45:43,920

one marlin engine that was ignited right

5378

03:45:48,790 --> 03:45:46,640

after stage separation once this happens

5379

03:45:50,550 --> 03:45:48,800

we will wait for confirmation of a good

5380

03:45:53,030 --> 03:45:50,560

orbital insertion

5381

03:45:55,349 --> 03:45:53,040

and about 90 seconds after dragon gets

5382

03:45:57,830 --> 03:45:55,359

into orbit falcon 9 will land back on

5383

03:45:59,910 --> 03:45:57,840

earth the landing burn which is a single

5384

03:46:01,830 --> 03:45:59,920

engine burn will bring the vehicle speed

5385

03:46:03,670 --> 03:46:01,840

down rapidly in order to land on the

5386

03:46:05,429 --> 03:46:03,680

drone ship about nine and a half minutes

5387

03:46:07,510 --> 03:46:05,439

into the mission

5388

03:46:09,830 --> 03:46:07,520

while falcon 9 first stage is landing

5389

03:46:12,150 --> 03:46:09,840

dragon is preparing to separate from the

5390

03:46:14,070 --> 03:46:12,160

second stage at about three minutes

5391

03:46:15,990 --> 03:46:14,080

after the second stage gets into orbit

5392

03:46:18,469 --> 03:46:16,000

we should have a great view of dragon

5393

03:46:20,870 --> 03:46:18,479

with its four-person crew drifting away

5394

03:46:22,550 --> 03:46:20,880

from the second stage once dragon is a

5395

03:46:24,389 --> 03:46:22,560

short distance away it will begin

5396

03:46:26,630 --> 03:46:24,399

checking out its draco maneuvering

5397

03:46:29,349 --> 03:46:26,640

thrusters to make sure dragon continues

5398

03:46:31,349 --> 03:46:29,359

to increase separation distance from the

5399

03:46:33,830 --> 03:46:31,359

second stage it's worth noting that

5400

03:46:35,429 --> 03:46:33,840

these are not the super draco engines

5401
03:46:37,349 --> 03:46:35,439
that would be used during an abort

5402
03:46:39,590 --> 03:46:37,359
scenario

5403
03:46:41,830 --> 03:46:39,600
about 40 seconds after separation

5404
03:46:44,229 --> 03:46:41,840
dragon's nose cone deploy sequence will

5405
03:46:45,990 --> 03:46:44,239
begin it will take roughly four minutes

5406
03:46:48,150 --> 03:46:46,000
for the nose cone hooks to unlatch and

5407
03:46:50,710 --> 03:46:48,160
open exposing its guidance navigation

5408
03:46:53,349 --> 03:46:50,720
controls or gnc that will help dragon

5409
03:46:55,429 --> 03:46:53,359
autonomously fly to the space station

5410
03:46:57,910 --> 03:46:55,439
and lastly once the nose cone is

5411
03:47:00,469 --> 03:46:57,920
deployed the remaining draco thrusters

5412
03:47:02,710 --> 03:47:00,479
on the forward bulkhead will be checked

5413
03:47:04,790 --> 03:47:02,720

from there over the next 27 and a half

5414

03:47:06,870 --> 03:47:04,800

hours dragon will begin its approach

5415

03:47:09,510 --> 03:47:06,880

phase undergoing a number of phasing

5416

03:47:16,630 --> 03:47:09,520

burns as it makes its way to station

5417

03:47:21,910 --> 03:47:19,670

and confirmation stage two cryohelium

5418

03:47:23,830 --> 03:47:21,920

being loaded now but for now let's check

5419

03:47:27,750 --> 03:47:23,840

back in with marie at kennedy space

5420

03:47:31,110 --> 03:47:29,510

all right thank you Leah if you're just

5421

03:47:34,870 --> 03:47:31,120

joining us

5422

03:47:36,550 --> 03:47:34,880

we are now at uh t minus 25 minutes uh

5423

03:47:38,710 --> 03:47:36,560

five seconds and counting from the

5424

03:47:40,550 --> 03:47:38,720

second astronaut launch from u.s soil

5425

03:47:43,429 --> 03:47:40,560

this year and the first with four

5426
03:47:46,229 --> 03:47:43,439
astronauts aboard crew dragon uh we want

5427
03:47:48,870 --> 03:47:46,239
to go over to nasa's garvey mcintosh she

5428
03:47:51,269 --> 03:47:48,880
is standing by in japan to speak live

5429
03:47:53,670 --> 03:47:51,279
with the president of jaxa garvey are

5430
03:47:55,349 --> 03:47:53,680
you with us

5431
03:47:56,950 --> 03:47:55,359
yes i am

5432
03:47:59,189 --> 03:47:56,960
thank you marie

5433
03:48:01,030 --> 03:47:59,199
hello i'm here in tokyo japan this is

5434
03:48:03,830 --> 03:48:01,040
garvey macintosh and i'm going to

5435
03:48:08,150 --> 03:48:03,840
interview uh jaxa president dr hiroshi

5436
03:48:11,269 --> 03:48:09,429
konichiwa

5437
03:48:13,429 --> 03:48:11,279
could you tell us could you tell us

5438
03:48:16,309 --> 03:48:13,439

about the partnership between jaxa and

5439

03:48:20,790 --> 03:48:19,030

oh thank you very much for your question

5440

03:48:22,630 --> 03:48:20,800

the us and japan have built a close

5441

03:48:24,070 --> 03:48:22,640

relationship in the aerospace field for

5442

03:48:25,349 --> 03:48:24,080

more than 50 years

5443

03:48:27,429 --> 03:48:25,359

and nasa and jaxa have been

5444

03:48:29,349 --> 03:48:27,439

collaborating in many fields

5445

03:48:31,910 --> 03:48:29,359

including earth science space science

5446

03:48:33,670 --> 03:48:31,920

space exploration human space activities

5447

03:48:35,990 --> 03:48:33,680

and aeronautics

5448

03:48:37,590 --> 03:48:36,000

astronaut technology participates in the

5449

03:48:39,590 --> 03:48:37,600

crew world known as the first foreign

5450

03:48:42,389 --> 03:48:39,600

national onboard us onboard the u.s

5451
03:48:44,469 --> 03:48:42,399
commercial spacecraft this shows a trust

5452
03:48:46,950 --> 03:48:44,479
relationship between the two countries

5453
03:48:49,110 --> 03:48:46,960
we recognize that this mission is an

5454
03:48:51,030 --> 03:48:49,120
important milestone toward future

5455
03:48:52,229 --> 03:48:51,040
international space exploration and we

5456
03:48:56,710 --> 03:48:52,239
will firmly

5457
03:49:01,189 --> 03:48:58,630
thank you very much could you tell us a

5458
03:49:03,189 --> 03:49:01,199
little bit um more about today's mission

5459
03:49:07,670 --> 03:49:03,199
and what the mission represents for

5460
03:49:10,950 --> 03:49:08,870
well uh

5461
03:49:13,750 --> 03:49:10,960
as the first japanese astronaut on board

5462
03:49:15,750 --> 03:49:13,760
three different spacecraft space shuttle

5463
03:49:17,349 --> 03:49:15,760

soyuz and crew dragon

5464

03:49:20,150 --> 03:49:17,359

i'm sure he will play an outstanding

5465

03:49:21,990 --> 03:49:20,160

role based on past experiences

5466

03:49:23,349 --> 03:49:22,000

experiments on the iss are expected

5467

03:49:26,070 --> 03:49:23,359

expected to contribute to the

5468

03:49:28,790 --> 03:49:26,080

advancement of people's lives on earth

5469

03:49:30,870 --> 03:49:28,800

or protein crystal growth experiments in

5470

03:49:34,309 --> 03:49:30,880

microgravity environment may lead to the

5471

03:49:36,070 --> 03:49:34,319

development of new medicine

5472

03:49:38,630 --> 03:49:36,080

japanese private companies are also

5473

03:49:43,590 --> 03:49:38,640

getting to the use the experiment module

5474

03:49:48,229 --> 03:49:45,349

we expect that we will

5475

03:49:50,469 --> 03:49:48,239

around the utilization of keyboard

5476

03:49:54,550 --> 03:49:50,479

thank you

5477

03:49:57,030 --> 03:49:54,560

toward a little bit towards the future

5478

03:49:58,229 --> 03:49:57,040

um i know recently japan along with uh

5479

03:49:59,670 --> 03:49:58,239

seven other countries including the

5480

03:50:01,910 --> 03:49:59,680

united states recently signed the

5481

03:50:03,510 --> 03:50:01,920

artemis accords can you tell us a little

5482

03:50:05,510 --> 03:50:03,520

bit about more about the artemis accords

5483

03:50:09,030 --> 03:50:05,520

and what that means for future space

5484

03:50:11,910 --> 03:50:10,389

well uh

5485

03:50:13,590 --> 03:50:11,920

last month in october the japanese

5486

03:50:15,990 --> 03:50:13,600

government signed the items of course

5487

03:50:17,590 --> 03:50:16,000

presenting the strong partnership as one

5488

03:50:19,910 --> 03:50:17,600

of the first countries to join in the

5489

03:50:21,670 --> 03:50:19,920

future international space exploration

5490

03:50:23,590 --> 03:50:21,680

well i think japan has expertise in

5491

03:50:26,389 --> 03:50:23,600

human and robotic space technologies

5492

03:50:28,710 --> 03:50:26,399

accumulated through our experience this

5493

03:50:30,870 --> 03:50:28,720

tv and hayapsa too

5494

03:50:32,790 --> 03:50:30,880

and we continue to move forward within

5495

03:50:35,110 --> 03:50:32,800

technical considerations with nasa and

5496

03:50:36,710 --> 03:50:35,120

other international partners

5497

03:50:39,429 --> 03:50:36,720

in addition to the field of human race

5498

03:50:40,790 --> 03:50:39,439

flight we will continue and deepen our

5499

03:50:42,630 --> 03:50:40,800

cooperation with nasa and our

5500

03:50:45,110 --> 03:50:42,640

international partners in order to

5501
03:50:48,229 --> 03:50:45,120
explore the new era of space and

5502
03:50:50,870 --> 03:50:48,239
contribution to our society on earth

5503
03:50:54,790 --> 03:50:50,880
thank you very much

5504
03:50:59,990 --> 03:50:57,349
um thank you for your time this morning

5505
03:51:00,000 --> 03:51:03,349
thank you

5506
03:51:07,269 --> 03:51:05,590
all right so we just took a look at

5507
03:51:09,110 --> 03:51:07,279
numbers across all of our social

5508
03:51:11,030 --> 03:51:09,120
channels and there are over

5509
03:51:13,510 --> 03:51:11,040
half a million people tuning in to this

5510
03:51:16,150 --> 03:51:13,520
broadcast right now and the hashtag

5511
03:51:18,389 --> 03:51:16,160
launchamerica is trending at number 20

5512
03:51:20,710 --> 03:51:18,399
on twitter last time we checked and

5513
03:51:22,630 --> 03:51:20,720

marie kate nicole i've got some great

5514

03:51:25,030 --> 03:51:22,640

photos rolling in and i have a few that

5515

03:51:26,550 --> 03:51:25,040

i just have to share right now so take a

5516

03:51:29,349 --> 03:51:26,560

look at this first one

5517

03:51:33,269 --> 03:51:29,359

we've got this little explorer asking if

5518

03:51:38,309 --> 03:51:35,910

i know t let's go to the next one

5519

03:51:39,990 --> 03:51:38,319

we've seen so many cute space pups today

5520

03:51:42,550 --> 03:51:40,000

and this corgi and its little nasa

5521

03:51:45,750 --> 03:51:42,560

onesie is just the icing on the cake yes

5522

03:51:48,550 --> 03:51:45,760

i can't get enough space dogs so

5523

03:51:51,030 --> 03:51:48,560

um okay let's go next

5524

03:51:53,110 --> 03:51:51,040

how incredible is this little patriotic

5525

03:51:54,790 --> 03:51:53,120

astronaut holding the flag now y'all

5526

03:51:57,030 --> 03:51:54,800

this one definitely made me pretty

5527

03:52:00,550 --> 03:51:57,040

emotional in the first time i saw

5528

03:52:02,309 --> 03:52:00,560

yeah okay last one

5529

03:52:04,950 --> 03:52:02,319

check out how awesome kiana looks in her

5530

03:52:07,590 --> 03:52:04,960

blue flight flight suit and i mean

5531

03:52:09,429 --> 03:52:07,600

wishing her hero victor glover well on

5532

03:52:10,150 --> 03:52:09,439

his launch america mission

5533

03:52:11,590 --> 03:52:10,160

so

5534

03:52:13,269 --> 03:52:11,600

you've seen it there and for those of

5535

03:52:15,670 --> 03:52:13,279

you at home thank you for sharing a

5536

03:52:18,150 --> 03:52:15,680

piece of what this mission means to you

5537

03:52:19,670 --> 03:52:18,160

with us and in these final moments let's

5538

03:52:22,070 --> 03:52:19,680

check in with shaniqua at mission

5539

03:52:26,229 --> 03:52:22,080

control in houston shaniqua what's the

5540

03:52:29,990 --> 03:52:27,990

thanks tahara the space station team

5541

03:52:31,590 --> 03:52:30,000

here in houston is focused and critical

5542

03:52:33,349 --> 03:52:31,600

systems on the station continue to

5543

03:52:35,110 --> 03:52:33,359

function normally the teams have

5544

03:52:36,710 --> 03:52:35,120

verified the command path from the

5545

03:52:38,950 --> 03:52:36,720

ground up through the constellation of

5546

03:52:40,710 --> 03:52:38,960

communication satellites to the station

5547

03:52:43,349 --> 03:52:40,720

everything is nominal and the station

5548

03:52:45,510 --> 03:52:43,359

will be ready to receive dragon tomorrow

5549

03:52:47,189 --> 03:52:45,520

nasa flight director anthony varya has

5550

03:52:49,590 --> 03:52:47,199

been leading operations planning between

5551
03:52:51,349 --> 03:52:49,600
the joint nasa and spacex teams for the

5552
03:52:53,349 --> 03:52:51,359
crew one mission and with the mission

5553
03:52:54,630 --> 03:52:53,359
about to begin he passed along this to

5554
03:52:56,870 --> 03:52:54,640
the teams

5555
03:52:59,030 --> 03:52:56,880
no matter the spacecraft our jobs remain

5556
03:53:00,790 --> 03:52:59,040
the same we will protect the crew we

5557
03:53:03,590 --> 03:53:00,800
will protect the vehicle and we will

5558
03:53:06,710 --> 03:53:03,600
perform our mission we remain tough and

5559
03:53:08,469 --> 03:53:06,720
competent we operate with resilience

5560
03:53:10,309 --> 03:53:08,479
anthony and team are on console here in

5561
03:53:12,469 --> 03:53:10,319
mission control for launch and will be

5562
03:53:14,710 --> 03:53:12,479
back tomorrow for docking a reminder

5563
03:53:16,790 --> 03:53:14,720

that a launch today will take about 27

5564

03:53:19,750 --> 03:53:16,800

and a half hours to get to station

5565

03:53:23,750 --> 03:53:19,760

docking monday to the note 2 ford port

5566

03:53:25,510 --> 03:53:23,760

scheduled at 10 pm central time 4 am gmt

5567

03:53:27,670 --> 03:53:25,520

once dragon is fully docked to the

5568

03:53:30,150 --> 03:53:27,680

station the team here in houston will

5569

03:53:32,469 --> 03:53:30,160

assist the dragon and spacex station

5570

03:53:34,790 --> 03:53:32,479

excuse me space station astronauts with

5571

03:53:36,950 --> 03:53:34,800

leak checks as they work to open hatches

5572

03:53:39,670 --> 03:53:36,960

on both dragon and inside the pressure

5573

03:53:41,189 --> 03:53:39,680

the station's pressurized mating adapter

5574

03:53:42,870 --> 03:53:41,199

we expect hatch open to take

5575

03:53:47,110 --> 03:53:42,880

approximately two hours

5576
03:53:48,870 --> 03:53:47,120
after docking that's it for us here in

5577
03:53:52,950 --> 03:53:48,880
mission control houston i'll send it

5578
03:53:58,870 --> 03:53:55,429
all right thank you so much shaniqua we

5579
03:54:01,349 --> 03:53:58,880
are inside of t minus 19 minutes until

5580
03:54:04,309 --> 03:54:01,359
launch uh so exciting we started the day

5581
03:54:06,469 --> 03:54:04,319
with 50 percent probability of launch

5582
03:54:08,950 --> 03:54:06,479
and now we're up to uh eighty percent

5583
03:54:10,870 --> 03:54:08,960
chance of the weather cooperating so we

5584
03:54:13,030 --> 03:54:10,880
are so excited uh i know we're going to

5585
03:54:14,790 --> 03:54:13,040
be turning our attention uh solely to

5586
03:54:17,189 --> 03:54:14,800
the pad and going over to hawthorne to

5587
03:54:18,950 --> 03:54:17,199
take us through the final count but um

5588
03:54:20,790 --> 03:54:18,960

one thing that really stuck out to me

5589

03:54:22,790 --> 03:54:20,800

earlier and i wanted to mention when

5590

03:54:24,630 --> 03:54:22,800

shannon was talking about

5591

03:54:26,309 --> 03:54:24,640

her path to becoming an astronaut she

5592

03:54:29,269 --> 03:54:26,319

talked about how she was four years old

5593

03:54:30,469 --> 03:54:29,279

when she decided that that's what i want

5594

03:54:32,070 --> 03:54:30,479

to do and

5595

03:54:34,469 --> 03:54:32,080

it really stuck out to me because my

5596

03:54:35,990 --> 03:54:34,479

four-year-old daughter is watching and

5597

03:54:37,590 --> 03:54:36,000

she's dreaming about becoming an

5598

03:54:38,790 --> 03:54:37,600

astronaut and it's so

5599

03:54:42,790 --> 03:54:38,800

special

5600

03:54:44,550 --> 03:54:42,800

girls maybe i'm biased but

5601
03:54:46,710 --> 03:54:44,560
to be able to have a role model like

5602
03:54:48,469 --> 03:54:46,720
shannon and like you nicole

5603
03:54:51,189 --> 03:54:48,479
because at the time when shannon was

5604
03:54:53,990 --> 03:54:51,199
four years old women weren't astronauts

5605
03:54:56,950 --> 03:54:54,000
and what an amazing time to be in when

5606
03:54:58,710 --> 03:54:56,960
little girls have women to look up to

5607
03:55:01,030 --> 03:54:58,720
and african-american children have

5608
03:55:02,950 --> 03:55:01,040
victor glover to look up to and see that

5609
03:55:04,309 --> 03:55:02,960
you know they're represented and they

5610
03:55:07,030 --> 03:55:04,319
can do this too

5611
03:55:09,030 --> 03:55:07,040
yeah and i think um nasa and the world

5612
03:55:11,189 --> 03:55:09,040
of space exploration you know from the

5613
03:55:11,990 --> 03:55:11,199

human space flight side for sure has

5614

03:55:13,349 --> 03:55:12,000

been

5615

03:55:14,950 --> 03:55:13,359

you know over the years just so

5616

03:55:16,550 --> 03:55:14,960

progressive and understanding how this

5617

03:55:18,950 --> 03:55:16,560

diversity makes so

5618

03:55:20,870 --> 03:55:18,960

is so important and i love thinking

5619

03:55:23,349 --> 03:55:20,880

about your four-year-old daughter um

5620

03:55:24,950 --> 03:55:23,359

watching launch tonight and being

5621

03:55:26,950 --> 03:55:24,960

excited about this and i'm thankful to

5622

03:55:28,870 --> 03:55:26,960

be here tonight with you two ladies kind

5623

03:55:31,590 --> 03:55:28,880

of representing

5624

03:55:33,510 --> 03:55:31,600

i'm super excited i have seen spacex

5625

03:55:35,349 --> 03:55:33,520

launches before i've seen

5626

03:55:38,389 --> 03:55:35,359

shuttle launches before but i've never

5627

03:55:39,510 --> 03:55:38,399

been this close to the launch pad uh and

5628

03:55:42,950 --> 03:55:39,520

i'm just

5629

03:55:44,389 --> 03:55:42,960

my palms were sweaty with excitement and

5630

03:55:46,309 --> 03:55:44,399

uh it's going to be incredible that you

5631

03:55:48,309 --> 03:55:46,319

know night launch is here they just

5632

03:55:50,469 --> 03:55:48,319

light up the sky and so i'm super

5633

03:55:52,469 --> 03:55:50,479

excited and i can't even imagine you

5634

03:55:54,389 --> 03:55:52,479

know i i i think a lot about victor

5635

03:55:56,150 --> 03:55:54,399

glover this evening because as we said

5636

03:55:57,429 --> 03:55:56,160

before this is his first time going to

5637

03:55:59,910 --> 03:55:57,439

space he has

5638

03:56:02,870 --> 03:55:59,920

thousands of hours as a test pilot like

5639

03:56:04,469 --> 03:56:02,880

a super impressive resume uh and this is

5640

03:56:06,389 --> 03:56:04,479

his first time going to space and i i'm

5641

03:56:08,469 --> 03:56:06,399

so excited for him to be part of this

5642

03:56:11,429 --> 03:56:08,479

mission and and get to go to the iss

5643

03:56:13,349 --> 03:56:11,439

after a long wait yeah and that that is

5644

03:56:15,590 --> 03:56:13,359

a beautiful destination let me just tell

5645

03:56:17,189 --> 03:56:15,600

you that they you know the four of them

5646

03:56:18,950 --> 03:56:17,199

are going to

5647

03:56:20,630 --> 03:56:18,960

you know do amazing work there and it's

5648

03:56:22,070 --> 03:56:20,640

been mentioned a couple times before you

5649

03:56:24,070 --> 03:56:22,080

know this partnership that we have

5650

03:56:26,309 --> 03:56:24,080

that's allowing us to do such incredible

5651
03:56:28,950 --> 03:56:26,319
things that are just ultimately about

5652
03:56:30,870 --> 03:56:28,960
improving life on earth absolutely and

5653
03:56:32,309 --> 03:56:30,880
nicole i think it's worth mentioning we

5654
03:56:34,790 --> 03:56:32,319
didn't talk about this earlier and i

5655
03:56:36,229 --> 03:56:34,800
know you are a very humble person and

5656
03:56:38,309 --> 03:56:36,239
you're focused on the crew that's on the

5657
03:56:39,670 --> 03:56:38,319
pad right now but you were the last

5658
03:56:41,670 --> 03:56:39,680
resident

5659
03:56:44,950 --> 03:56:41,680
international space station crew member

5660
03:56:46,550 --> 03:56:44,960
to launch from and then land uh on back

5661
03:56:48,389 --> 03:56:46,560
on u.s soil so i think that's

5662
03:56:49,910 --> 03:56:48,399
significant uh

5663
03:56:51,349 --> 03:56:49,920

yeah as a shuttle crew member and it's

5664

03:56:53,910 --> 03:56:51,359

kind of you know weird to think that

5665

03:56:55,670 --> 03:56:53,920

that was that long ago but um you know i

5666

03:56:58,070 --> 03:56:55,680

don't think any crew members goes into

5667

03:57:00,070 --> 03:56:58,080

it thinking about what you know what

5668

03:57:01,830 --> 03:57:00,080

first or last it is but

5669

03:57:04,550 --> 03:57:01,840

i'll tell you having worked at kennedy

5670

03:57:06,469 --> 03:57:04,560

space center for 10 years as a nasa

5671

03:57:08,550 --> 03:57:06,479

engineer and to be able to

5672

03:57:11,030 --> 03:57:08,560

you know support a mission like that and

5673

03:57:13,590 --> 03:57:11,040

be here watching this tonight really

5674

03:57:15,429 --> 03:57:13,600

historic event um this is the place

5675

03:57:17,910 --> 03:57:15,439

where we learn you know that there is a

5676
03:57:19,750 --> 03:57:17,920
solution to every challenging problem

5677
03:57:21,750 --> 03:57:19,760
and and in the words of a person i

5678
03:57:23,510 --> 03:57:21,760
mentioned earlier mr honeycutt you know

5679
03:57:25,910 --> 03:57:23,520
here's how we can not why we can't and

5680
03:57:29,429 --> 03:57:25,920
that's what we saw go on tonight as well

5681
03:57:31,830 --> 03:57:29,439
absolutely and with t minus 15 minutes

5682
03:57:33,510 --> 03:57:31,840
10 seconds and counting to liftoff we

5683
03:57:35,189 --> 03:57:33,520
want to focus in on the pad as we

5684
03:57:36,950 --> 03:57:35,199
proceed through the final stretch of the

5685
03:57:39,269 --> 03:57:36,960
countdown we will turn it over to

5686
03:57:44,070 --> 03:57:39,279
hawthorne to take us through launch at 7

5687
03:57:45,670 --> 03:57:44,080
27 this evening eastern time john

5688
03:57:47,990 --> 03:57:45,680

thanks marie

5689

03:57:50,389 --> 03:57:48,000

as marie mentioned everything is looking

5690

03:57:53,110 --> 03:57:50,399

good for launch of falcon 9 and dragon

5691

03:57:55,510 --> 03:57:53,120

it's going to come at 27 minutes and 17

5692

03:57:57,910 --> 03:57:55,520

seconds after the hour just a little

5693

03:58:00,070 --> 03:57:57,920

under 15 minutes from now

5694

03:58:02,870 --> 03:58:00,080

we began propellant loading on falcon 9

5695

03:58:04,710 --> 03:58:02,880

on time at t minus 35 minutes

5696

03:58:07,030 --> 03:58:04,720

you may have heard earlier the call out

5697

03:58:09,670 --> 03:58:07,040

the fuel is completely loaded on the

5698

03:58:10,710 --> 03:58:09,680

second stage so the rp1 kerosene fuel is

5699

03:58:13,110 --> 03:58:10,720

complete

5700

03:58:15,590 --> 03:58:13,120

we also got the start right on time two

5701
03:58:17,750 --> 03:58:15,600
minutes ago of liquid oxygen loading

5702
03:58:19,429 --> 03:58:17,760
onto the second stage

5703
03:58:21,670 --> 03:58:19,439
now on the first stage that you can see

5704
03:58:23,910 --> 03:58:21,680
with the white uh plumes coming off of

5705
03:58:26,150 --> 03:58:23,920
it field loading is continuing we're

5706
03:58:27,910 --> 03:58:26,160
about half complete with field load

5707
03:58:29,269 --> 03:58:27,920
that'll finish in eight minutes at t

5708
03:58:32,469 --> 03:58:29,279
minus six

5709
03:58:35,030 --> 03:58:32,479
now densified oxygen the liquid oxygen

5710
03:58:37,030 --> 03:58:35,040
continues to load on the first stage

5711
03:58:39,030 --> 03:58:37,040
that'll come down and finish about t

5712
03:58:40,950 --> 03:58:39,040
minus three minutes and then as i

5713
03:58:43,750 --> 03:58:40,960

mentioned the second stage has just

5714

03:58:45,510 --> 03:58:43,760

begin liquid oxygen loading just uh two

5715

03:58:47,670 --> 03:58:45,520

and a half minutes ago that will

5716

03:58:49,030 --> 03:58:47,680

continue all the way down to t minus two

5717

03:58:51,750 --> 03:58:49,040

minutes

5718

03:58:53,910 --> 03:58:51,760

now currently eastern range is go

5719

03:58:55,750 --> 03:58:53,920

everything continues to look good

5720

03:58:58,389 --> 03:58:55,760

and the weather as we said has continued

5721

03:59:00,710 --> 03:58:58,399

to cooperate you can talk about it you

5722

03:59:02,790 --> 03:59:00,720

can't do much about it but tonight it

5723

03:59:04,229 --> 03:59:02,800

looks like all conditions are good on

5724

03:59:06,309 --> 03:59:04,239

the weather

5725

03:59:08,389 --> 03:59:06,319

and finally dragon the dragon mission

5726
03:59:09,349 --> 03:59:08,399
director and team they are reporting no

5727
03:59:11,030 --> 03:59:09,359
issues

5728
03:59:13,110 --> 03:59:11,040
they've completed the communication

5729
03:59:15,429 --> 03:59:13,120
checkouts earlier in the countdown you

5730
03:59:17,750 --> 03:59:15,439
can see the crew access arm is retracted

5731
03:59:19,750 --> 03:59:17,760
away what you have left now is just the

5732
03:59:21,349 --> 03:59:19,760
strong back alongside of dragon you can

5733
03:59:23,670 --> 03:59:21,359
see on your monitors

5734
03:59:25,349 --> 03:59:23,680
we have armed the launch escape system

5735
03:59:26,870 --> 03:59:25,359
the crew is strapped in and they are

5736
03:59:28,790 --> 03:59:26,880
ready to go

5737
03:59:30,309 --> 03:59:28,800
their next major events coming up at t

5738
03:59:31,990 --> 03:59:30,319

minus 10 minutes they're going to get

5739

03:59:34,630 --> 03:59:32,000

final instructions

5740

03:59:36,950 --> 03:59:34,640

uh relayed to them the crew displays

5741

03:59:38,950 --> 03:59:36,960

will be configured for launch and that

5742

03:59:40,710 --> 03:59:38,960

allows the crew to get insight into how

5743

03:59:43,110 --> 03:59:40,720

launch is proceeding and provides

5744

03:59:44,469 --> 03:59:43,120

constant updates on vehicle health to

5745

03:59:46,790 --> 03:59:44,479

the crew that you can see on the right

5746

03:59:48,950 --> 03:59:46,800

hand side of the monitor the crew will

5747

03:59:51,269 --> 03:59:48,960

also at that time close their visors in

5748

03:59:53,189 --> 03:59:51,279

preparation for launch

5749

03:59:54,790 --> 03:59:53,199

now at t-minus five minutes will be in

5750

03:59:57,910 --> 03:59:54,800

terminal count and dragon will

5751
03:59:59,590 --> 03:59:57,920
transition to its internal battery power

5752
04:00:02,309 --> 03:59:59,600
we'll hear continued callouts on the

5753
04:00:04,950 --> 04:00:02,319
countdown net as we get close to zero

5754
04:00:06,870 --> 04:00:04,960
and to lift off but right now twelve and

5755
04:00:08,389 --> 04:00:06,880
a half minutes to go everything looking

5756
04:00:10,710 --> 04:00:08,399
good

5757
04:00:12,309 --> 04:00:10,720
leah and i will be commenting but we're

5758
04:00:15,269 --> 04:00:12,319
going to let you listen into a lot of

5759
04:00:17,670 --> 04:00:15,279
the discussion and just uh enjoy the

5760
04:00:19,349 --> 04:00:17,680
last 12 minutes of the countdown as we

5761
04:00:23,429 --> 04:00:19,359
head for liftoff again

5762
04:00:25,990 --> 04:00:23,439
27 minutes 17 seconds after the hour

5763
04:00:29,110 --> 04:00:26,000

that's right john it's so exciting i

5764

04:00:31,429 --> 04:00:29,120

only 12 minutes 13 seconds until liftoff

5765

04:00:33,750 --> 04:00:31,439

now and just some things that you can

5766

04:00:36,070 --> 04:00:33,760

look for especially upon ascent you'll

5767

04:00:37,830 --> 04:00:36,080

be hearing some performance calls as we

5768

04:00:40,229 --> 04:00:37,840

get into the final countdown and then

5769

04:00:41,670 --> 04:00:40,239

after liftoff these are spacex flight

5770

04:00:43,990 --> 04:00:41,680

controllers they're reporting the

5771

04:00:45,429 --> 04:00:44,000

trajectory the speed the booster

5772

04:00:47,910 --> 04:00:45,439

performance and some of the key

5773

04:00:49,269 --> 04:00:47,920

milestones for falcon 9 and crew dragon

5774

04:00:51,750 --> 04:00:49,279

on the way up hill

5775

04:00:53,590 --> 04:00:51,760

it's about a nine minute ride to orbit

5776

04:00:55,830 --> 04:00:53,600

and a few minutes after that is when

5777

04:00:58,630 --> 04:00:55,840

we'll see crew dragon separate from the

5778

04:00:59,750 --> 04:00:58,640

second stage and begin flying free on

5779

04:01:01,429 --> 04:00:59,760

its own

5780

04:01:03,590 --> 04:01:01,439

some of those other calls you'll hear

5781

04:01:05,910 --> 04:01:03,600

upon liftoff are number and letter

5782

04:01:07,990 --> 04:01:05,920

combinations these mark different abort

5783

04:01:10,309 --> 04:01:08,000

zones throughout the flight the first

5784

04:01:11,830 --> 04:01:10,319

two are 1a and 1b

5785

04:01:13,910 --> 04:01:11,840

this signifies they're in the first

5786

04:01:16,790 --> 04:01:13,920

stage and that will last until they're

5787

04:01:20,389 --> 04:01:16,800

up to the very north of north carolina

5788

04:01:22,150 --> 04:01:20,399

the next are 2a through 2e or 2 echo

5789

04:01:24,550 --> 04:01:22,160

those will come into play once the

5790

04:01:26,870 --> 04:01:24,560

second stage kicks in that lasts from

5791

04:01:28,790 --> 04:01:26,880

the top of north carolina all the way to

5792

04:01:31,269 --> 04:01:28,800

the tip of newfoundland in the northern

5793

04:01:33,269 --> 04:01:31,279

atlantic there's also a spot we want to

5794

04:01:35,830 --> 04:01:33,279

avoid in the northern atlantic and so

5795

04:01:38,229 --> 04:01:35,840

you might hear the call shannon or

5796

04:01:40,150 --> 04:01:38,239

forward to shannon of course that's not

5797

04:01:42,469 --> 04:01:40,160

to be confused with our crew member

5798

04:01:44,870 --> 04:01:42,479

shannon walker today but that actually

5799

04:01:47,510 --> 04:01:44,880

refers to shannon ireland it means they

5800

04:01:49,910 --> 04:01:47,520

would target off the coast of ireland if

5801
04:01:51,510 --> 04:01:49,920
they were later in that second stage and

5802
04:01:53,349 --> 04:01:51,520
needed to abort

5803
04:01:55,590 --> 04:01:53,359
but that next call out we're listening

5804
04:01:58,630 --> 04:01:55,600
for to the crew should come up at t

5805
04:02:00,710 --> 04:01:58,640
minus 10 minutes that the crew displays

5806
04:02:03,910 --> 04:02:00,720
those three panels in front of our

5807
04:02:06,630 --> 04:02:03,920
astronauts will be configured for launch

5808
04:02:16,790 --> 04:02:06,640
now just 10 minutes and 35 seconds to go

5809
04:02:21,590 --> 04:02:19,429
also as john i mentioned that stage two

5810
04:02:25,429 --> 04:02:21,600
fuel load is complete stage one is at

5811
04:02:30,309 --> 04:02:27,910
liquid oxygen load on the second stage

5812
04:02:41,269 --> 04:02:30,319
is about 40 percent and on the first

5813
04:02:50,790 --> 04:02:43,830

dragon spacex confirmed crew displays

5814

04:02:56,389 --> 04:02:53,269

and spacex this is dragon displays are

5815

04:02:57,830 --> 04:02:56,399

configured for launch

5816

04:02:59,590 --> 04:02:57,840

copy resilience

5817

04:03:02,229 --> 04:02:59,600

we're honored to have you as our crew as

5818

04:03:04,070 --> 04:03:02,239

we begin operational missions to the iss

5819

04:03:09,349 --> 04:03:04,080

have an amazing trip and know that we

5820

04:03:13,750 --> 04:03:11,990

thanks jay and to all the people at nasa

5821

04:03:14,950 --> 04:03:13,760

and spacex

5822

04:03:16,870 --> 04:03:14,960

by working together through these

5823

04:03:18,630 --> 04:03:16,880

difficult times you've inspired the

5824

04:03:21,110 --> 04:03:18,640

nation the world

5825

04:03:23,030 --> 04:03:21,120

and in those faults and all parts the uh

5826
04:03:25,750 --> 04:03:23,040
the name of this incredible vehicle

5827
04:03:31,269 --> 04:03:25,760
resilience and now it's time for us to

5828
04:03:31,279 --> 04:03:36,870
i feel thanks

5829
04:03:40,950 --> 04:03:38,630
that was the voice of commander mike

5830
04:03:43,030 --> 04:03:40,960
hopkins confirming those crew displays

5831
04:03:45,110 --> 04:03:43,040
are configured and that t-minus 10

5832
04:03:47,269 --> 04:03:45,120
minutes was another check for the falcon

5833
04:03:49,590 --> 04:03:47,279
9 launch commit criteria was checked by

5834
04:03:52,150 --> 04:03:49,600
some computers it was the last check of

5835
04:03:54,150 --> 04:03:52,160
a wide variety of the falcon system data

5836
04:03:56,550 --> 04:03:54,160
to make sure we are go

5837
04:03:59,349 --> 04:03:56,560
from here on we continue to count down

5838
04:04:10,229 --> 04:03:59,359

until t minus seven minutes when the

5839

04:04:14,229 --> 04:04:12,150

t-minus eight minutes thirty seconds and

5840

04:04:16,469 --> 04:04:14,239

counting as liam mentioned the next

5841

04:04:18,150 --> 04:04:16,479

major event at t minus seven minutes we

5842

04:04:20,389 --> 04:04:18,160

will open the pre-valves currently the

5843

04:04:22,469 --> 04:04:20,399

merlin engines on the first stage are

5844

04:04:25,750 --> 04:04:22,479

isolated by valves

5845

04:04:26,710 --> 04:04:25,760

that are between the propellant tanks

5846

04:04:29,110 --> 04:04:26,720

and

5847

04:04:30,870 --> 04:04:29,120

with the merlin engines

5848

04:04:32,469 --> 04:04:30,880

we'll open the tree valves

5849

04:04:35,110 --> 04:04:32,479

that'll allow us to begin

5850

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

passing a small amount of liquid oxygen

5851
04:04:38,630 --> 04:04:37,040
through the inlet of the turbo pumps

5852
04:04:40,950 --> 04:04:38,640
that will chill them down to get them

5853
04:04:43,590 --> 04:04:40,960
ready for when we bring the pumps up to

5854
04:04:45,349 --> 04:04:43,600
full speed at t minus two seconds want

5855
04:04:48,150 --> 04:04:45,359
to make sure that the pumps are chilled

5856
04:04:51,110 --> 04:04:48,160
so that there's not any opportunity for

5857
04:04:53,349 --> 04:04:51,120
the liquid oxygen to possibly get

5858
04:04:55,349 --> 04:04:53,359
in contact with a warm pump and turn

5859
04:05:00,389 --> 04:04:55,359
into gas something you want to avoid on

5860
04:05:05,590 --> 04:05:03,750
7 minutes and 40 seconds now to lift off

5861
04:05:08,070 --> 04:05:05,600
we're still watching those fuel levels

5862
04:05:12,229 --> 04:05:08,080
tick up and in the first stage we're

5863
04:05:15,110 --> 04:05:12,239

almost at 100 of that densified kerosene

5864

04:05:17,429 --> 04:05:15,120

as we mentioned second stage is full

5865

04:05:20,229 --> 04:05:17,439

first stage fueling should be complete

5866

04:05:37,429 --> 04:05:20,239

for that rp1 at about t minus six

5867

04:05:37,439 --> 04:05:46,309

standing by for pre-valve opening

5868

04:05:46,319 --> 04:05:51,110

stage one engine chill has started

5869

04:05:56,070 --> 04:05:53,189

and there's the call out stage one

5870

04:05:57,349 --> 04:05:56,080

engine chill has started indicates that

5871

04:05:59,189 --> 04:05:57,359

we are opening the tree pre-valves

5872

04:06:01,429 --> 04:05:59,199

liquid oxygen now beginning to flow

5873

04:06:06,950 --> 04:06:01,439

slowly through the turbo pumps on the

5874

04:06:11,110 --> 04:06:08,790

next call out should be in about 30

5875

04:06:14,229 --> 04:06:11,120

seconds from now we'll be looking for

5876
04:06:16,469 --> 04:06:14,239
stage 1 rp load complete that's the

5877
04:06:18,790 --> 04:06:16,479
densified kerosene that fuel on the

5878
04:06:21,349 --> 04:06:18,800
first stage already full on the second

5879
04:06:23,910 --> 04:06:21,359
stage and we'll still be loading liquid

5880
04:06:26,790 --> 04:06:23,920
oxygen

5881
04:06:34,229 --> 04:06:26,800
up until about two minutes prior to

5882
04:06:34,239 --> 04:06:40,550
standing by for that fuel call

5883
04:06:45,990 --> 04:06:44,070
stage one fuel load is complete

5884
04:06:47,990 --> 04:06:46,000
okay right on time

5885
04:06:49,910 --> 04:06:48,000
and a great view of dragon

5886
04:06:51,990 --> 04:06:49,920
sitting on top of the falcon 9 as we're

5887
04:06:54,150 --> 04:06:52,000
continuing to load liquid oxygen onto

5888
04:06:56,710 --> 04:06:54,160

both the first and second stages the

5889

04:06:59,590 --> 04:06:56,720

rp-1 kerosene fuel is now completely

5890

04:07:02,070 --> 04:06:59,600

loaded on both stage one and stage two

5891

04:07:09,830 --> 04:07:02,080

all continues to go well just under six

5892

04:07:14,630 --> 04:07:12,150

in about 30 seconds we'll enter terminal

5893

04:07:17,670 --> 04:07:14,640

count dragon's onboard computers will

5894

04:07:19,990 --> 04:07:17,680

take control of the vehicle

5895

04:07:21,910 --> 04:07:20,000

both fuel on first and second stage is

5896

04:07:23,830 --> 04:07:21,920

complete and liquid oxygen loading

5897

04:07:25,110 --> 04:07:23,840

continues with the second stage at about

5898

04:07:27,189 --> 04:07:25,120

eighty percent

5899

04:07:29,269 --> 04:07:27,199

first stage at ninety five percent

5900

04:07:31,910 --> 04:07:29,279

something else you might notice is water

5901
04:07:34,630 --> 04:07:31,920
rushing the pad shortly before liftoff

5902
04:07:37,510 --> 04:07:34,640
that's to suppress the sound and keep

5903
04:07:42,149 --> 04:07:37,520
any sound from imparting a load on crew

5904
04:07:45,910 --> 04:07:43,750
dragon is in configure for terminal

5905
04:07:48,790 --> 04:07:45,920
count

5906
04:07:50,070 --> 04:07:48,800
dragon is on internal power

5907
04:07:54,149 --> 04:07:50,080
alkaline propellant tanks are

5908
04:07:58,630 --> 04:07:56,309
good confirmation that dragon is an on

5909
04:08:01,110 --> 04:07:58,640
in on internal power

5910
04:08:03,910 --> 04:08:01,120
and now we'll be looking for a major

5911
04:08:06,149 --> 04:08:03,920
milestone before we launch today that'll

5912
04:08:07,670 --> 04:08:06,159
be this strongback retract john you want

5913
04:08:10,950 --> 04:08:07,680

to tell us a little bit more about that

5914

04:08:12,790 --> 04:08:10,960

elia if we get a close-up of the uh

5915

04:08:14,710 --> 04:08:12,800

dragon at second stage strongback is

5916

04:08:16,710 --> 04:08:14,720

retracting we've heard the call out

5917

04:08:18,870 --> 04:08:16,720

strung back retracting that's a two-step

5918

04:08:20,550 --> 04:08:18,880

sequence first there are clamp arms

5919

04:08:22,950 --> 04:08:20,560

around the very top of the second stage

5920

04:08:25,429 --> 04:08:22,960

you can see one of them just above the

5921

04:08:26,790 --> 04:08:25,439

gaseous oxygen vapors coming out of the

5922

04:08:29,349 --> 04:08:26,800

second stage

5923

04:08:31,750 --> 04:08:29,359

those arms will open up

5924

04:08:34,070 --> 04:08:31,760

and then just inside of t minus four

5925

04:08:35,990 --> 04:08:34,080

minutes once the arms are released we'll

5926

04:08:38,469 --> 04:08:36,000

begin to retract the strong back

5927

04:08:40,469 --> 04:08:38,479

alongside the vehicle it'll move back

5928

04:08:42,309 --> 04:08:40,479

two degrees in position

5929

04:08:43,750 --> 04:08:42,319

and by about t minus three and a half

5930

04:08:46,950 --> 04:08:43,760

minutes we ought to be finished with

5931

04:08:49,030 --> 04:08:46,960

that the strong back will retract to 45

5932

04:08:52,229 --> 04:08:49,040

degrees away from the rocket

5933

04:08:54,130 --> 04:08:52,239

once we hit t0 as part of the liftoff

5934

04:09:00,149 --> 04:08:54,140

sequence

5935

04:09:05,349 --> 04:09:02,630

and at t minus three minutes right now

5936

04:09:07,189 --> 04:09:05,359

we're waiting for the retract

5937

04:09:21,429 --> 04:09:07,199

and there you can see the strongback is

5938

04:09:27,110 --> 04:09:24,469

it looks like we are just about into

5939

04:09:29,030 --> 04:09:27,120

the required pre-launch position just a

5940

04:09:30,710 --> 04:09:29,040

couple degrees away from the falcon 9 in

5941

04:09:32,469 --> 04:09:30,720

the dragon capsule

5942

04:09:34,389 --> 04:09:32,479

but right now t minus three minutes

5943

04:09:41,340 --> 04:09:34,399

eight seconds everything continues to be

5944

04:09:41,350 --> 04:09:52,790

[Applause]

5945

04:09:56,229 --> 04:09:54,550

dragon is in terminal count and we are

5946

04:09:58,870 --> 04:09:56,239

standing by to hear that stage one

5947

04:10:01,429 --> 04:09:58,880

liquid oxygen loading is complete

5948

04:10:03,590 --> 04:10:01,439

stage two unlocked is complete and there

5949

04:10:05,830 --> 04:10:03,600

we have it and stage two should finish

5950

04:10:10,550 --> 04:10:05,840

shortly after about two minutes prior to

5951
04:10:16,550 --> 04:10:13,429
so now the last major event is finish

5952
04:10:19,189 --> 04:10:16,560
liquid oxygen loading on stage two

5953
04:10:21,189 --> 04:10:19,199
wraps up at about t minus two minutes

5954
04:10:23,590 --> 04:10:21,199
then at about t minus a minute a half we

5955
04:10:25,429 --> 04:10:23,600
have to drain back and vent down the

5956
04:10:27,590 --> 04:10:25,439
liquid line that goes up the strong back

5957
04:10:29,349 --> 04:10:27,600
alongside the falcon 9.

5958
04:10:31,269 --> 04:10:29,359
if you see a large white cloud about

5959
04:10:33,429 --> 04:10:31,279
midway down around the rocket that's

5960
04:10:35,990 --> 04:10:33,439
normal that's again just the gaseous

5961
04:10:50,790 --> 04:10:36,000
oxygen hitting the warm moist florida

5962
04:10:50,800 --> 04:10:56,389
page two vox load is complete

5963
04:10:56,399 --> 04:11:01,269

dragon is an auto idol

5964

04:11:05,189 --> 04:11:03,269

and good calls that stage two liquid

5965

04:11:08,070 --> 04:11:05,199

oxygen load is complete that means we

5966

04:11:10,309 --> 04:11:08,080

have full fuel on the first and second

5967

04:11:13,269 --> 04:11:10,319

stages that densified kerosene and we're

5968

04:11:15,030 --> 04:11:13,279

full of the oxidizer

5969

04:11:17,750 --> 04:11:15,040

liquid oxygen on

5970

04:11:19,990 --> 04:11:17,760

the first and second stage as well

5971

04:11:21,429 --> 04:11:20,000

now just a minute and 20 seconds until

5972

04:11:23,110 --> 04:11:21,439

liftoff today

5973

04:11:28,630 --> 04:11:23,120

and as you can hear those sounds like

5974

04:11:33,750 --> 04:11:30,389

coming up in 10 seconds we'll look to

5975

04:11:36,520 --> 04:11:33,760

hear that dragon is in countdown

5976

04:11:41,750 --> 04:11:36,530

and falcon 9 is in startup

5977

04:11:45,670 --> 04:11:43,750

driving countdown

5978

04:11:50,149 --> 04:11:45,680

fds armed falcon is a startup and it's

5979

04:11:55,910 --> 04:11:53,670

50 seconds now until liftoff

5980

04:12:00,830 --> 04:11:55,920

that fts you heard is flight termination

5981

04:12:07,189 --> 04:12:04,870

spacex this is resilience roger guelph

5982

04:12:09,670 --> 04:12:07,199

go for launch and at 37 seconds the

5983

04:12:13,429 --> 04:12:09,680

international space station flying over

5984

04:12:13,439 --> 04:12:20,469

crew dragon poised to go catch it

5985

04:12:25,030 --> 04:12:23,670

20 seconds till liftoff

5986

04:12:27,590 --> 04:12:25,040

[Music]

5987

04:12:30,070 --> 04:12:27,600

is 15 seconds

5988

04:12:30,870 --> 04:12:30,080

9 is configured for flight

5989

04:12:31,910 --> 04:12:30,880

and

5990

04:12:32,870 --> 04:12:31,920

nine

5991

04:12:33,830 --> 04:12:32,880

eight

5992

04:12:34,790 --> 04:12:33,840

seven

5993

04:12:35,750 --> 04:12:34,800

six

5994

04:12:36,790 --> 04:12:35,760

five

5995

04:12:37,750 --> 04:12:36,800

four

5996

04:12:38,710 --> 04:12:37,760

three

5997

04:12:39,590 --> 04:12:38,720

two

5998

04:12:46,149 --> 04:12:39,600

one

5999

04:12:52,630 --> 04:12:49,510

and resilience rises not even gravity

6000

04:13:02,149 --> 04:12:52,640

contains humanity when we explore as one

6001
04:13:10,950 --> 04:13:04,229
that's the word we want to hear stage

6002
04:13:16,469 --> 04:13:13,510
that's 30 nominal into this historic

6003
04:13:19,750 --> 04:13:16,479
mission flying crew on board dragon and

6004
04:13:26,149 --> 04:13:24,070
stage one is preparing to throttle down

6005
04:13:29,750 --> 04:13:26,159
this is in preparation for max q which

6006
04:13:33,189 --> 04:13:29,760
is maximum aerodynamic pressure

6007
04:13:35,110 --> 04:13:33,199
there's that call out for throttle down

6008
04:13:37,349 --> 04:13:35,120
power and telemetry continued to be

6009
04:13:42,469 --> 04:13:37,359
nominal for the vehicle now traveling at

6010
04:13:45,269 --> 04:13:44,020
falcon 9 is supersonic

6011
04:13:47,590 --> 04:13:45,279
[Music]

6012
04:13:49,429 --> 04:13:47,600
as i call the falcon 9 is supersonic and

6013
04:13:51,429 --> 04:13:49,439

we will be passing through max q here

6014

04:14:00,550 --> 04:13:51,439

shortly the largest structural load

6015

04:14:04,950 --> 04:14:03,189

and we've just entered stage one bravo

6016

04:14:06,630 --> 04:14:04,960

aboard mode that's going to take them

6017

04:14:09,030 --> 04:14:06,640

through the end of the first stage

6018

04:14:10,790 --> 04:14:09,040

burning just before second stage

6019

04:14:20,469 --> 04:14:10,800

activates off the coast of north

6020

04:14:25,910 --> 04:14:22,710

t plus one minute and 40 seconds into

6021

04:14:28,469 --> 04:14:25,920

flight dragon and falcon 9 traveling 709

6022

04:14:30,950 --> 04:14:28,479

meters per second

6023

04:14:37,030 --> 04:14:30,960

that call that mvac chill is underway

6024

04:14:41,030 --> 04:14:39,590

now with the call out of mvacd chillin

6025

04:14:43,269 --> 04:14:41,040

similar to what we saw in the first

6026
04:14:45,349 --> 04:14:43,279
stage merlin engines the second stage

6027
04:14:47,349 --> 04:14:45,359
engine being prepared for its ignition

6028
04:14:48,229 --> 04:14:47,359
coming up in just over 30 seconds from

6029
04:14:50,070 --> 04:14:48,239
now

6030
04:14:52,870 --> 04:14:50,080
we're a half a minute away from three

6031
04:14:54,550 --> 04:14:52,880
quick events in rapid succession we're

6032
04:14:56,229 --> 04:14:54,560
going to get main engine cut off the

6033
04:14:58,309 --> 04:14:56,239
nine merlin engines will throttle down

6034
04:15:01,030 --> 04:14:58,319
and then shut down we're going to get

6035
04:15:02,870 --> 04:15:01,040
stage separation stage one throttle down

6036
04:15:05,429 --> 04:15:02,880
and an ignition of the second stage

6037
04:15:06,870 --> 04:15:05,439
engine

6038
04:15:30,550 --> 04:15:06,880

we've begun the throttle down in

6039

04:15:35,189 --> 04:15:32,790

and you see that stage separation has

6040

04:15:38,229 --> 04:15:35,199

confirmed there goes that

6041

04:15:41,269 --> 04:15:38,239

mvac engine

6042

04:15:44,150 --> 04:15:41,279

stage two crew one is now on their way

6043

04:15:50,070 --> 04:15:44,160

to the international space station

6044

04:15:54,630 --> 04:15:51,670

on the right side of your screen you see

6045

04:15:57,030 --> 04:15:54,640

stage two continuing to burn over on the

6046

04:16:01,429 --> 04:15:57,040

left hand side is stage one preparing

6047

04:16:04,630 --> 04:16:03,269

currently on the left side you can't

6048

04:16:06,870 --> 04:16:04,640

make out much

6049

04:16:09,429 --> 04:16:06,880

it's a couple hours after sunset in

6050

04:16:11,510 --> 04:16:09,439

florida but the grid fence have deployed

6051
04:16:13,590 --> 04:16:11,520
on the first stage the first stage is

6052
04:16:15,830 --> 04:16:13,600
now unpowered but with the velocity it

6053
04:16:18,550 --> 04:16:15,840
had it continues to coast up to an

6054
04:16:21,189 --> 04:16:18,560
apogee before it begins to descend back

6055
04:16:22,710 --> 04:16:21,199
into earth's atmosphere

6056
04:16:24,469 --> 04:16:22,720
now as we watch maybe we'll see the

6057
04:16:26,229 --> 04:16:24,479
lights of florida or the eastern

6058
04:16:29,429 --> 04:16:26,239
seaboard in the background but otherwise

6059
04:16:31,830 --> 04:16:29,439
there's not going to be much to see

6060
04:16:33,750 --> 04:16:31,840
on the right hand side dragon spacex

6061
04:16:36,389 --> 04:16:33,760
trajectory nominal

6062
04:16:37,510 --> 04:16:36,399
you can hear the call out trajectory is

6063
04:16:42,070 --> 04:16:37,520

nominal

6064

04:16:44,710 --> 04:16:42,080

and we've heard call out bermuda that

6065

04:16:47,189 --> 04:16:44,720

means bermuda ground station

6066

04:16:48,389 --> 04:16:47,199

has the signals from the second stage of

6067

04:16:54,389 --> 04:16:48,399

the dragon

6068

04:17:00,950 --> 04:16:57,110

we're still continuing as stage two

6069

04:17:04,790 --> 04:17:00,960

burns to listen for those abort zones we

6070

04:17:12,469 --> 04:17:04,800

are now in 2a through 2e to echo

6071

04:17:15,510 --> 04:17:14,229

right now you can see the second stage

6072

04:17:17,510 --> 04:17:15,520

engine

6073

04:17:18,790 --> 04:17:17,520

glowing with the standard

6074

04:17:21,030 --> 04:17:18,800

red

6075

04:17:22,790 --> 04:17:21,040

that we have come to see over all these

6076
04:17:23,590 --> 04:17:22,800
missions indicates everything's looking

6077
04:17:25,830 --> 04:17:23,600
good

6078
04:17:28,469 --> 04:17:25,840
power on the mvacd engine continues to

6079
04:17:31,510 --> 04:17:28,479
run at 220 000 pounds of thrust in the

6080
04:17:35,510 --> 04:17:31,520
vacuum of outer space dragon spacex

6081
04:17:40,870 --> 04:17:38,630
and trajectory nominal

6082
04:17:42,229 --> 04:17:40,880
and we hear the reply from the crew

6083
04:17:43,429 --> 04:17:42,239
acknowledging we have a nominal

6084
04:17:45,349 --> 04:17:43,439
trajectory

6085
04:17:48,550 --> 04:17:45,359
dragon mated to the falcon 9 second

6086
04:17:50,149 --> 04:17:48,560
stage heading into the low earth orbit

6087
04:17:51,910 --> 04:17:50,159
where dragon will then separate and

6088
04:17:55,910 --> 04:17:51,920

begin its trip the rest of the way to

6089

04:18:00,149 --> 04:17:58,630

we'll be looking for seco second stage

6090

04:18:02,710 --> 04:18:00,159

engine cut off coming up at eight

6091

04:18:05,269 --> 04:18:02,720

minutes and 48 seconds after launch

6092

04:18:06,469 --> 04:18:05,279

today so about three and a half minutes

6093

04:18:08,550 --> 04:18:06,479

from now

6094

04:18:11,229 --> 04:18:08,560

dragon and falcon 9.

6095

04:18:15,750 --> 04:18:11,239

second stage currently flying

6096

04:18:21,750 --> 04:18:18,710

now currently the first stage has begun

6097

04:18:23,670 --> 04:18:21,760

its descent it is through apogee it's

6098

04:18:25,750 --> 04:18:23,680

beginning to come back down

6099

04:18:27,429 --> 04:18:25,760

where it uh

6100

04:18:29,590 --> 04:18:27,439

coming up in another couple of minutes

6101
04:18:31,510 --> 04:18:29,600
we will have the entry burn where we

6102
04:18:35,990 --> 04:18:31,520
begin to slow down the first day

6103
04:18:39,990 --> 04:18:38,309
copy nominal trajectory

6104
04:18:44,309 --> 04:18:40,000
another call out another nominal

6105
04:18:49,429 --> 04:18:45,990
that voice you're hearing on board

6106
04:18:51,429 --> 04:18:49,439
dragon that's commander mike hopkins

6107
04:18:53,510 --> 04:18:51,439
speaking for our four-person crew as

6108
04:18:58,070 --> 04:18:53,520
they continue their journey now six

6109
04:18:58,080 --> 04:19:04,469
trajectory still nominal

6110
04:19:10,309 --> 04:19:06,710
and Leah you can see on the indicator

6111
04:19:12,630 --> 04:19:10,319
altitude 201 kilometers uh we're now

6112
04:19:15,510 --> 04:19:12,640
beginning to essentially level out and

6113
04:19:23,269 --> 04:19:15,520

pick up velocity to get us into low

6114

04:19:27,830 --> 04:19:25,349

we're a little under one minute from the

6115

04:19:29,510 --> 04:19:27,840

ignition for the entry burn on first

6116

04:19:32,469 --> 04:19:29,520

stage

6117

04:19:37,750 --> 04:19:32,479

and we're about two minutes away spacex

6118

04:19:37,760 --> 04:19:42,389

copy nominal trajectory

6119

04:19:46,790 --> 04:19:44,469

great news now seven minutes after

6120

04:19:49,030 --> 04:19:46,800

launch second stage engine continues to

6121

04:19:50,870 --> 04:19:49,040

burn everything looking good

6122

04:19:52,790 --> 04:19:50,880

and we'll see that continue to burn for

6123

04:19:57,110 --> 04:19:52,800

another one minute

6124

04:20:03,990 --> 04:19:59,750

right now on stage two

6125

04:20:08,550 --> 04:20:05,670

a little more than two and a half g's of

6126
04:20:20,630 --> 04:20:10,790
first stage preparing to ignite for

6127
04:20:26,309 --> 04:20:23,590
and we've got ignition of the entry burn

6128
04:20:27,750 --> 04:20:26,319
center engine followed by the other two

6129
04:20:29,670 --> 04:20:27,760
restart engines

6130
04:20:32,149 --> 04:20:29,680
first stage now getting ready to

6131
04:20:34,710 --> 04:20:32,159
re-enter the earth's atmosphere this is

6132
04:20:37,030 --> 04:20:34,720
about a 29 second burn and it's designed

6133
04:20:39,110 --> 04:20:37,040
to slow the vehicle way down

6134
04:20:40,790 --> 04:20:39,120
we're going to shed about 70 percent of

6135
04:20:43,510 --> 04:20:40,800
the velocity of that dropping first

6136
04:20:46,550 --> 04:20:43,520
stage by the time this landing burn

6137
04:20:50,710 --> 04:20:48,389
i should say by the time the entry burn

6138
04:20:53,510 --> 04:20:50,720

completes which is now over

6139

04:20:55,349 --> 04:20:53,520

first stage on target for the drone ship

6140

04:20:58,229 --> 04:20:55,359

in the atlantic ocean

6141

04:21:00,550 --> 04:20:58,239

meanwhile we're watching second stage

6142

04:21:02,710 --> 04:21:00,560

getting close to getting into orbit

6143

04:21:06,830 --> 04:21:02,720

that's right we've got about 30 seconds

6144

04:21:12,070 --> 04:21:09,670

guidance now just about 20 seconds more

6145

04:21:15,349 --> 04:21:12,080

of stage two continuing to burn until we

6146

04:21:17,269 --> 04:21:15,359

see second stage engine cutoff or seco

6147

04:21:21,269 --> 04:21:17,279

will coast for a few minutes afterward

6148

04:21:25,590 --> 04:21:23,030

there's that call for shannon that's

6149

04:21:28,149 --> 04:21:25,600

shannon ireland an abort zone but it

6150

04:21:41,910 --> 04:21:28,159

looks like we continue smoothly to orbit

6151
04:21:45,120 --> 04:21:43,510
and we've got shutdown of the second

6152
04:21:49,349 --> 04:21:45,130
stage engine on

6153
04:21:53,830 --> 04:21:49,359
[Applause]

6154
04:21:57,990 --> 04:21:55,590
launch escape system is disarmed and

6155
04:22:01,670 --> 04:21:58,000
spacex copies and leah the words we like

6156
04:22:03,429 --> 04:22:01,680
to hear a nominal orbit insertion

6157
04:22:06,550 --> 04:22:03,439
that's right john nominal orbit

6158
04:22:17,670 --> 04:22:06,560
insertion as we mentioned stage two oh

6159
04:22:22,790 --> 04:22:20,070
and i believe we've had a touchdown on

6160
04:22:25,030 --> 04:22:22,800
the drone ship we've got stage one has

6161
04:22:26,790 --> 04:22:25,040
touched down on the drone ship

6162
04:22:29,189 --> 04:22:26,800
in the atlantic ocean

6163
04:22:31,990 --> 04:22:29,199

but now the more important news second

6164

04:22:33,910 --> 04:22:32,000

stage is in orbit right where we want

6165

04:22:35,990 --> 04:22:33,920

right on time and we're getting ready

6166

04:22:37,670 --> 04:22:36,000

for our next major activity

6167

04:22:42,870 --> 04:22:37,680

which will be dragon spacecraft

6168

04:22:48,309 --> 04:22:45,429

currently on the second stage

6169

04:22:49,990 --> 04:22:48,319

we are essentially venting pressure

6170

04:22:51,670 --> 04:22:50,000

purging the engine out making sure

6171

04:22:55,269 --> 04:22:51,680

everything is quiet

6172

04:23:01,110 --> 04:22:57,830

take a look that's inside crew dragon

6173

04:23:03,189 --> 04:23:01,120

right now our crew one crew now coasting

6174

04:23:05,510 --> 04:23:03,199

in low earth orbit still attached to

6175

04:23:07,510 --> 04:23:05,520

that second stage in just a couple of

6176
04:23:09,429 --> 04:23:07,520
minutes we should see that second stage

6177
04:23:13,750 --> 04:23:09,439
separating crew dragon will be flying

6178
04:23:20,149 --> 04:23:16,229
leah the mission timer shows 90 seconds

6179
04:23:41,670 --> 04:23:23,910
currently dragon is flying at 27 000

6180
04:23:45,990 --> 04:23:44,229
and we're t plus 11 minutes since

6181
04:23:48,229 --> 04:23:46,000
liftoff today

6182
04:23:50,070 --> 04:23:48,239
waiting on that second stage separation

6183
04:23:52,389 --> 04:23:50,080
but as you can see our astronauts from

6184
04:23:53,349 --> 04:23:52,399
left to right shannon walker victor

6185
04:23:56,630 --> 04:23:53,359
glover

6186
04:23:58,389 --> 04:23:56,640
mike hopkins and suicina gucci

6187
04:24:00,950 --> 04:23:58,399
now on their way to the international

6188
04:24:01,830 --> 04:24:00,960

space station first trip to space for

6189

04:24:06,710 --> 04:24:01,840

victory

6190

04:24:10,309 --> 04:24:08,870

and that call out acquisition of signal

6191

04:24:12,710 --> 04:24:10,319

in newfoundland that means the new

6192

04:24:18,630 --> 04:24:12,720

finland ground station is now receiving

6193

04:24:22,389 --> 04:24:20,229

this view inside mission control

6194

04:24:23,670 --> 04:24:22,399

hawthorne teams continuing to monitor

6195

04:24:25,670 --> 04:24:23,680

the vehicle

6196

04:24:34,710 --> 04:24:25,680

now traveling at almost twenty seven

6197

04:24:34,720 --> 04:24:52,630

ten seconds dragon separation

6198

04:24:58,229 --> 04:24:55,750

and separation confirmed

6199

04:25:05,510 --> 04:24:58,239

you can see that second stage departing

6200

04:25:10,149 --> 04:25:08,550

now 12 minutes 25 seconds into today's

6201
04:25:12,309 --> 04:25:10,159
flight our next thing we'll be looking

6202
04:25:14,389 --> 04:25:12,319
for is nose cone deploy our hooks will

6203
04:25:15,670 --> 04:25:14,399
start to open on the nose cone and

6204
04:25:44,950 --> 04:25:15,680
reveal those

6205
04:25:48,710 --> 04:25:46,950
thirteen minutes into today's mission

6206
04:25:51,189 --> 04:25:48,720
the view on the right hand side of your

6207
04:25:53,830 --> 04:25:51,199
screen coming from crew dragon we had

6208
04:25:55,990 --> 04:25:53,840
that short look at the second stage as

6209
04:26:14,870 --> 04:25:56,000
it departed that second stage will burn

6210
04:26:19,349 --> 04:26:17,269
dragon spacex we see nominal service

6211
04:26:24,469 --> 04:26:19,359
section draco checkouts and the unit of

6212
04:26:31,590 --> 04:26:27,189
and spacex is dragon we copy all we see

6213
04:26:35,510 --> 04:26:33,510

confirmation from teams on the ground

6214

04:26:37,910 --> 04:26:35,520

and the crew you can see them monitoring

6215

04:26:40,070 --> 04:26:37,920

those three display panels monitoring

6216

04:26:42,309 --> 04:26:40,080

their journey to the international space

6217

04:27:04,070 --> 04:26:42,319

station and where they are in the world

6218

04:27:08,229 --> 04:27:05,510

well we're

6219

04:27:09,590 --> 04:27:08,239

in 14 minutes 25 seconds since it was a

6220

04:27:12,550 --> 04:27:09,600

great liftoff

6221

04:27:15,269 --> 04:27:12,560

everything happened we had a normal a

6222

04:27:17,189 --> 04:27:15,279

normal insertion into low earth orbit

6223

04:27:20,309 --> 04:27:17,199

you saw dragons separate

6224

04:27:22,070 --> 04:27:20,319

we got the draco checkouts were good

6225

04:27:25,269 --> 04:27:22,080

and right now we're hearing the nose

6226
04:27:27,990 --> 04:27:25,279
cone hooks are opening up everything is

6227
04:27:30,229 --> 04:27:28,000
happening right per the procedure

6228
04:27:32,870 --> 04:27:30,239
and we've got crew on successfully on

6229
04:27:35,429 --> 04:27:32,880
orbit so with that let's head over to

6230
04:27:37,429 --> 04:27:35,439
our counterparts at kennedy space center

6231
04:27:40,070 --> 04:27:37,439
marie how was that launch for you all

6232
04:27:42,630 --> 04:27:40,080
there on the ground

6233
04:27:44,630 --> 04:27:42,640
my gosh john it just it just took our

6234
04:27:46,950 --> 04:27:44,640
breath away i mean we could just turn

6235
04:27:48,950 --> 04:27:46,960
right around in our seats and watch uh

6236
04:27:50,790 --> 04:27:48,960
we got up away from the desk to get a

6237
04:27:53,590 --> 04:27:50,800
better look and then we actually could

6238
04:27:56,550 --> 04:27:53,600

see the booster uh coming back down yeah

6239

04:27:58,070 --> 04:27:56,560

that was outstanding outstanding and

6240

04:27:59,830 --> 04:27:58,080

i don't even know what to say

6241

04:28:01,990 --> 04:27:59,840

high five we're like high fiving through

6242

04:28:03,750 --> 04:28:02,000

the shootout

6243

04:28:05,830 --> 04:28:03,760

my husband texted me a picture of my

6244

04:28:09,910 --> 04:28:05,840

daughter watching liftoff it was just

6245

04:28:11,910 --> 04:28:09,920

i'm i'm emotional um just yeah

6246

04:28:15,429 --> 04:28:11,920

seeing that and we and when on the first

6247

04:28:17,349 --> 04:28:15,439

attempt how often does that happen

6248

04:28:19,510 --> 04:28:17,359

very happy uh you know it has been a

6249

04:28:21,830 --> 04:28:19,520

long day but the just to be able to

6250

04:28:24,630 --> 04:28:21,840

stand there and actually and feel the

6251
04:28:27,030 --> 04:28:24,640
rocket pounding and the air around you

6252
04:28:28,630 --> 04:28:27,040
was just it was just incredible and then

6253
04:28:31,030 --> 04:28:28,640
looking at the light too long i couldn't

6254
04:28:33,030 --> 04:28:31,040
see the m vac ignition so

6255
04:28:34,950 --> 04:28:33,040
i still have spots in my eyes

6256
04:28:36,870 --> 04:28:34,960
and then the views inside the

6257
04:28:38,229 --> 04:28:36,880
the capsule two with the four of them

6258
04:28:39,750 --> 04:28:38,239
you know looking kind of mellow but you

6259
04:28:41,269 --> 04:28:39,760
can see victor's kind of letting his

6260
04:28:43,030 --> 04:28:41,279
arms do a little bit of the floating

6261
04:28:45,429 --> 04:28:43,040
thing i bet he cannot wait to get out of

6262
04:28:47,189 --> 04:28:45,439
his seat uh yeah well

6263
04:28:49,670 --> 04:28:47,199

he's gonna get a chance to win here

6264

04:28:51,670 --> 04:28:49,680

shortly so he's officially on his way on

6265

04:28:55,189 --> 04:28:51,680

his first space flight

6266

04:28:57,429 --> 04:28:55,199

so victor mike shannon and suici are now

6267

04:28:59,750 --> 04:28:57,439

on course to arrive at the international

6268

04:29:03,590 --> 04:28:59,760

space station just tomorrow monday

6269

04:29:05,670 --> 04:29:03,600

november 16th around 11 pm eastern time

6270

04:29:07,830 --> 04:29:05,680

and we're going to stay live on air for

6271

04:29:10,550 --> 04:29:07,840

continuous live coverage along their

6272

04:29:12,389 --> 04:29:10,560

entire ride to station though our

6273

04:29:14,309 --> 04:29:12,399

coverage here at kennedy space center

6274

04:29:16,070 --> 04:29:14,319

will conclude we're going to turn it

6275

04:29:17,830 --> 04:29:16,080

over to the teams in hawthorne and

6276

04:29:20,469 --> 04:29:17,840

houston to take us through the next

6277

04:29:22,630 --> 04:29:20,479

phases of the crew one mission all the

6278

04:29:24,950 --> 04:29:22,640

way through hatch opening and a welcome

6279

04:29:28,149 --> 04:29:24,960

ceremony for the crew now for those of

6280

04:29:29,830 --> 04:29:28,159

you watching online uh via youtube take

6281

04:29:32,630 --> 04:29:29,840

a look at the description below the

6282

04:29:35,030 --> 04:29:32,640

video there you'll find the new link for

6283

04:29:37,030 --> 04:29:35,040

our crew one rendezvous phase and we'll

6284

04:29:39,110 --> 04:29:37,040

be continuing live coverage at that new

6285

04:29:42,070 --> 04:29:39,120

location shortly but if you're watching

6286

04:29:44,070 --> 04:29:42,080

on nasa tv like my parents uh you won't

6287

04:29:45,030 --> 04:29:44,080

notice a thing and your coverage will

6288

04:29:46,950 --> 04:29:45,040

continue

6289

04:29:48,630 --> 04:29:46,960

that's right and as you follow along uh

6290

04:29:50,950 --> 04:29:48,640

we also invite you to tune into a

6291

04:29:53,110 --> 04:29:50,960

post-launch news conference at nine

6292

04:29:55,830 --> 04:29:53,120

o'clock p.m eastern time right here on

6293

04:29:58,630 --> 04:29:55,840

nasa tv uh where nasa and spacex will

6294

04:30:00,630 --> 04:29:58,640

take questions live and in addition to

6295

04:30:04,149 --> 04:30:00,640

nasa tv of course you can always follow

6296

04:30:06,309 --> 04:30:04,159

along on twitter at nasa and nasa.gov

6297

04:30:08,389 --> 04:30:06,319

for continuous mission updates

6298

04:30:10,710 --> 04:30:08,399

we thank you all so much for watching uh

6299

04:30:13,349 --> 04:30:10,720

to all of our commentators nicole

6300

04:30:15,510 --> 04:30:13,359

special thanks to you pleasure ladies

6301
04:30:17,670 --> 04:30:15,520
let's do it again oh please yes well

6302
04:30:19,510 --> 04:30:17,680
we'd love to have you back

6303
04:30:26,469 --> 04:30:19,520
here now are some highlights from the

6304
04:30:31,830 --> 04:30:29,750
first live look inside the suit up room

6305
04:30:34,309 --> 04:30:31,840
crew dragon commander mike hopkins was

6306
04:30:36,389 --> 04:30:34,319
born in lebanon missouri

6307
04:30:39,189 --> 04:30:36,399
pilot victor glover is a native of

6308
04:30:41,670 --> 04:30:39,199
pomona california

6309
04:30:43,910 --> 04:30:41,680
and mission specialist shannon walker is

6310
04:30:45,990 --> 04:30:43,920
from houston texas

6311
04:30:50,870 --> 04:30:46,000
mission specialist suichi naguchi is

6312
04:30:50,880 --> 04:30:55,189
and here they come walking down the

6313
04:30:58,149 --> 04:30:57,110

i'm quite hallway there yeah so cool

6314

04:30:59,429 --> 04:30:58,159

they're looking for people they're

6315

04:31:01,269 --> 04:30:59,439

looking for the people that have helped

6316

04:31:02,510 --> 04:31:01,279

them all along the way too and want to

6317

04:31:05,750 --> 04:31:02,520

make eye contact

6318

04:31:08,469 --> 04:31:05,760

[Music]

6319

04:31:10,229 --> 04:31:08,479

here they come the crew one astronauts

6320

04:31:12,469 --> 04:31:10,239

now beginning their journey to the

6321

04:31:14,309 --> 04:31:12,479

launch pad ahead of this historic

6322

04:31:16,469 --> 04:31:14,319

mission to the international space

6323

04:31:18,070 --> 04:31:16,479

station

6324

04:31:20,070 --> 04:31:18,080

this is chorus

6325

04:31:23,050 --> 04:31:20,080

for timeline the crew is departing for

6326
04:31:26,070 --> 04:31:23,060
the pad on schedule

6327
04:31:26,950 --> 04:31:26,080
[Music]

6328
04:31:29,750 --> 04:31:26,960
this is

6329
04:31:33,830 --> 04:31:29,760
chase carr so you can be along with the

6330
04:31:36,870 --> 04:31:35,349
it's kind of like the pre-flight right

6331
04:31:39,030 --> 04:31:36,880
the walk around your vehicle before you

6332
04:31:40,630 --> 04:31:39,040
get in and fly

6333
04:31:42,710 --> 04:31:40,640
i love this shot

6334
04:31:46,550 --> 04:31:42,720
you know when this was being designed it

6335
04:31:47,990 --> 04:31:46,560
was definitely a forward thinking design

6336
04:31:49,830 --> 04:31:48,000
and you can see

6337
04:31:53,590 --> 04:31:49,840
on your screen the crew beginning the

6338
04:31:55,030 --> 04:31:53,600

ingress process already

6339

04:31:56,870 --> 04:31:55,040

[Music]

6340

04:31:59,510 --> 04:31:56,880

they are checking to make sure the suits

6341

04:32:05,990 --> 04:31:59,520

are ready they're helping them connect

6342

04:32:06,000 --> 04:32:11,060

dragon spacex catches

6343

04:32:11,070 --> 04:32:18,830

[Music]

6344

04:32:18,840 --> 04:32:27,140

clues resilience rises

6345

04:32:38,630 --> 04:32:35,140

[Music]

6346

04:32:38,640 --> 04:32:41,910

is

6347

04:35:01,189 --> 04:34:57,970

[Music]

6348

04:35:01,199 --> 04:35:05,470

started