1
00:00:01,520 --> 00:00:07,210
foreign

2
00:00:07,220 --> 00:00:43,990
[Music]

3
00:00:49,190 --> 00:00:46,549
your screens it's blue skies over

4
00:00:51,350 --> 00:00:49,200
kennedy space center pad 39a

5
00:00:53,910 --> 00:00:51,360
weather's looking good both in the local

6
00:00:55,990 --> 00:00:53,920
area as well as when we head northeast

7
00:00:58,150 --> 00:00:56,000
towards the space station the ascent

8
00:01:00,229 --> 00:00:58,160
trajectory looks good so t minus one

9
00:01:53,990 --> 00:01:00,239
hour and two minutes all systems are

10
00:01:58,389 --> 00:01:55,990
all right well you're looking at a live

11
00:02:00,550 --> 00:01:58,399
view of the falcon 9 rocket and dragon

12
00:02:02,149 --> 00:02:00,560
spacecraft that is in the final stages

13
00:02:04,709 --> 00:02:02,159

of preparation to launch the world's

14
00:02:07,270 --> 00:02:04,719
first all-private astronaut mission the

15
00:02:09,029 --> 00:02:07,280
international space station in just over

16
00:02:10,869 --> 00:02:09,039
one hour from now

17
00:02:12,630 --> 00:02:10,879
today's launch marks the next step in

18
00:02:14,710 --> 00:02:12,640
evolution of the human space flight

19
00:02:16,390 --> 00:02:14,720
story this is the first of a number of

20
00:02:18,710 --> 00:02:16,400
planned private astronaut missions or

21
00:02:20,390 --> 00:02:18,720
pams by axiom space to the international

22
00:02:22,070 --> 00:02:20,400
space station and it represents the

23
00:02:23,750 --> 00:02:22,080
culmination of years of hard work

24
00:02:25,430 --> 00:02:23,760
between both government and private

25
00:02:27,910 --> 00:02:25,440
entities to open up the doors to low

26
00:02:29,510 --> 00:02:27,920
earth orbit

27
00:02:31,670 --> 00:02:29,520
my name is john rackham and i am the

28
00:02:33,430 --> 00:02:31,680
crew systems deputy manager at axiom

29
00:02:35,270 --> 00:02:33,440
space based out of houston texas for

30
00:02:37,589 --> 00:02:35,280
awareness we are cycling orbit tank

31
00:02:46,869 --> 00:02:37,599
isolation valves to equalize low flow

32
00:02:49,990 --> 00:02:48,309
all right just some back and forth there

33
00:02:51,509 --> 00:02:50,000
between the crew

34
00:02:53,350 --> 00:02:51,519
and the corps

35
00:02:55,430 --> 00:02:53,360
my name is kate tyson i'm the quality

36
00:02:57,750 --> 00:02:55,440
systems engineering manager here at

37
00:02:59,030 --> 00:02:57,760
spacex headquarters in hawthorne

38
00:03:01,430 --> 00:02:59,040

california

39
00:03:03,830 --> 00:03:01,440
with our coverage now expanding to nasa

40
00:03:06,390 --> 00:03:03,840
television i'd like to welcome friend

41
00:03:07,910 --> 00:03:06,400
from nasa dan hewitt uh coming to us

42
00:03:12,149 --> 00:03:07,920
from johnson space center over at

43
00:03:16,390 --> 00:03:14,869
hey kate great to see you and the johns

44
00:03:19,030 --> 00:03:16,400
we're excited to join and get this

45
00:03:21,670 --> 00:03:19,040
milestone mission off the ground

46
00:03:25,509 --> 00:03:21,680
liftoff time is still holding uh let's

47
00:03:27,350 --> 00:03:25,519
see for 11 17 a.m eastern time

48
00:03:29,110 --> 00:03:27,360
and currently tracking no issues with

49
00:03:31,509 --> 00:03:29,120
falcon 9 or dragon

50
00:03:33,990 --> 00:03:31,519
the range remains green and as you can

51
00:03:35,350 --> 00:03:34,000
see there with that shot the weather is

52
00:03:37,270 --> 00:03:35,360
definitely cooperating that's a

53
00:03:38,070 --> 00:03:37,280
beautiful day for launch what a gorgeous

54
00:03:40,470 --> 00:03:38,080
shot

55
00:03:43,190 --> 00:03:40,480
now over the last three hours axiom

56
00:03:46,390 --> 00:03:43,200
astronauts michael lopez alegria larry

57
00:03:49,190 --> 00:03:46,400
connor mark pathy and eton stibba donned

58
00:03:51,509 --> 00:03:49,200
their spacex suits in our new suit-up

59
00:03:54,390 --> 00:03:51,519
room uh and were then transported to the

60
00:03:56,390 --> 00:03:54,400
pad where our crew entered the spacex

61
00:03:58,949 --> 00:03:56,400
dragon dragon spacecraft that you see

62
00:04:00,229 --> 00:03:58,959
there live on your screen

63
00:04:02,229 --> 00:04:00,239

right and since arriving at the

64
00:04:03,990 --> 00:04:02,239
spacecraft our crews were helped by the

65
00:04:06,149 --> 00:04:04,000
closeout engineers or advanced team to

66
00:04:07,670 --> 00:04:06,159
get into their seats attach their suits

67
00:04:09,589 --> 00:04:07,680
to special umbilicals that provide

68
00:04:11,509 --> 00:04:09,599
breathing air and a communication link

69
00:04:13,110 --> 00:04:11,519
to dragon systems at that point they

70
00:04:15,110 --> 00:04:13,120
conducted successful leak checks and

71
00:04:16,550 --> 00:04:15,120
communication checks with the core here

72
00:04:18,069 --> 00:04:16,560
in hawthorne which is the person

73
00:04:19,990 --> 00:04:18,079
dedicated to speaking directly to the

74
00:04:22,629 --> 00:04:20,000
crew throughout the mission

75
00:04:24,950 --> 00:04:22,639
the closeout team then sealed the hatch

76
00:04:26,629 --> 00:04:24,960
which also gets its own leak check

77
00:04:28,550 --> 00:04:26,639
unfortunately that leak check didn't

78
00:04:30,790 --> 00:04:28,560
pass the first time so we opened it back

79
00:04:33,030 --> 00:04:30,800
up wiped it down and performed that link

80
00:04:35,830 --> 00:04:33,040
check again uh and that second one was

81
00:04:38,230 --> 00:04:35,840
good so that league check is closed

82
00:04:40,629 --> 00:04:38,240
excuse me that side hatch is now closed

83
00:04:42,950 --> 00:04:40,639
uh moments from now the closeout team

84
00:04:44,870 --> 00:04:42,960
will depart the pad while weather

85
00:04:47,350 --> 00:04:44,880
operators kick off their final check on

86
00:04:50,070 --> 00:04:47,360
wind speeds at the pad before the final

87
00:04:52,629 --> 00:04:50,080
go no go for launch but before we get to

88
00:04:54,310 --> 00:04:52,639

that final go no go the spacex team will

89
00:04:56,390 --> 00:04:54,320
do an internal poll making sure

90
00:04:59,189 --> 00:04:56,400
conditions are ready with falcon 9

91
00:05:00,310 --> 00:04:59,199
dragon the crew the range and the

92
00:05:03,270 --> 00:05:00,320
weather

93
00:05:05,909 --> 00:05:03,280
let's pause now and watch with that

94
00:05:07,670 --> 00:05:05,919
watch the closeout crew as they've

95
00:05:45,749 --> 00:05:07,680
finalized their preparations there on

96
00:05:49,189 --> 00:05:47,270
as you can see the crew there on the

97
00:05:52,230 --> 00:05:49,199
right hand side of your screen

98
00:05:53,590 --> 00:05:52,240
continuing to wait another 57 minutes

99
00:05:56,309 --> 00:05:53,600
until

100
00:05:57,830 --> 00:05:56,319
we lift off from pad 39a which you can

101
00:05:58,950 --> 00:05:57,840
see there on the left hand side of your

102
00:06:01,590 --> 00:05:58,960
screen

103
00:06:05,909 --> 00:06:01,600
we can confirm that the closeout team

104
00:06:08,950 --> 00:06:05,919
has departed uh the the access arm there

105
00:06:10,710 --> 00:06:08,960
so that's good news now as the countdown

106
00:06:14,550 --> 00:06:10,720
continues let's take a moment to get

107
00:06:16,469 --> 00:06:14,560
reacquainted with our crew today

108
00:06:18,629 --> 00:06:16,479
so the ax1 mission is commanded by

109
00:06:20,870 --> 00:06:18,639
retired nasa astronaut michael lopez

110
00:06:22,790 --> 00:06:20,880
alegria a spanish american who was born

111
00:06:25,029 --> 00:06:22,800
in madrid spain and is also called

112
00:06:27,430 --> 00:06:25,039
mission viejo california as well as

113
00:06:29,510 --> 00:06:27,440

boston massachusetts home michael is a

114
00:06:31,270 --> 00:06:29,520
u.s navy captain and has flown three

115
00:06:32,950 --> 00:06:31,280
times aboard the space shuttle and once

116
00:06:34,950 --> 00:06:32,960
aboard soyuz so he has quite a bit of

117
00:06:37,430 --> 00:06:34,960
flight pedigree he has conducted 10

118
00:06:39,510 --> 00:06:37,440
spacewalks in his career accumulating 67

119
00:06:40,550 --> 00:06:39,520
hours and 40 minutes total in the vacuum

120
00:06:42,870 --> 00:06:40,560
of space

121
00:06:45,110 --> 00:06:42,880
both of these landmarks are nasa records

122
00:06:47,670 --> 00:06:45,120
in 2021 he was inducted into the nas

123
00:06:49,589 --> 00:06:47,680
into the astronaut hall of fame

124
00:06:50,870 --> 00:06:49,599
you might hear us call him mla a few

125
00:06:54,070 --> 00:06:50,880
times around here so if you like

126
00:06:57,189 --> 00:06:54,080
acronyms uh here's a new one for you

127
00:06:59,909 --> 00:06:57,199
the pilot for ax1 is larry connor from

128
00:07:03,430 --> 00:06:59,919
dayton ohio larry is an entrepreneur

129
00:07:05,350 --> 00:07:03,440
non-profit activist investor he's won

130
00:07:08,230 --> 00:07:05,360
excuse me he's won aerobatic at flying

131
00:07:10,550 --> 00:07:08,240
competitions and has summited both mount

132
00:07:12,550 --> 00:07:10,560
kilimanjaro and mount rainier

133
00:07:14,870 --> 00:07:12,560
through ax1 he'll become the first

134
00:07:16,629 --> 00:07:14,880
private pilot to reach the iss

135
00:07:18,230 --> 00:07:16,639
he'll also become the first human to

136
00:07:20,790 --> 00:07:18,240
reach both

137
00:07:25,830 --> 00:07:20,800
section six of four decimal 100 when

138
00:07:29,430 --> 00:07:27,530

that's in workspace

139
00:07:31,670 --> 00:07:29,440
[Applause]

140
00:07:34,150 --> 00:07:31,680
all right so just some uh back and forth

141
00:07:36,710 --> 00:07:34,160
with spacex core arthur burial and the

142
00:07:38,309 --> 00:07:36,720
crew um continuing to work through our

143
00:07:39,990 --> 00:07:38,319
procedures um

144
00:07:41,830 --> 00:07:40,000
ultimately next check will be to make

145
00:07:45,029 --> 00:07:41,840
sure that the crew inside dragon

146
00:07:48,550 --> 00:07:45,039
endeavor are go for launch

147
00:07:50,469 --> 00:07:48,560
back to our pilot larry connor as i said

148
00:07:53,589 --> 00:07:50,479
he will also become the first human to

149
00:07:55,589 --> 00:07:53,599
reach both the deepest ocean depths and

150
00:07:58,629 --> 00:07:55,599
enter the bounds of outer space within

151
00:08:00,550 --> 00:07:58,639
one year that's that's just crazy to me

152
00:08:02,790 --> 00:08:00,560
larry has been actively involved with

153
00:08:04,710 --> 00:08:02,800
the mayo clinic and the cleveland clinic

154
00:08:07,510 --> 00:08:04,720
for many years helping to understand the

155
00:08:19,990 --> 00:08:07,520
effects of aging this mission will add a

156
00:08:25,990 --> 00:08:23,270
all right so that is fantastic news um

157
00:08:29,110 --> 00:08:26,000
that's basically four thumbs up inside

158
00:08:30,869 --> 00:08:29,120
uh crew dragon right now um yeah so

159
00:08:32,630 --> 00:08:30,879
really good news there yeah so

160
00:08:34,870 --> 00:08:32,640
continuing out our crew moving on to

161
00:08:36,949 --> 00:08:34,880
mission specialist one eitan stiva will

162
00:08:39,350 --> 00:08:36,959
become the second israeli ever to fly to

163
00:08:40,790 --> 00:08:39,360

space in many ways today's mission is a

164
00:08:42,790 --> 00:08:40,800
return to flight for the nation of

165
00:08:44,389 --> 00:08:42,800
israel after the colombia tragedy in

166
00:08:46,230 --> 00:08:44,399
2003.

167
00:08:47,990 --> 00:08:46,240
eitan served for more than four decades

168
00:08:49,190 --> 00:08:48,000
as a fighter pilot in the israeli air

169
00:08:51,590 --> 00:08:49,200
force where he received the

170
00:08:53,750 --> 00:08:51,600
distinguished aviator medal and today he

171
00:08:54,949 --> 00:08:53,760
is an impact investor and philanthropist

172
00:08:56,870 --> 00:08:54,959
in collaboration with the ramon

173
00:08:58,389 --> 00:08:56,880
foundation the israel space agency and

174
00:09:00,630 --> 00:08:58,399
the ministry of innovation science and

175
00:09:02,470 --> 00:09:00,640
technology and the ministry of education

176
00:09:04,630 --> 00:09:02,480
steeple will fly to the iss under the

177
00:09:06,790 --> 00:09:04,640
rakia banner and the maxim there is no

178
00:09:08,710 --> 00:09:06,800
dream beyond reach during his time on

179
00:09:10,470 --> 00:09:08,720
the iss stable will facilitate

180
00:09:11,990 --> 00:09:10,480
scientific experiments educational

181
00:09:14,870 --> 00:09:12,000
outreach and one of my personal

182
00:09:17,590 --> 00:09:14,880
favorites artistic activities

183
00:09:19,590 --> 00:09:17,600
mark pathey is an entrepreneur investor

184
00:09:21,990 --> 00:09:19,600
and philanthropist as well as mission

185
00:09:23,110 --> 00:09:22,000
specialist number two on this ax-1

186
00:09:24,949 --> 00:09:23,120
mission

187
00:09:27,430 --> 00:09:24,959
pathy is currently the chief executive

188
00:09:29,509 --> 00:09:27,440

officer and chairman of montreal-based

189
00:09:31,509 --> 00:09:29,519
maverick a privately owned investment

190
00:09:34,949 --> 00:09:31,519
and financing company he founded that

191
00:09:36,790 --> 00:09:34,959
focuses on innovation and social impact

192
00:09:38,949 --> 00:09:36,800
as a strong believer in the importance

193
00:09:40,870 --> 00:09:38,959
of philanthropy pathy is a member of the

194
00:09:43,430 --> 00:09:40,880
boards and executive committees of the

195
00:09:45,590 --> 00:09:43,440
montreal children's hospital foundation

196
00:09:46,710 --> 00:09:45,600
dons larue and the pathy family

197
00:09:48,550 --> 00:09:46,720
foundation

198
00:09:51,030 --> 00:09:48,560
through the ax1 mission pathy will

199
00:09:53,269 --> 00:09:51,040
become canada's second private private

200
00:09:55,590 --> 00:09:53,279
astronaut in the 12th canadian to go to

201
00:09:57,350 --> 00:09:55,600
space

202
00:09:58,870 --> 00:09:57,360
all right well you've seen the vehicle

203
00:10:00,389 --> 00:09:58,880
you've met the crew you've heard some

204
00:10:02,230 --> 00:10:00,399
good calls on our way to launch and

205
00:10:04,310 --> 00:10:02,240
we're just within the hour so let's send

206
00:10:05,910 --> 00:10:04,320
you over now to nasa's johnson space

207
00:10:07,430 --> 00:10:05,920
center where dan hewitt is following a

208
00:10:11,509 --> 00:10:07,440
launch prep from mission control in

209
00:10:15,430 --> 00:10:13,670
hey thanks john and the team behind me

210
00:10:16,949 --> 00:10:15,440
flying the space station the crew on

211
00:10:19,190 --> 00:10:16,959
board they're ready to get this first

212
00:10:22,389 --> 00:10:19,200
private astronaut mission off the ground

213
00:10:24,230 --> 00:10:22,399

back in 2019 nasa took steps to open the

214
00:10:26,310 --> 00:10:24,240
station up for business issuing a

215
00:10:28,230 --> 00:10:26,320
directive to enable new commercial

216
00:10:30,470 --> 00:10:28,240
activity on board including private

217
00:10:32,870 --> 00:10:30,480
astronaut missions and all of this is

218
00:10:35,670 --> 00:10:32,880
done with the goal of building a robust

219
00:10:37,910 --> 00:10:35,680
economy in low earth orbit now why does

220
00:10:40,069 --> 00:10:37,920
nasa want to do that well we're very

221
00:10:41,670 --> 00:10:40,079
aware that there is untapped potential

222
00:10:44,550 --> 00:10:41,680
in that space just outside of our

223
00:10:47,190 --> 00:10:44,560
atmosphere and low earth orbit can be a

224
00:10:50,150 --> 00:10:47,200
first step towards unlocking limitless

225
00:10:55,750 --> 00:10:51,269
[Music]

226
00:10:55,760 --> 00:11:07,030
it's one small step

227
00:11:14,550 --> 00:11:10,949
cannot always be seized in a moment

228
00:11:17,910 --> 00:11:14,560
sometimes it requires the first step

229
00:11:20,470 --> 00:11:17,920
a step into the unknown

230
00:11:22,310 --> 00:11:20,480
not knowing the path but understanding

231
00:11:25,190 --> 00:11:22,320
the goal

232
00:11:27,350 --> 00:11:25,200
believing that the first step leads to

233
00:11:30,230 --> 00:11:27,360
greatness

234
00:11:34,060 --> 00:11:30,240
we've touched the sky

235
00:11:35,590 --> 00:11:34,070
believing it will lead to new worlds

236
00:11:37,829 --> 00:11:35,600
[Applause]

237
00:11:40,220 --> 00:11:37,839
we've left our home

238
00:11:41,750 --> 00:11:40,230

believing in a brighter future

239
00:11:44,550 --> 00:11:41,760
[Music]

240
00:11:44,940 --> 00:11:44,560
we've come together believing in shared

241
00:11:48,069 --> 00:11:44,950
goals

242
00:11:50,389 --> 00:11:48,079
[Music]

243
00:11:54,870 --> 00:11:50,399
we've stayed and learned believing in

244
00:11:58,550 --> 00:11:57,110
we take the first step time and time

245
00:12:02,870 --> 00:11:58,560
again

246
00:12:08,310 --> 00:12:06,069
and believe in its potential

247
00:12:10,310 --> 00:12:08,320
so we're expanding and enabling this

248
00:12:14,150 --> 00:12:10,320
step for others

249
00:12:21,269 --> 00:12:14,160
to push humanity further

250
00:12:27,269 --> 00:12:24,310
we'll always need this first step we're

251
00:12:39,350 --> 00:12:29,350
and now is the time

252
00:12:43,350 --> 00:12:41,590
and low earth orbit is that first step

253
00:12:46,230 --> 00:12:43,360
and for nasa we're in it for the long

254
00:12:47,829 --> 00:12:46,240
haul for the last more than 20 years

255
00:12:50,150 --> 00:12:47,839
we've shown that you can get incredible

256
00:12:52,310 --> 00:12:50,160
value from doing research and technology

257
00:12:53,990 --> 00:12:52,320
demonstrations in low-earth orbit on the

258
00:12:56,150 --> 00:12:54,000
station and along the way we've

259
00:12:58,470 --> 00:12:56,160
continually increased our work with

260
00:13:02,550 --> 00:12:58,480
commercial organizations flying research

261
00:13:05,030 --> 00:13:02,560
payloads entire facilities experiments

262
00:13:06,790 --> 00:13:05,040
and working with u.s companies to fly

263
00:13:08,550 --> 00:13:06,800

cargo and crew to the station the latter

264
00:13:10,310 --> 00:13:08,560
of those laying the groundwork for the

265
00:13:11,269 --> 00:13:10,320
mission we're seeing about the launch

266
00:13:13,190 --> 00:13:11,279
today

267
00:13:15,350 --> 00:13:13,200
and we're continuing to look ahead onto

268
00:13:17,990 --> 00:13:15,360
the horizon working with companies like

269
00:13:20,389 --> 00:13:18,000
axiom and others to get a jump start on

270
00:13:22,389 --> 00:13:20,399
developing new destinations in low earth

271
00:13:24,629 --> 00:13:22,399
orbit where future astronauts and not

272
00:13:26,949 --> 00:13:24,639
just those from nasa will be able to go

273
00:13:29,910 --> 00:13:26,959
and explore and do research just outside

274
00:13:32,870 --> 00:13:29,920
of our atmosphere so we've got our sites

275
00:13:35,910 --> 00:13:32,880
on the horizon and our ultimate goal is

276
00:13:37,990 --> 00:13:35,920
for nasa to become one of many customers

277
00:13:40,310 --> 00:13:38,000
in this new economy in low earth orbit

278
00:13:43,350 --> 00:13:40,320
as we set our sights on deep space

279
00:13:45,990 --> 00:13:43,360
exploration heading back to the moon and

280
00:13:48,150 --> 00:13:46,000
beyond under the artemis program now the

281
00:13:49,990 --> 00:13:48,160
ax1 mission is a good example of the

282
00:13:51,990 --> 00:13:50,000
public and private partnerships that are

283
00:13:54,550 --> 00:13:52,000
going to make that future vision a

284
00:13:56,629 --> 00:13:54,560
reality but to take a little bit deeper

285
00:13:58,870 --> 00:13:56,639
of a dive let's jump over now to my

286
00:14:00,870 --> 00:13:58,880
colleague megan cruz who's standing by

287
00:14:03,030 --> 00:14:00,880
at kennedy space center with nasa

288
00:14:04,470 --> 00:14:03,040

administrator bill nelson over to you

289
00:14:06,150 --> 00:14:04,480
megan

290
00:14:07,910 --> 00:14:06,160
good morning to you dan and good morning

291
00:14:10,310 --> 00:14:07,920
nasa administrator bill nelson great to

292
00:14:11,750 --> 00:14:10,320
have you here as always good morning

293
00:14:13,670 --> 00:14:11,760
well i wanted to talk to you because we

294
00:14:16,230 --> 00:14:13,680
know that one of nasa's goals has been

295
00:14:18,710 --> 00:14:16,240
to enable commercial efforts in space

296
00:14:20,310 --> 00:14:18,720
with today's axiom one mission the first

297
00:14:22,870 --> 00:14:20,320
all private crew to the international

298
00:14:26,150 --> 00:14:22,880
space station what does today represent

299
00:14:28,550 --> 00:14:26,160
for the agency we're taking commercial

300
00:14:30,629 --> 00:14:28,560
business off the face of the earth and

301
00:14:33,030 --> 00:14:30,639
putting it up in space

302
00:14:35,590 --> 00:14:33,040
and that's one of our main

303
00:14:38,069 --> 00:14:35,600
programs now because

304
00:14:41,670 --> 00:14:38,079
we want to get nasa out of low earth

305
00:14:44,230 --> 00:14:41,680
orbit and go explore the heavens

306
00:14:46,790 --> 00:14:44,240
we want to direct our energy and our

307
00:14:48,230 --> 00:14:46,800
resources to do that because we're going

308
00:14:50,310 --> 00:14:48,240
back to the moon

309
00:14:51,750 --> 00:14:50,320
and we're going to mars

310
00:14:53,269 --> 00:14:51,760
and

311
00:14:54,949 --> 00:14:53,279
so

312
00:14:57,829 --> 00:14:54,959
we want for example we're going to

313
00:14:59,829 --> 00:14:57,839

continue the space station for another

314
00:15:01,990 --> 00:14:59,839
eight years

315
00:15:03,110 --> 00:15:02,000
we want to have commercial space

316
00:15:05,829 --> 00:15:03,120
stations

317
00:15:09,350 --> 00:15:05,839
nasa wants to become

318
00:15:11,990 --> 00:15:09,360
the ability to lease

319
00:15:14,310 --> 00:15:12,000
space on a commercial space station

320
00:15:15,829 --> 00:15:14,320
instead of having the responsibility of

321
00:15:17,189 --> 00:15:15,839
the space station yeah let's talk a

322
00:15:18,550 --> 00:15:17,199
little bit more about that because i

323
00:15:20,550 --> 00:15:18,560
know that we've seen success with

324
00:15:23,110 --> 00:15:20,560
commercial cargo missions commercial

325
00:15:24,310 --> 00:15:23,120
crew missions are commercial stations

326
00:15:25,670 --> 00:15:24,320
next

327
00:15:28,310 --> 00:15:25,680
uh indeed

328
00:15:32,389 --> 00:15:28,320
that's what we're doing today we are

329
00:15:35,590 --> 00:15:32,399
bringing a commercial company to our iss

330
00:15:38,470 --> 00:15:35,600
we are then going to have them attach

331
00:15:42,310 --> 00:15:38,480
a commercial module to the international

332
00:15:45,269 --> 00:15:42,320
space station and then we're encouraging

333
00:15:47,189 --> 00:15:45,279
the building we've got

334
00:15:49,030 --> 00:15:47,199
initiatives out there in private

335
00:15:51,590 --> 00:15:49,040
industry right now

336
00:15:54,230 --> 00:15:51,600
to build a commercial space station and

337
00:15:56,389 --> 00:15:54,240
then all of our international partners

338
00:15:57,189 --> 00:15:56,399

on the space station we're taking with

339
00:15:58,069 --> 00:15:57,199
us

340
00:16:01,990 --> 00:15:58,079
out

341
00:16:04,550 --> 00:16:02,000
into for example lunar orbit the gateway

342
00:16:05,509 --> 00:16:04,560
which is like a space station in lunar

343
00:16:08,550 --> 00:16:05,519
orbit

344
00:16:11,030 --> 00:16:08,560
is going to be a number of nations uh

345
00:16:11,829 --> 00:16:11,040
landing on the moon we're going to have

346
00:16:14,470 --> 00:16:11,839
other

347
00:16:16,150 --> 00:16:14,480
nations participate as well yeah it

348
00:16:18,150 --> 00:16:16,160
seems like there's a lot of partnerships

349
00:16:20,310 --> 00:16:18,160
going forward with nasa to accomplish

350
00:16:23,509 --> 00:16:20,320
some of the big goals that we have

351
00:16:25,269 --> 00:16:23,519
well as it should be because our program

352
00:16:27,829 --> 00:16:25,279
is internationally

353
00:16:30,230 --> 00:16:27,839
and when we go to mars

354
00:16:31,670 --> 00:16:30,240
uh there's going to be a delegation from

355
00:16:34,389 --> 00:16:31,680
planet earth

356
00:16:36,550 --> 00:16:34,399
are you excited for today's launch oh

357
00:16:38,470 --> 00:16:36,560
is the pope castle

358
00:16:39,990 --> 00:16:38,480
yes

359
00:16:41,350 --> 00:16:40,000
well thank you so much administrator i

360
00:16:43,189 --> 00:16:41,360
really appreciate you being here and i

361
00:16:44,710 --> 00:16:43,199
hope you enjoyed today's launch thanks a

362
00:16:47,189 --> 00:16:44,720
lot all right back to you guys at

363
00:16:49,749 --> 00:16:47,199

hawthorne

364
00:16:51,509 --> 00:16:49,759
we're at t-minus 46 minutes 10 seconds

365
00:16:52,629 --> 00:16:51,519
we've just heard from the spacex launch

366
00:16:54,790 --> 00:16:52,639
director

367
00:16:57,030 --> 00:16:54,800
brief the ce or ld and they will approve

368
00:16:58,870 --> 00:16:57,040
aborting the countdown for urgent issues

369
00:17:00,949 --> 00:16:58,880
affecting the safety of the operation

370
00:17:02,870 --> 00:17:00,959
operators shall call hold hold hold on

371
00:17:04,470 --> 00:17:02,880
the countdown net launch control will

372
00:17:07,270 --> 00:17:04,480
abort the launch auto sequence and

373
00:17:09,189 --> 00:17:07,280
immediately proceed into launch abort at

374
00:17:10,870 --> 00:17:09,199
t minus 10 seconds launch control will

375
00:17:12,309 --> 00:17:10,880
be hands off and relying on automated

376
00:17:13,110 --> 00:17:12,319
abort criteria for the manner of the

377
00:17:14,470 --> 00:17:13,120
account

378
00:17:15,990 --> 00:17:14,480
operators advise the launch director

379
00:17:17,750 --> 00:17:16,000
whether structural break-up or fires

380
00:17:20,309 --> 00:17:17,760
eminent occurring per dragon manual

381
00:17:21,990 --> 00:17:20,319
escape flight rules

382
00:17:23,669 --> 00:17:22,000
for those operators in firing up 4 in

383
00:17:26,069 --> 00:17:23,679
the event of a fire alarm key operators

384
00:17:27,110 --> 00:17:26,079
noted and 57-83

385
00:17:28,870 --> 00:17:27,120
will remain at their post while the

386
00:17:30,470 --> 00:17:28,880
alarm is evaluated in the event that

387
00:17:32,230 --> 00:17:30,480
personnel safety is threatened evacuate

388
00:17:35,830 --> 00:17:32,240

to the south-facing emergency exit which

389
00:17:42,070 --> 00:17:39,430
fire group 4 and mccx will go into a

390
00:17:43,510 --> 00:17:42,080
sterile cockpit and lock down for the

391
00:17:48,870 --> 00:17:43,520
duration of the time the launch escape

392
00:17:54,710 --> 00:17:50,549
large hole at this time you may proceed

393
00:17:57,830 --> 00:17:56,549
then arming crew from crew armed for

394
00:18:00,470 --> 00:17:57,840
movement

395
00:18:02,230 --> 00:18:00,480
t-minus 45 minutes and counting you've

396
00:18:04,789 --> 00:18:02,240
just heard the spacex launch director

397
00:18:08,710 --> 00:18:06,789
final execution instructions to the

398
00:18:10,070 --> 00:18:08,720
launch team access arm retraction

399
00:18:11,909 --> 00:18:10,080
started

400
00:18:13,590 --> 00:18:11,919
we're ready for propellant load that'll

401
00:18:15,750 --> 00:18:13,600
begin about 10 minutes before that we've

402
00:18:17,830 --> 00:18:15,760
got crew access arm to retract happening

403
00:18:20,310 --> 00:18:17,840
now and then arming of the launch escape

404
00:18:23,110 --> 00:18:20,320
system everything continues to look good

405
00:18:31,750 --> 00:18:23,120
for an on-time launch of falcon 9 with

406
00:18:31,760 --> 00:18:39,510
dragon spacex for tablets

407
00:18:44,950 --> 00:18:42,950
as we prepare to step into les arming i

408
00:18:47,430 --> 00:18:44,960
need you to verify that the elastic

409
00:18:56,720 --> 00:18:47,440
bands are over the corners of all of the

410
00:18:56,730 --> 00:19:07,750
[Applause]

411
00:19:07,760 --> 00:19:17,110
endeavor aren't breaking confirmed

412
00:19:20,870 --> 00:19:19,190
all right copy that thank you mla and

413
00:19:22,630 --> 00:19:20,880

for awareness that last call came in

414
00:19:34,780 --> 00:19:22,640
pretty quiet so if you could speak up on

415
00:19:34,790 --> 00:19:45,350
[Applause]

416
00:19:45,360 --> 00:20:02,710
uh

417
00:20:02,720 --> 00:20:10,070
foxy

418
00:20:15,110 --> 00:20:11,750
okay we'll give you an update here

419
00:20:17,909 --> 00:20:15,120
inside of 43 minutes crew access arm has

420
00:20:20,549 --> 00:20:17,919
retracted from the dragon spacecraft

421
00:20:22,549 --> 00:20:20,559
next up we've got launch escape system

422
00:20:25,990 --> 00:20:22,559
arming

423
00:20:28,230 --> 00:20:26,000
and at t minus 45 minutes or t minus 35

424
00:20:29,909 --> 00:20:28,240
minutes we'll begin loading propellant

425
00:20:33,029 --> 00:20:29,919
onto the falcon 9.

426
00:20:35,110 --> 00:20:33,039
so right now falcon 9's go dragons go

427
00:20:37,909 --> 00:20:35,120
weather looks good and the range areas

428
00:20:49,029 --> 00:20:37,919
are also cleared for launch so kate john

429
00:20:49,039 --> 00:21:03,110
all right

430
00:21:08,310 --> 00:21:06,070
inside of 42 minutes

431
00:21:35,270 --> 00:21:08,320
everything continues to go well waiting

432
00:21:35,280 --> 00:21:41,270
endeavor spacex for launch escape system

433
00:21:45,190 --> 00:21:42,830
go ahead aren't

434
00:21:48,149 --> 00:21:45,200
they all right mla at this time i'd give

435
00:21:50,950 --> 00:21:48,159
you a go step through section 7 of 4

436
00:21:56,310 --> 00:21:50,960
decimal 100 close visors and arm the

437
00:21:56,320 --> 00:22:12,710
that should work

438
00:23:30,710 --> 00:22:14,870

spacex endeavor visors are closed we are

439
00:23:42,950 --> 00:23:33,190
dragon spacex launch escape system is

440
00:23:47,430 --> 00:23:44,549
all right there you heard it the launch

441
00:23:49,430 --> 00:23:47,440
escape system is now armed you can see

442
00:23:51,110 --> 00:23:49,440
there the crew in their seats with

443
00:23:52,789 --> 00:23:51,120
visors down

444
00:23:55,190 --> 00:23:52,799
launch escape system

445
00:23:57,669 --> 00:23:55,200
you know is the first of its kind escape

446
00:23:59,990 --> 00:23:57,679
system it provides escape capability all

447
00:24:02,070 --> 00:24:00,000
the way to orbit it's a really

448
00:24:04,630 --> 00:24:02,080
important function to have

449
00:24:06,230 --> 00:24:04,640
obviously no intention of using it today

450
00:24:08,230 --> 00:24:06,240
but that's what those call outs were

451
00:24:09,190 --> 00:24:08,240
there um back and forth that we just

452
00:24:12,950 --> 00:24:09,200
heard

453
00:24:14,950 --> 00:24:12,960
administrator bill nelson um you know

454
00:24:16,710 --> 00:24:14,960
the importance of low earth orbit so

455
00:24:18,630 --> 00:24:16,720
speaking of just how valuable low earth

456
00:24:20,070 --> 00:24:18,640
orbit is the crew of x1 will be

457
00:24:21,510 --> 00:24:20,080
conducting a tremendous amount of

458
00:24:24,070 --> 00:24:21,520
science over the course of their eight

459
00:24:26,310 --> 00:24:24,080
days onboard the iss and not only does

460
00:24:27,830 --> 00:24:26,320
that include 25 axiom managed studies

461
00:24:29,669 --> 00:24:27,840
but it also includes the axiom crew

462
00:24:31,350 --> 00:24:29,679
participating in efforts that extend far

463
00:24:32,950 --> 00:24:31,360

beyond this mission some of those we

464
00:24:34,630 --> 00:24:32,960
actually looked at earlier one of these

465
00:24:36,470 --> 00:24:34,640
broader studies is a series of health

466
00:24:38,470 --> 00:24:36,480
monitoring tests before and after the

467
00:24:41,110 --> 00:24:38,480
flight a few days ago i was able to

468
00:24:42,710 --> 00:24:41,120
connect with dr emmanuel riketsa to talk

469
00:24:44,470 --> 00:24:42,720
about the ongoing research this crew

470
00:24:46,870 --> 00:24:44,480
will participate in on behalf of the

471
00:24:48,789 --> 00:24:46,880
translation research institute for space

472
00:24:50,549 --> 00:24:48,799
health also known as trish here's our

473
00:24:52,950 --> 00:24:50,559
conversation

474
00:24:54,950 --> 00:24:52,960
dr iqeta welcome it is wonderful to get

475
00:24:58,710 --> 00:24:54,960
to talk to you uh please introduce

476
00:25:00,789 --> 00:24:58,720
yourself and tell us what is trish

477
00:25:02,549 --> 00:25:00,799
absolutely my name is emmanuel richetta

478
00:25:04,390 --> 00:25:02,559
and i'm the chief medical officer at the

479
00:25:06,549 --> 00:25:04,400
translational research institute for

480
00:25:08,310 --> 00:25:06,559
space health and i'm also faculty at

481
00:25:09,269 --> 00:25:08,320
baylor college of medicine in houston

482
00:25:11,190 --> 00:25:09,279
texas

483
00:25:13,110 --> 00:25:11,200
the translational research institute for

484
00:25:15,269 --> 00:25:13,120
space health or trish

485
00:25:17,190 --> 00:25:15,279
we're partners to the human research

486
00:25:19,590 --> 00:25:17,200
program at nasa and one of our main

487
00:25:21,590 --> 00:25:19,600
goals is to find and fund new disruptive

488
00:25:23,590 --> 00:25:21,600

research that is high risk but

489
00:25:25,590 --> 00:25:23,600
potentially high reward

490
00:25:27,510 --> 00:25:25,600
with the end goal of keep

491
00:25:29,190 --> 00:25:27,520
humans healthy both in space and on

492
00:25:31,110 --> 00:25:29,200
earth and we have been working with

493
00:25:33,990 --> 00:25:31,120
commercial spaceflight missions since

494
00:25:35,990 --> 00:25:34,000
last year and axiom one is our fourth

495
00:25:37,510 --> 00:25:36,000
commercial spaceflight mission that's

496
00:25:39,510 --> 00:25:37,520
really fascinating can you tell us a

497
00:25:41,190 --> 00:25:39,520
little bit more about your primary areas

498
00:25:44,470 --> 00:25:41,200
of focus or what you're studying on this

499
00:25:47,990 --> 00:25:44,480
mission yeah so trish focuses mainly on

500
00:25:50,390 --> 00:25:48,000
the high priority areas of human

501
00:25:52,149 --> 00:25:50,400
spaceflight research and

502
00:25:54,950 --> 00:25:52,159
i would say the three highest priority

503
00:25:56,950 --> 00:25:54,960
areas are radiation

504
00:25:59,029 --> 00:25:56,960
behavioral issues that come from being

505
00:26:01,510 --> 00:25:59,039
isolated and confined in space and the

506
00:26:03,430 --> 00:26:01,520
third one is how your body changes uh

507
00:26:05,669 --> 00:26:03,440
while you're in a different uh gravity

508
00:26:08,390 --> 00:26:05,679
field either a 0g environment like in

509
00:26:11,029 --> 00:26:08,400
space or during different gravity fields

510
00:26:13,430 --> 00:26:11,039
when you are in in the moon or mars

511
00:26:14,870 --> 00:26:13,440
okay interesting so what kind of systems

512
00:26:16,789 --> 00:26:14,880
or hardware are you working with

513
00:26:18,070 --> 00:26:16,799

specifically to capture this data for

514
00:26:21,029 --> 00:26:18,080
this mission the hardware that we're

515
00:26:23,430 --> 00:26:21,039
using is absolutely optimized to provide

516
00:26:25,750 --> 00:26:23,440
number one the the highest quality data

517
00:26:28,310 --> 00:26:25,760
while uh you know being still easy to

518
00:26:30,230 --> 00:26:28,320
use easy to implement uh and being the

519
00:26:31,510 --> 00:26:30,240
lowest burden to to the um to the

520
00:26:32,870 --> 00:26:31,520
astronauts

521
00:26:33,830 --> 00:26:32,880
so to collect all of these data for

522
00:26:35,590 --> 00:26:33,840
example

523
00:26:38,549 --> 00:26:35,600
vision changes we have been using a

524
00:26:40,230 --> 00:26:38,559
small device is roughly the size of a

525
00:26:41,990 --> 00:26:40,240
shoebox that you can see here come this

526
00:26:45,110 --> 00:26:42,000
year with me so this is basically like

527
00:26:46,390 --> 00:26:45,120
having an optometrist on a box basically

528
00:26:49,269 --> 00:26:46,400
the only thing that you have to do is

529
00:26:51,510 --> 00:26:49,279
just just grab it put it on your eyes

530
00:26:53,350 --> 00:26:51,520
look at an object that is roughly six

531
00:26:55,990 --> 00:26:53,360
feet away from you and after a few

532
00:26:58,310 --> 00:26:56,000
seconds you get a prescription of your

533
00:27:00,390 --> 00:26:58,320
glasses as right here so as i was saying

534
00:27:01,669 --> 00:27:00,400
um if there's any changes on on

535
00:27:03,909 --> 00:27:01,679
astronauts during these missions we'll

536
00:27:04,950 --> 00:27:03,919
be able to see how the changes with this

537
00:27:06,310 --> 00:27:04,960
device

538
00:27:09,350 --> 00:27:06,320

we're also looking i was mentioning that

539
00:27:11,750 --> 00:27:09,360
behavioral changes how uh being in in an

540
00:27:13,350 --> 00:27:11,760
isolated confined environment has any

541
00:27:15,269 --> 00:27:13,360
behavioral aspects and for this one we

542
00:27:17,669 --> 00:27:15,279
have been using a small tablet like this

543
00:27:19,430 --> 00:27:17,679
one also to test the sensory motor

544
00:27:21,190 --> 00:27:19,440
adaptation that the balance disorders

545
00:27:23,510 --> 00:27:21,200
and the space motion sickness we're

546
00:27:25,110 --> 00:27:23,520
using a device like this and for each of

547
00:27:26,870 --> 00:27:25,120
the of the crew members we have a set of

548
00:27:29,590 --> 00:27:26,880
hardware like this and

549
00:27:32,230 --> 00:27:29,600
it fits that the four sets of hardware

550
00:27:34,470 --> 00:27:32,240
fits on a medium-sized

551
00:27:36,789 --> 00:27:34,480
suitcase so it is it is really easy to

552
00:27:39,190 --> 00:27:36,799
move uh wherever it needs to go uh for

553
00:27:41,029 --> 00:27:39,200
for launch and uh and landing

554
00:27:42,630 --> 00:27:41,039
that's wonderful so what are some of the

555
00:27:45,669 --> 00:27:42,640
intended outcomes or goals of the

556
00:27:48,789 --> 00:27:47,750
yeah so some of the outcomes uh and one

557
00:27:50,870 --> 00:27:48,799
of the

558
00:27:52,549 --> 00:27:50,880
main applications um number one for

559
00:27:55,110 --> 00:27:52,559
space flight that that we want to get

560
00:27:57,750 --> 00:27:55,120
from from this research is that short

561
00:27:59,510 --> 00:27:57,760
durations missions like action one are

562
00:28:01,190 --> 00:27:59,520
very very relevant in the context of

563
00:28:02,710 --> 00:28:01,200

artemis missions when we go back to the

564
00:28:05,350 --> 00:28:02,720
moon the first missions are going to be

565
00:28:06,789 --> 00:28:05,360
roughly the same duration as action one

566
00:28:08,149 --> 00:28:06,799
so anything new that we learn from these

567
00:28:09,510 --> 00:28:08,159
missions is going to be absolutely

568
00:28:11,110 --> 00:28:09,520
valuable really

569
00:28:12,950 --> 00:28:11,120
every new piece of data we collect in

570
00:28:15,110 --> 00:28:12,960
space flight could potentially solve and

571
00:28:17,029 --> 00:28:15,120
be that that last piece of the puzzle

572
00:28:19,510 --> 00:28:17,039
that we're looking to to complete what

573
00:28:20,950 --> 00:28:19,520
we need to know well dr riketa thank you

574
00:28:22,630 --> 00:28:20,960
so much for speaking with us today we

575
00:28:25,590 --> 00:28:22,640
wish you the best of luck

576
00:28:27,269 --> 00:28:25,600
it is my pleasure thank you

577
00:28:29,669 --> 00:28:27,279
all right we are about

578
00:28:32,149 --> 00:28:29,679
30 minutes out from launch of the

579
00:28:33,990 --> 00:28:32,159
historic ax1 mission

580
00:28:35,830 --> 00:28:34,000
it has taken an enormous effort from an

581
00:28:38,230 --> 00:28:35,840
incredibly dedicated and hardworking

582
00:28:39,669 --> 00:28:38,240
team to get to this moment and that team

583
00:28:42,950 --> 00:28:39,679
wanted to take an opportunity to wish

584
00:28:45,029 --> 00:28:42,960
the crew of ax1 well and godspeed

585
00:28:46,070 --> 00:28:45,039
hey x1 we're so happy for you guys and

586
00:28:47,590 --> 00:28:46,080
just want to let you know we've got you

587
00:28:49,510 --> 00:28:47,600
here on the ground in mission control so

588
00:28:50,950 --> 00:28:49,520

fly high and have some fun from all of

589
00:28:52,389 --> 00:28:50,960
us here at the integrated performance

590
00:28:54,470 --> 00:28:52,399
team we want to wish you luck on your

591
00:28:57,029 --> 00:28:54,480
pioneering mission to the iss and hope

592
00:28:59,750 --> 00:28:57,039
to see you in a couple years when ax h1

593
00:29:02,070 --> 00:28:59,760
launches it is not only an immense honor

594
00:29:03,909 --> 00:29:02,080
to get to watch your monumental mission

595
00:29:05,590 --> 00:29:03,919
but also to be able to support you on

596
00:29:07,909 --> 00:29:05,600
your journey towards this day as well

597
00:29:09,669 --> 00:29:07,919
hey guys can't wait for this mission we

598
00:29:11,110 --> 00:29:09,679
put a lot of hard work in we're excited

599
00:29:13,430 --> 00:29:11,120
for you all to

600
00:29:15,190 --> 00:29:13,440
have a great time up there and good luck

601
00:29:17,669 --> 00:29:15,200
thank you for helping set an important

602
00:29:20,230 --> 00:29:17,679
precedence ahead of a very bright future

603
00:29:22,389 --> 00:29:20,240
good luck ax1 crew let's conquer space

604
00:29:23,830 --> 00:29:22,399
hasta brando

605
00:29:25,990 --> 00:29:23,840
we want to send you all off with good

606
00:29:28,149 --> 00:29:26,000
wishes in this incredible journey god

607
00:29:29,669 --> 00:29:28,159
speed it has been such an honor to watch

608
00:29:31,669 --> 00:29:29,679
and support you guys as you prepare for

609
00:29:33,510 --> 00:29:31,679
this moment i'm so proud of each one of

610
00:29:34,789 --> 00:29:33,520
you for the dedication the long hours

611
00:29:36,870 --> 00:29:34,799
and the hard work you've put into making

612
00:29:38,789 --> 00:29:36,880
this a meaningful mission hello axiom

613
00:29:41,110 --> 00:29:38,799

astronauts thanks for stepping up to the

614
00:29:43,750 --> 00:29:41,120
plate for this amazing journey you guys

615
00:29:46,310 --> 00:29:43,760
have trained hard you've waited a long

616
00:29:49,110 --> 00:29:46,320
time and this is now happening safe

617
00:29:51,190 --> 00:29:49,120
travels on this historic mission for the

618
00:29:53,510 --> 00:29:51,200
first private astronauts to go to the

619
00:29:55,510 --> 00:29:53,520
iss it's happening

620
00:29:57,590 --> 00:29:55,520
wave to us from up above because we'll

621
00:29:59,590 --> 00:29:57,600
be thinking of you from down below we're

622
00:30:00,950 --> 00:29:59,600
the axiom safety team

623
00:30:02,549 --> 00:30:00,960
we just want you to know that we are

624
00:30:04,549 --> 00:30:02,559
really proud of you and we've got your

625
00:30:06,470 --> 00:30:04,559
back we're wishing you a safe and

626
00:30:08,950 --> 00:30:06,480
successful mission and we'll see you

627
00:30:10,950 --> 00:30:08,960
when you get back on the ground hi guys

628
00:30:13,110 --> 00:30:10,960
we're the axiom soft goods team and we

629
00:30:15,669 --> 00:30:13,120
just want to wish you a good mission and

630
00:30:17,430 --> 00:30:15,679
get back safely it's a real pleasure to

631
00:30:19,590 --> 00:30:17,440
be talking with you guys right now and

632
00:30:21,430 --> 00:30:19,600
we're super excited for you i'm here to

633
00:30:23,830 --> 00:30:21,440
cheer you on along with the entire crew

634
00:30:28,760 --> 00:30:23,840
systems team

635
00:30:33,490 --> 00:30:29,110
[Music]

636
00:30:34,000 --> 00:30:33,500
[Applause]

637
00:30:42,230 --> 00:30:34,010
[Music]

638
00:30:44,470 --> 00:30:42,240

[Applause]

639
00:30:47,110 --> 00:30:44,480
i wish you all the very best

640
00:30:48,470 --> 00:30:47,120
the greatest of success and the most fun

641
00:30:51,190 --> 00:30:48,480
and the most challenging interesting

642
00:30:52,950 --> 00:30:51,200
thing in your life go big and enjoy your

643
00:30:55,830 --> 00:30:52,960
time on the iss we'll see you back on

644
00:30:58,630 --> 00:30:55,840
the ground hey guys i am so proud of the

645
00:31:00,950 --> 00:30:58,640
accident one crew it's so fun to be a

646
00:31:03,029 --> 00:31:00,960
part of something bigger than you and to

647
00:31:04,470 --> 00:31:03,039
contribute most important thing to

648
00:31:06,470 --> 00:31:04,480
remember guys

649
00:31:08,470 --> 00:31:06,480
take some time to look out the window

650
00:31:09,920 --> 00:31:08,480
and appreciate where you are

651
00:31:15,830 --> 00:31:09,930
it's space

652
00:31:19,669 --> 00:31:15,840
[Music]

653
00:31:21,190 --> 00:31:19,679
we're t minus 31 minutes and 40 seconds

654
00:31:23,269 --> 00:31:21,200
counting down

655
00:31:25,110 --> 00:31:23,279
to the first all-private astronaut

656
00:31:26,710 --> 00:31:25,120
mission to the international space

657
00:31:28,870 --> 00:31:26,720
station

658
00:31:31,750 --> 00:31:28,880
a few minutes ago falcon 9 propellant

659
00:31:32,950 --> 00:31:31,760
loading began on time at t minus 35

660
00:31:35,830 --> 00:31:32,960
minutes

661
00:31:37,830 --> 00:31:35,840
rp1 fuel loading is underway on both the

662
00:31:40,310 --> 00:31:37,840
first and second stages

663
00:31:42,070 --> 00:31:40,320

liquid oxygen loading is underway on the

664
00:31:43,750 --> 00:31:42,080
first stage

665
00:31:45,990 --> 00:31:43,760
now we'll finish up

666
00:31:47,990 --> 00:31:46,000
fuel loading on the second stage at

667
00:31:50,230 --> 00:31:48,000
about t minus 20 minutes doesn't take

668
00:31:52,070 --> 00:31:50,240
very long and then we'll begin loading

669
00:31:56,310 --> 00:31:52,080
liquid oxygen on the second stage at

670
00:32:00,149 --> 00:31:57,990
we'll continue propellant loading on

671
00:32:01,669 --> 00:32:00,159
falcon 9 up until about t-minus 2

672
00:32:03,750 --> 00:32:01,679
minutes

673
00:32:05,590 --> 00:32:03,760
now speaking of propellants the dragon

674
00:32:07,909 --> 00:32:05,600
spacecraft was loaded with its

675
00:32:09,590 --> 00:32:07,919
propellants about a week and a half ago

676
00:32:13,509 --> 00:32:09,600
just a few miles down the road from the

677
00:32:16,149 --> 00:32:13,519
launch site at what we call dragon land

678
00:32:18,710 --> 00:32:16,159
in order to fly dragon needs a fuel and

679
00:32:21,230 --> 00:32:18,720
an oxidizer start of stage 1 cryo helium

680
00:32:24,389 --> 00:32:21,240
loading for the fuel we use

681
00:32:27,430 --> 00:32:24,399
monomethylhydrazine or mmh

682
00:32:28,950 --> 00:32:27,440
and nitrogen tetroxide or nto for

683
00:32:31,029 --> 00:32:28,960
oxidizer

684
00:32:33,269 --> 00:32:31,039
now together these propellants feed the

685
00:32:35,909 --> 00:32:33,279
draco engines that will maneuver dragon

686
00:32:37,509 --> 00:32:35,919
on orbit changing its attitude uh

687
00:32:40,230 --> 00:32:37,519
raising its orbit to get to the space

688
00:32:42,310 --> 00:32:40,240

station but that propellant also serves

689
00:32:45,190 --> 00:32:42,320
a second purpose and that would be to

690
00:32:46,870 --> 00:32:45,200
use in the eight super draco engines

691
00:32:50,630 --> 00:32:46,880
that would power the launch escape

692
00:32:52,470 --> 00:32:50,640
system in an escape scenario

693
00:32:55,269 --> 00:32:52,480
but right now on

694
00:32:57,750 --> 00:32:55,279
pad 39a nice view of falcon 9 with

695
00:33:00,230 --> 00:32:57,760
dragon there you can see the crew access

696
00:33:01,669 --> 00:33:00,240
arm has retracted away from the dragon

697
00:33:04,230 --> 00:33:01,679
spacecraft

698
00:33:05,430 --> 00:33:04,240
the four-person crew is inside dragon

699
00:33:07,669 --> 00:33:05,440
right now

700
00:33:10,470 --> 00:33:07,679
launch escape system is armed propellant

701
00:33:12,470 --> 00:33:10,480
is going into the falcon 9.

702
00:33:14,310 --> 00:33:12,480
so since we are at this stage with

703
00:33:16,389 --> 00:33:14,320
launch escape system arm that means

704
00:33:18,950 --> 00:33:16,399
there's eight super draco engines inside

705
00:33:20,710 --> 00:33:18,960
the crew dragon are ready if needed to

706
00:33:22,950 --> 00:33:20,720
launch the capsule away from the falcon

707
00:33:24,950 --> 00:33:22,960
9 rocket in an instant should there be

708
00:33:27,190 --> 00:33:24,960
any kind of emergency associated with

709
00:33:29,269 --> 00:33:27,200
the rocket or the pad we have the

710
00:33:32,070 --> 00:33:29,279
ability to use a launch escape system

711
00:33:34,310 --> 00:33:32,080
right now if it was needed

712
00:33:36,789 --> 00:33:34,320
a couple other status items

713
00:33:38,950 --> 00:33:36,799

weather as you can see looks good

714
00:33:41,669 --> 00:33:38,960
probability of violating the launch

715
00:33:43,350 --> 00:33:41,679
commit criteria is less than 10 percent

716
00:33:45,029 --> 00:33:43,360
the only thing we're watching is wind

717
00:33:46,710 --> 00:33:45,039
gusts but we believe

718
00:33:47,990 --> 00:33:46,720
having seen the the wind for the last

719
00:33:49,590 --> 00:33:48,000
several hours

720
00:33:51,190 --> 00:33:49,600
everything continues to look good that

721
00:33:53,190 --> 00:33:51,200
should not be an issue

722
00:33:55,669 --> 00:33:53,200
weather is also good in the atlantic

723
00:33:57,750 --> 00:33:55,679
ocean should we need to use a launch

724
00:33:58,950 --> 00:33:57,760
escape splashdown site for the dragon

725
00:34:01,110 --> 00:33:58,960
capsule

726
00:34:02,710 --> 00:34:01,120
we've also got upper altitude winds

727
00:34:04,549 --> 00:34:02,720
we've been checking out

728
00:34:06,389 --> 00:34:04,559
uh balloons have been released by the

729
00:34:07,990 --> 00:34:06,399
range here recently

730
00:34:10,310 --> 00:34:08,000
we continue to look good for upper

731
00:34:14,389 --> 00:34:10,320
altitudes as falcon 93 flies through the

732
00:34:16,710 --> 00:34:14,399
periods of maximum dynamic pressure

733
00:34:19,190 --> 00:34:16,720
and finally on the range of course we

734
00:34:21,349 --> 00:34:19,200
have cleared the danger areas the hazard

735
00:34:23,510 --> 00:34:21,359
the caution areas everybody's out of

736
00:34:25,909 --> 00:34:23,520
there except the four-person crew up in

737
00:34:27,990 --> 00:34:25,919
the dragon capsule very top of the ride

738
00:34:30,869 --> 00:34:28,000

you can see in the picture

739
00:34:32,869 --> 00:34:30,879
so coming up t-minus 28 minutes 30

740
00:34:33,750 --> 00:34:32,879
seconds everything continuing to look

741
00:34:36,550 --> 00:34:33,760
good

742
00:34:40,230 --> 00:34:36,560
on falcon 9 with dragon for the axiom 1

743
00:34:43,430 --> 00:34:41,510
let's take a moment now to get

744
00:34:45,909 --> 00:34:43,440
acquainted with the vehicles that you

745
00:34:49,510 --> 00:34:45,919
see there on your screen that's a live

746
00:34:51,430 --> 00:34:49,520
view of falcon 9 with dragon

747
00:34:54,149 --> 00:34:51,440
our spacecraft on top

748
00:34:55,829 --> 00:34:54,159
falcon 9 rocket is a rocket

749
00:34:59,069 --> 00:34:55,839
to the falcon 9 rocket with the dragon

750
00:35:03,190 --> 00:34:59,079
spacecraft on top together stands about

751
00:35:06,230 --> 00:35:03,200
215 feet which is almost 30 feet taller

752
00:35:08,150 --> 00:35:06,240
than the leaning tower of pisa in italy

753
00:35:10,150 --> 00:35:08,160
which is 130

754
00:35:12,950 --> 00:35:10,160
183 feet

755
00:35:15,190 --> 00:35:12,960
falcon 9 is a reusable two-stage

756
00:35:17,270 --> 00:35:15,200
liquid-fueled rocket which means that

757
00:35:18,950 --> 00:35:17,280
it's kind of like two rockets in one the

758
00:35:20,870 --> 00:35:18,960
first stage and the second stage very

759
00:35:22,630 --> 00:35:20,880
cool so talking a bit about that first

760
00:35:24,069 --> 00:35:22,640
stage the first stage is the bottom two

761
00:35:26,150 --> 00:35:24,079
thirds of the vehicle that you see there

762
00:35:27,829 --> 00:35:26,160
has a nice patina it's been reused a

763
00:35:29,910 --> 00:35:27,839

little bit it's covered in soot from a

764
00:35:31,910 --> 00:35:29,920
previous mission that first stage is

765
00:35:33,670 --> 00:35:31,920
responsible for accelerating falcon and

766
00:35:36,390 --> 00:35:33,680
dragon through the earth's atmosphere

767
00:35:38,150 --> 00:35:36,400
and into space to do that it has nine

768
00:35:40,470 --> 00:35:38,160
merlin engines at the bottom of that

769
00:35:42,470 --> 00:35:40,480
first stage prior to liftoff the falcon

770
00:35:44,950 --> 00:35:42,480
9 first stage is loaded up with nearly 1

771
00:35:46,230 --> 00:35:44,960
million pounds of fuel and liquid oxygen

772
00:35:48,470 --> 00:35:46,240
and the merlin engines on the first

773
00:35:51,589 --> 00:35:48,480
stage are optimized for sea level these

774
00:35:53,349 --> 00:35:51,599
achieve 190 000 pounds of thrust during

775
00:35:55,030 --> 00:35:53,359
ascent and descent

776
00:35:56,550 --> 00:35:55,040
the first stage accelerates the vehicle

777
00:35:58,230 --> 00:35:56,560
through the earth's atmosphere into

778
00:35:59,910 --> 00:35:58,240
space and then separates the rest of the

779
00:36:01,270 --> 00:35:59,920
rocket at about two and a half minutes

780
00:36:03,109 --> 00:36:01,280
into flight

781
00:36:05,270 --> 00:36:03,119
from there the first stage will do what

782
00:36:07,829 --> 00:36:05,280
no other orbital class rocket in the

783
00:36:10,150 --> 00:36:07,839
world can do it'll make its way back to

784
00:36:12,470 --> 00:36:10,160
earth and target a landing on our drone

785
00:36:16,150 --> 00:36:12,480
ship a shortfall of gravitas which you

786
00:36:18,390 --> 00:36:16,160
see there on your screen the seas

787
00:36:19,750 --> 00:36:18,400
look great the blue skies i i don't

788
00:36:21,349 --> 00:36:19,760

think it could be any more picture

789
00:36:22,710 --> 00:36:21,359
perfect no it's like a desktop right

790
00:36:24,230 --> 00:36:22,720
there i think

791
00:36:26,069 --> 00:36:24,240
our drone ships are essentially

792
00:36:28,550 --> 00:36:26,079
autonomous powered space ports that

793
00:36:29,910 --> 00:36:28,560
allow our rocket to land over the ocean

794
00:36:31,510 --> 00:36:29,920
for reference our drone ships are

795
00:36:33,510 --> 00:36:31,520
equivalent to the size of a football

796
00:36:35,190 --> 00:36:33,520
field so uh while it may have looked

797
00:36:37,750 --> 00:36:35,200
kind of small on your screen they're

798
00:36:40,069 --> 00:36:37,760
actually pretty ginormous in real life

799
00:36:42,230 --> 00:36:40,079
it's got to be to hold a rocket right um

800
00:36:44,230 --> 00:36:42,240
as man as mentioned previously falcon 9

801
00:36:46,069 --> 00:36:44,240
is a two-stage rocket it's two rockets

802
00:36:48,150 --> 00:36:46,079
in one above the first stage is the

803
00:36:50,870 --> 00:36:48,160
second stage now the second stage has a

804
00:36:52,550 --> 00:36:50,880
single merlin vacuum or mvac engine

805
00:36:59,270 --> 00:36:52,560
which ignites after the first stage

806
00:37:02,630 --> 00:37:00,710
now the second stage is essentially a

807
00:37:04,390 --> 00:37:02,640
smaller version of the first stage and

808
00:37:05,670 --> 00:37:04,400
whereas the first stage is designed to

809
00:37:07,589 --> 00:37:05,680
power the vehicle out of earth's

810
00:37:09,430 --> 00:37:07,599
atmosphere in the forces of gravity the

811
00:37:11,510 --> 00:37:09,440
second stage is specifically designed to

812
00:37:12,790 --> 00:37:11,520
operate in the vacuum of space the

813
00:37:15,510 --> 00:37:12,800

second stage powers the dragon

814
00:37:18,069 --> 00:37:15,520
spacecraft to its specific specific

815
00:37:19,990 --> 00:37:18,079
targeted drop-off point in orbit

816
00:37:22,390 --> 00:37:20,000
the dragon spacecraft is capable of

817
00:37:24,950 --> 00:37:22,400
carrying up to seven passengers to and

818
00:37:26,790 --> 00:37:24,960
from earth orbit and beyond but for

819
00:37:29,349 --> 00:37:26,800
today's mission it is carrying four

820
00:37:31,510 --> 00:37:29,359
members of the axiom one crew

821
00:37:34,069 --> 00:37:31,520
it is the first private spacecraft to

822
00:37:36,069 --> 00:37:34,079
take humans to the space station and the

823
00:37:38,310 --> 00:37:36,079
only spacecraft currently flying that is

824
00:37:40,870 --> 00:37:38,320
capable of returning significant amounts

825
00:37:43,190 --> 00:37:40,880
of cargo to earth like the falcon 9

826
00:37:44,310 --> 00:37:43,200
rocket the dragon spacecraft is also

827
00:37:46,950 --> 00:37:44,320
reusable

828
00:37:49,430 --> 00:37:46,960
today will be the third flight to space

829
00:37:52,470 --> 00:37:49,440
for this dragon spacecraft that the

830
00:37:55,030 --> 00:37:52,480
axiom one crew is flying in today uh the

831
00:37:57,990 --> 00:37:55,040
previous flights for this this capsule

832
00:38:00,310 --> 00:37:58,000
supported were uh recently the crew 2

833
00:38:01,190 --> 00:38:00,320
mission and before that the demo 2

834
00:38:05,750 --> 00:38:01,200
mission

835
00:38:09,910 --> 00:38:05,760
pretty incredible yeah

836
00:38:12,390 --> 00:38:09,920
now as we await t0 in just under 25

837
00:38:14,630 --> 00:38:12,400
minutes the ground operations teams are

838
00:38:17,430 --> 00:38:14,640

doing a series of system checks to make

839
00:38:19,829 --> 00:38:17,440
sure both dragon and falcon 9 are ready

840
00:38:21,589 --> 00:38:19,839
for launch let's take a look at what the

841
00:38:23,270 --> 00:38:21,599
ascent portion of this mission will look

842
00:38:25,510 --> 00:38:23,280
like

843
00:38:27,750 --> 00:38:25,520
right so once we hit t minus zero we

844
00:38:30,230 --> 00:38:27,760
will watch falcon 9 and dragon lift off

845
00:38:31,430 --> 00:38:30,240
from historic launch pad 39a and make

846
00:38:33,750 --> 00:38:31,440
their ascent

847
00:38:35,589 --> 00:38:33,760
at about 50 seconds into flight falcon

848
00:38:37,109 --> 00:38:35,599
9's engines will throttle down to help

849
00:38:39,430 --> 00:38:37,119
pass through the period of maximum

850
00:38:41,990 --> 00:38:39,440
dynamic pressure on the rocket or what

851
00:38:43,910 --> 00:38:42,000
we typically refer to as max-q

852
00:38:46,870 --> 00:38:43,920
it's worth noting that once we hit max-q

853
00:38:49,109 --> 00:38:46,880
the vehicle will be going supersonic

854
00:38:51,190 --> 00:38:49,119
once we're through the period of maximum

855
00:38:53,750 --> 00:38:51,200
dynamic pressure we can throttle up our

856
00:38:55,430 --> 00:38:53,760
merlin engines again from there at about

857
00:38:57,190 --> 00:38:55,440
two and a half minutes into flight we

858
00:38:59,910 --> 00:38:57,200
have a series of three events that

859
00:39:03,190 --> 00:38:59,920
happen in rapid succession the first of

860
00:39:05,670 --> 00:39:03,200
which is miko or main engine cutoff this

861
00:39:08,230 --> 00:39:05,680
is where all nine merlin engines shut

862
00:39:10,790 --> 00:39:08,240
off in preparation for stage separation

863
00:39:12,870 --> 00:39:10,800

which as the name suggests that is where

864
00:39:14,790 --> 00:39:12,880
the first stage detaches from the second

865
00:39:17,030 --> 00:39:14,800
stage with the first stage making its

866
00:39:18,950 --> 00:39:17,040
way back to earth for landing as the

867
00:39:21,030 --> 00:39:18,960
second stage continues on its journey

868
00:39:23,750 --> 00:39:21,040
with the third event

869
00:39:25,829 --> 00:39:23,760
right now ses one or second engine start

870
00:39:27,829 --> 00:39:25,839
one is where the merlin vacuum engine

871
00:39:31,030 --> 00:39:27,839
lights up and propels the second stage

872
00:39:33,109 --> 00:39:31,040
along with our ax1 crew into orbit

873
00:39:35,349 --> 00:39:33,119
as stage two heads towards its targeted

874
00:39:36,950 --> 00:39:35,359
drop off orbit stage one will execute

875
00:39:39,030 --> 00:39:36,960
two burns in order to make its way back

876
00:39:40,950 --> 00:39:39,040
to earth the first stage is the entry

877
00:39:43,190 --> 00:39:40,960
burn where three of the merlin 1d

878
00:39:45,109 --> 00:39:43,200
engines will reignite and then shut down

879
00:39:46,710 --> 00:39:45,119
this helps to slow the stage down in

880
00:39:48,150 --> 00:39:46,720
preparation for entry back into earth's

881
00:39:49,910 --> 00:39:48,160
atmosphere

882
00:39:52,310 --> 00:39:49,920
while the first stage is heading back to

883
00:39:54,950 --> 00:39:52,320
earth the second stage will cut off its

884
00:39:57,349 --> 00:39:54,960
singular merlin engine and that was

885
00:39:59,109 --> 00:39:57,359
ignited right after stage separation

886
00:40:02,230 --> 00:39:59,119
once this happens we'll wait for

887
00:40:04,630 --> 00:40:02,240
confirmation of good orbital insertion

888
00:40:07,589 --> 00:40:04,640

about 90 seconds after dragon gets into

889
00:40:09,510 --> 00:40:07,599
orbit falcon 9 will land back on earth

890
00:40:11,589 --> 00:40:09,520
the landing burn which is a single

891
00:40:14,150 --> 00:40:11,599
engine burn will bring the vehicle's

892
00:40:15,750 --> 00:40:14,160
speed down rapidly in order to land on

893
00:40:17,589 --> 00:40:15,760
the drone ship

894
00:40:19,190 --> 00:40:17,599
at about nine and a half minutes into

895
00:40:20,870 --> 00:40:19,200
the mission

896
00:40:22,710 --> 00:40:20,880
and while falcon 9's first stage is

897
00:40:24,550 --> 00:40:22,720
landing dragon is preparing to separate

898
00:40:26,309 --> 00:40:24,560
from the second stage about three

899
00:40:28,150 --> 00:40:26,319
minutes after the second stage gets into

900
00:40:29,510 --> 00:40:28,160
orbit we should have a great view of

901
00:40:31,829 --> 00:40:29,520
dragon with his four-person crew

902
00:40:33,589 --> 00:40:31,839
drifting away from the second stage now

903
00:40:35,030 --> 00:40:33,599
once dragon is a short distance away it

904
00:40:36,710 --> 00:40:35,040
will begin checking out its draco

905
00:40:38,630 --> 00:40:36,720
maneuvering thrusters to make sure

906
00:40:41,510 --> 00:40:38,640
dragon continues to increase separation

907
00:40:44,230 --> 00:40:41,520
distance from the second stage

908
00:40:46,870 --> 00:40:44,240
and lastly the nosecone deploy sequence

909
00:40:49,349 --> 00:40:46,880
will initiate just before t plus 12

910
00:40:50,390 --> 00:40:49,359
minutes and finish around t plus 15

911
00:40:52,470 --> 00:40:50,400
minutes

912
00:40:54,390 --> 00:40:52,480
and this sequence will expose dragon's

913
00:40:56,150 --> 00:40:54,400

docking mechanism in advance of its

914
00:40:57,190 --> 00:40:56,160
arrival at the international space

915
00:41:00,150 --> 00:40:57,200
station

916
00:41:02,630 --> 00:41:00,160
so uh as you can tell it's it's a pretty

917
00:41:03,910 --> 00:41:02,640
jam-packed 12-minute job pay attention

918
00:41:07,430 --> 00:41:03,920
pay close attention to what you're

919
00:41:09,589 --> 00:41:07,440
listening to don't blink

920
00:41:12,390 --> 00:41:09,599
with all that in mind let's head back

921
00:41:14,390 --> 00:41:12,400
over to dan hewitt for an update

922
00:41:17,750 --> 00:41:14,400
from the iss team over at johnson space

923
00:41:21,829 --> 00:41:20,390
hey thanks kate now inside the room the

924
00:41:23,109 --> 00:41:21,839
international space station flight

925
00:41:24,950 --> 00:41:23,119
control room flight director scott

926
00:41:26,870 --> 00:41:24,960
stover is leading the teams right now

927
00:41:29,030 --> 00:41:26,880
but just about four hours ago nasa

928
00:41:31,589 --> 00:41:29,040
flight director diane daly gave a go on

929
00:41:34,390 --> 00:41:31,599
behalf of the combined iss team to the

930
00:41:36,550 --> 00:41:34,400
spacex mission director just saying that

931
00:41:38,870 --> 00:41:36,560
iss or the space station was go for

932
00:41:40,550 --> 00:41:38,880
launch now to get there we've got a list

933
00:41:42,630 --> 00:41:40,560
of flight rules basically just

934
00:41:44,309 --> 00:41:42,640
guidelines for all of the major systems

935
00:41:46,790 --> 00:41:44,319
we have to make sure are functioning

936
00:41:48,630 --> 00:41:46,800
onboard station before we can give a go

937
00:41:50,870 --> 00:41:48,640
to launch another crew up there so we're

938
00:41:53,190 --> 00:41:50,880

looking at everything from those core

939
00:41:55,510 --> 00:41:53,200
critical command and control computers

940
00:41:57,430 --> 00:41:55,520
verifying we have a good communication

941
00:41:58,630 --> 00:41:57,440
path through our tracking and data relay

942
00:42:00,790 --> 00:41:58,640
satellites

943
00:42:02,230 --> 00:42:00,800
ensuring that the atmosphere all of the

944
00:42:04,470 --> 00:42:02,240
life support systems on board are

945
00:42:06,309 --> 00:42:04,480
functioning even the mechanical systems

946
00:42:07,829 --> 00:42:06,319
like the docking port where this mission

947
00:42:09,510 --> 00:42:07,839
is headed so

948
00:42:12,069 --> 00:42:09,520
we're expecting today's flight to be

949
00:42:13,750 --> 00:42:12,079
about a 20 and a half hour journey from

950
00:42:16,150 --> 00:42:13,760
launch to docking

951
00:42:18,390 --> 00:42:16,160
with the crew dragon endeavor headed

952
00:42:20,630 --> 00:42:18,400
towards the node 2 zenith that's the

953
00:42:22,710 --> 00:42:20,640
space facing port on the top

954
00:42:24,550 --> 00:42:22,720
of node 2 the harmony module on board

955
00:42:25,990 --> 00:42:24,560
the station and once they get there

956
00:42:28,790 --> 00:42:26,000
they're going to get welcomed by the

957
00:42:30,710 --> 00:42:28,800
expedition 67 crew which is made up of

958
00:42:33,670 --> 00:42:30,720
seven individuals right now four from

959
00:42:37,270 --> 00:42:33,680
our spacex through crew three 445 for

960
00:42:39,349 --> 00:42:37,280
the teams over in hawthorne and so once

961
00:42:41,270 --> 00:42:39,359
they get there they'll be able to get

962
00:42:42,870 --> 00:42:41,280
out of their suits onboard the dragon

963
00:42:44,870 --> 00:42:42,880

spacecraft

964
00:42:47,270 --> 00:42:44,880
while the team onboard station moves

965
00:42:49,349 --> 00:42:47,280
into what's known as uh

966
00:42:51,190 --> 00:42:49,359
the hatch operations uh station

967
00:42:53,109 --> 00:42:51,200
commander tom martian is going to be

968
00:42:54,150 --> 00:42:53,119
pressurizing that small area between

969
00:42:56,069 --> 00:42:54,160
dragon

970
00:42:58,150 --> 00:42:56,079
and the station hatches we expect it to

971
00:43:00,630 --> 00:42:58,160
be a little under two hours from docking

972
00:43:04,150 --> 00:43:00,640
to hatch open and then we'll welcome the

973
00:43:06,550 --> 00:43:04,160
ax1 crew on board the space station so

974
00:43:08,309 --> 00:43:06,560
a lot to come with that 20 and a half

975
00:43:10,790 --> 00:43:08,319
hour journey but all that's gonna start

976
00:43:12,470 --> 00:43:10,800
with a launch so i'll send it back over

977
00:43:14,710 --> 00:43:12,480
to hawthorne as we get into the final

978
00:43:16,710 --> 00:43:14,720
phases of the countdown back over to you

979
00:43:18,309 --> 00:43:16,720
john

980
00:43:20,150 --> 00:43:18,319
right well dan as you mentioned it all

981
00:43:21,349 --> 00:43:20,160
starts with the launch and kate it's

982
00:43:22,630 --> 00:43:21,359
looking like it's getting pretty busy

983
00:43:24,550 --> 00:43:22,640
here people are excited about seeing a

984
00:43:27,430 --> 00:43:24,560
launch right yeah we're just now under

985
00:43:29,829 --> 00:43:27,440
20 minutes until liftoff as you could

986
00:43:32,150 --> 00:43:29,839
probably tell by the the noise uh the

987
00:43:34,230 --> 00:43:32,160
crew here excuse me the the the crowd

988
00:43:36,390 --> 00:43:34,240

here in hawthorne uh we're at spacex

989
00:43:38,069 --> 00:43:36,400
headquarters in hawthorne california

990
00:43:40,790 --> 00:43:38,079
is starting to gather

991
00:43:42,630 --> 00:43:40,800
just beyond mission control here uh in

992
00:43:45,109 --> 00:43:42,640
the building and uh you might be able to

993
00:43:47,829 --> 00:43:45,119
tell by the ambient noise in addition to

994
00:43:50,150 --> 00:43:47,839
the live production noises that you also

995
00:43:51,750 --> 00:43:50,160
hear you know we are in a rocket factory

996
00:43:53,589 --> 00:43:51,760
um but yeah you can see there the crowd

997
00:43:55,829 --> 00:43:53,599
is starting to grow behind the mission

998
00:44:00,790 --> 00:43:55,839
the team there at hawthorne mission

999
00:44:05,430 --> 00:44:03,430
now we saw dan speaking earlier from

1000
00:44:07,750 --> 00:44:05,440
mission control in johnson there is a

1001
00:44:10,390 --> 00:44:07,760
mission control center in florida where

1002
00:44:12,710 --> 00:44:10,400
the spacex teams are also gathered um in

1003
00:44:14,390 --> 00:44:12,720
firing room four and then we have the

1004
00:44:16,950 --> 00:44:14,400
the launch view the mission control

1005
00:44:19,109 --> 00:44:16,960
center here there's a shot of our firing

1006
00:44:20,710 --> 00:44:19,119
room four there in florida at cape

1007
00:44:23,430 --> 00:44:20,720
canaveral you can just

1008
00:44:25,349 --> 00:44:23,440
barely make out pad 39a they're in the

1009
00:44:27,190 --> 00:44:25,359
distance they're through the window

1010
00:44:29,270 --> 00:44:27,200
um might be wondering why all the

1011
00:44:31,589 --> 00:44:29,280
different mission control rooms the one

1012
00:44:33,349 --> 00:44:31,599
in johnson as dan was saying you know

1013
00:44:34,870 --> 00:44:33,359

that's really mission control for the

1014
00:44:37,030 --> 00:44:34,880
international space station and those

1015
00:44:39,670 --> 00:44:37,040
operations the control room that you see

1016
00:44:43,750 --> 00:44:39,680
there is for everything leading up to

1017
00:44:46,230 --> 00:44:43,760
launch um as soon as falcon 9 lifts off

1018
00:44:47,910 --> 00:44:46,240
uh responsibility and control transfers

1019
00:44:51,030 --> 00:44:47,920
to mission control center here in

1020
00:44:54,069 --> 00:44:51,040
hawthorne uh so just a quick explanation

1021
00:44:55,670 --> 00:44:54,079
for why why so many rooms with computers

1022
00:44:57,030 --> 00:44:55,680
exactly yeah in addition to all the

1023
00:44:59,349 --> 00:44:57,040
teams gathering here we've got teams of

1024
00:45:01,109 --> 00:44:59,359
our own gathering in houston at axiom

1025
00:45:04,309 --> 00:45:01,119
headquarters you can see there on your

1026
00:45:06,230 --> 00:45:04,319
screen axiom mission control with uh the

1027
00:45:11,589 --> 00:45:06,240
lovely axiom family behind them looking

1028
00:45:14,870 --> 00:45:13,190
all right well you know dan mentioned

1029
00:45:16,710 --> 00:45:14,880
that you know first we have launch then

1030
00:45:19,589 --> 00:45:16,720
we got rendezvous docking and then we've

1031
00:45:22,630 --> 00:45:19,599
got eight days of jam-packed activity on

1032
00:45:24,550 --> 00:45:22,640
the iso so busy yeah and docking day is

1033
00:45:26,390 --> 00:45:24,560
not it's not just a ride to space right

1034
00:45:28,309 --> 00:45:26,400
you you get up there you open that hatch

1035
00:45:30,150 --> 00:45:28,319
and crew is working i got a little

1036
00:45:31,589 --> 00:45:30,160
chance to look at some of their timeline

1037
00:45:33,349 --> 00:45:31,599
um and as soon as they open that door

1038
00:45:35,109 --> 00:45:33,359

they are getting invited in they are

1039
00:45:36,470 --> 00:45:35,119
getting trained on some emergency

1040
00:45:38,710 --> 00:45:36,480
procedures and then stepping right into

1041
00:45:40,230 --> 00:45:38,720
payload activity stowage transfers um

1042
00:45:41,589 --> 00:45:40,240
and just generally getting acclimated

1043
00:45:44,630 --> 00:45:41,599
but they're working before they go to

1044
00:45:46,710 --> 00:45:44,640
sleep and the work doesn't stop there

1045
00:45:48,550 --> 00:45:46,720
it sounds a lot like everything leading

1046
00:45:52,550 --> 00:45:48,560
up to launch itself you know everything

1047
00:45:55,030 --> 00:45:52,560
is scheduled planned um even you know we

1048
00:45:56,309 --> 00:45:55,040
know that even sleep time is scheduled

1049
00:45:58,309 --> 00:45:56,319
on the iss

1050
00:46:00,870 --> 00:45:58,319
and something that's uh incredible to me

1051
00:46:02,309 --> 00:46:00,880
is that not only do you have work to do

1052
00:46:03,750 --> 00:46:02,319
with you know your science experiments

1053
00:46:06,069 --> 00:46:03,760
and that kind of stuff not only do you

1054
00:46:08,230 --> 00:46:06,079
have to get some sleep before you can um

1055
00:46:10,790 --> 00:46:08,240
but you also have to exercise right the

1056
00:46:14,230 --> 00:46:10,800
exercise time which can be a couple

1057
00:46:18,630 --> 00:46:16,069
all right so good news there we have

1058
00:46:20,390 --> 00:46:18,640
begun locks load liquid oxygen loading

1059
00:46:22,630 --> 00:46:20,400
on second stage

1060
00:46:25,190 --> 00:46:22,640
so that is currently underway for first

1061
00:46:26,470 --> 00:46:25,200
and second stage as well as loading of

1062
00:46:28,630 --> 00:46:26,480
rp-1

1063
00:46:33,430 --> 00:46:28,640

which is our fuel on both first and

1064
00:46:35,750 --> 00:46:34,630
right and again you know some of those

1065
00:46:37,270 --> 00:46:35,760
things that he talked about it's all

1066
00:46:39,030 --> 00:46:37,280
following a timeline right and we are

1067
00:46:40,630 --> 00:46:39,040
listening for those important cues along

1068
00:46:42,630 --> 00:46:40,640
the way that we're hearing on these nets

1069
00:46:44,069 --> 00:46:42,640
or on the loops

1070
00:46:45,510 --> 00:46:44,079
listening for where are we along in that

1071
00:46:47,349 --> 00:46:45,520
timeline so we know exactly where we are

1072
00:46:49,670 --> 00:46:47,359
in terms of launch as we count down at

1073
00:46:52,550 --> 00:46:49,680
just t minus 15 from launch

1074
00:46:54,870 --> 00:46:52,560
yeah so i'm looking uh at my dashboard

1075
00:46:56,710 --> 00:46:54,880
here it looks like fuel load on second

1076
00:46:58,630 --> 00:46:56,720
stage is now complete

1077
00:47:00,870 --> 00:46:58,640
so we're beginning that locks load as we

1078
00:47:02,390 --> 00:47:00,880
just heard locks load and fuel load

1079
00:47:04,710 --> 00:47:02,400
continues on

1080
00:47:07,270 --> 00:47:04,720
first stage

1081
00:47:08,470 --> 00:47:07,280
axiom crew continuing to wait

1082
00:47:11,349 --> 00:47:08,480
following along with everything

1083
00:47:13,750 --> 00:47:11,359
happening there with the touch screen

1084
00:47:16,309 --> 00:47:13,760
displays there above them as well as

1085
00:47:17,829 --> 00:47:16,319
their tablets strapped to their legs

1086
00:47:20,549 --> 00:47:17,839
right everything continuing to look

1087
00:47:21,670 --> 00:47:20,559
nominal for liftoff in just about 15

1088
00:47:23,670 --> 00:47:21,680

minutes

1089
00:47:25,430 --> 00:47:23,680
and as we approach that liftoff in these

1090
00:47:27,510 --> 00:47:25,440
final moments of our countdown to launch

1091
00:47:29,430 --> 00:47:27,520
axiom space founders cam gefarin and

1092
00:47:31,349 --> 00:47:29,440
mike sufferdini wanted to take a moment

1093
00:47:34,470 --> 00:47:31,359
to reflect on this mission

1094
00:47:36,549 --> 00:47:34,480
well this moment for me and michael is a

1095
00:47:39,109 --> 00:47:36,559
very special moment

1096
00:47:41,430 --> 00:47:39,119
in a beginning of many beginnings right

1097
00:47:43,750 --> 00:47:41,440
the launch of ax1

1098
00:47:45,829 --> 00:47:43,760
uh going to international space station

1099
00:47:47,990 --> 00:47:45,839
as part of our journey to build the

1100
00:47:50,150 --> 00:47:48,000
first private commercial space station

1101
00:47:51,510 --> 00:47:50,160
and we're so grateful to be here and

1102
00:47:53,349 --> 00:47:51,520
delighted

1103
00:47:56,150 --> 00:47:53,359
at this moment as part of this

1104
00:47:59,270 --> 00:47:56,160
incredible journey to commercialize and

1105
00:48:01,589 --> 00:47:59,280
privatize low earth orbit on behalf of

1106
00:48:03,430 --> 00:48:01,599
cam and i we'd like to thank the entire

1107
00:48:05,990 --> 00:48:03,440
team that's made this historic journey

1108
00:48:07,990 --> 00:48:06,000
possible the spacex team in particular

1109
00:48:09,190 --> 00:48:08,000
has done a tremendous job of prepping

1110
00:48:11,589 --> 00:48:09,200
our crew for a launch on their

1111
00:48:13,589 --> 00:48:11,599
transportation vehicle the crew itself

1112
00:48:15,030 --> 00:48:13,599
has done a fantastic job of getting

1113
00:48:17,510 --> 00:48:15,040

themselves ready and playing their

1114
00:48:20,630 --> 00:48:17,520
research nasa of course we can't do this

1115
00:48:22,950 --> 00:48:20,640
without nasa's leadership and support

1116
00:48:24,549 --> 00:48:22,960
and to each of you in the axiom space

1117
00:48:26,309 --> 00:48:24,559
family we couldn't have done it without

1118
00:48:27,340 --> 00:48:26,319
you we're looking forward to a bright

1119
00:48:29,910 --> 00:48:27,350
future together

1120
00:48:32,630 --> 00:48:29,920
[Music]

1121
00:48:34,470 --> 00:48:32,640
t minus 14 minutes seven seconds and

1122
00:48:36,309 --> 00:48:34,480
continuing to count down

1123
00:48:38,710 --> 00:48:36,319
everything is still looking good for

1124
00:48:41,589 --> 00:48:38,720
launch of falcon 9 and dragon that'll

1125
00:48:43,349 --> 00:48:41,599
occur 17 minutes and 12 seconds after

1126
00:48:45,670 --> 00:48:43,359
the hour

1127
00:48:48,710 --> 00:48:45,680
as a recap falcon 9 began propellant

1128
00:48:51,510 --> 00:48:48,720
loading at t minus 35 minutes we just

1129
00:48:54,710 --> 00:48:51,520
heard loading of the rp1 fuel the

1130
00:48:58,230 --> 00:48:54,720
kerosene fuel on stage 2 was completed

1131
00:49:00,390 --> 00:48:58,240
right on time at t minus 20 minutes

1132
00:49:03,030 --> 00:49:00,400
we still got fuel going onto the first

1133
00:49:04,390 --> 00:49:03,040
stage looks like we're about 90 or so

1134
00:49:06,870 --> 00:49:04,400
full right now

1135
00:49:08,710 --> 00:49:06,880
fuel loading will finish up at t minus

1136
00:49:10,710 --> 00:49:08,720
six minutes and we'll hear that call out

1137
00:49:13,510 --> 00:49:10,720
in the countdown

1138
00:49:16,230 --> 00:49:13,520

meanwhile densified liquid oxygen is

1139
00:49:18,069 --> 00:49:16,240
continuing to load onto both the first

1140
00:49:20,390 --> 00:49:18,079
and second stages

1141
00:49:22,710 --> 00:49:20,400
first stage will close out at t minus

1142
00:49:25,270 --> 00:49:22,720
three minutes the second stage we just

1143
00:49:27,430 --> 00:49:25,280
began loading liquid oxygen at t minus

1144
00:49:28,230 --> 00:49:27,440
16 and a half minutes just a few minutes

1145
00:49:30,230 --> 00:49:28,240
ago

1146
00:49:32,150 --> 00:49:30,240
that'll wrap up at the t minus two

1147
00:49:34,230 --> 00:49:32,160
minute mark

1148
00:49:36,069 --> 00:49:34,240
now we load the liquid oxygen as late as

1149
00:49:38,230 --> 00:49:36,079
we can in the countdown

1150
00:49:39,270 --> 00:49:38,240
it's densified that means it's ultra

1151
00:49:41,270 --> 00:49:39,280
cold

1152
00:49:43,589 --> 00:49:41,280
well below the boiling point of liquid

1153
00:49:45,990 --> 00:49:43,599
oxygen that lets us put as much as we

1154
00:49:47,910 --> 00:49:46,000
can on the vehicle for performance and

1155
00:49:50,630 --> 00:49:47,920
getting it on board the vehicle just

1156
00:49:52,950 --> 00:49:50,640
before liftoff means it won't warm up

1157
00:49:55,270 --> 00:49:52,960
where you start to lose the ability to

1158
00:49:56,230 --> 00:49:55,280
put liquid oxygen onto the stages into

1159
00:49:58,790 --> 00:49:56,240
the tank

1160
00:50:01,190 --> 00:49:58,800
uh in the quantities we want so it stays

1161
00:50:03,030 --> 00:50:01,200
nice and cold it doesn't bleed off and

1162
00:50:05,109 --> 00:50:03,040
that gives us the performance we need on

1163
00:50:07,589 --> 00:50:05,119

falcon 9.

1164
00:50:09,670 --> 00:50:07,599
continuing on falcon 9 checkouts of the

1165
00:50:12,549 --> 00:50:09,680
thrust vector controllers what we call

1166
00:50:14,710 --> 00:50:12,559
tvc wiggles you may hear that term

1167
00:50:16,630 --> 00:50:14,720
they're coming up we're also going to be

1168
00:50:18,710 --> 00:50:16,640
doing throttle valve checkouts on the

1169
00:50:20,390 --> 00:50:18,720
merlin engines that helps control the

1170
00:50:22,630 --> 00:50:20,400
power of the engines as we go through

1171
00:50:25,030 --> 00:50:22,640
flight for example you hear a throttle

1172
00:50:29,030 --> 00:50:25,040
down or throttle up as we prepare for

1173
00:50:31,430 --> 00:50:29,040
the period of maximum dynamic pressure

1174
00:50:33,829 --> 00:50:31,440
as we come up on the 12-minute mark

1175
00:50:35,910 --> 00:50:33,839
the range continues to be go

1176
00:50:37,510 --> 00:50:35,920
uh roadblocks are up all the hazard

1177
00:50:41,030 --> 00:50:37,520
areas are clear

1178
00:50:43,349 --> 00:50:41,040
airspace c-space is good the weather is

1179
00:50:45,109 --> 00:50:43,359
go beautiful shots you can see here blue

1180
00:50:47,190 --> 00:50:45,119
skies i'm looking forward to some great

1181
00:50:48,470 --> 00:50:47,200
views from the cameras as we head into

1182
00:50:50,390 --> 00:50:48,480
space

1183
00:50:52,309 --> 00:50:50,400
and finally on the dragon side the

1184
00:50:54,790 --> 00:50:52,319
dragon mission director and team they're

1185
00:50:57,030 --> 00:50:54,800
reporting no issues we've done the

1186
00:50:58,950 --> 00:50:57,040
communication checkouts with the crew

1187
00:51:01,829 --> 00:50:58,960
you can see the crew access arm has

1188
00:51:04,309 --> 00:51:01,839

retracted into the launch position you

1189
00:51:05,990 --> 00:51:04,319
can see dragon now with the strung back

1190
00:51:07,589 --> 00:51:06,000
the transport erector and the umbilical

1191
00:51:08,549 --> 00:51:07,599
is going to drag and along alongside of

1192
00:51:10,549 --> 00:51:08,559
it

1193
00:51:12,390 --> 00:51:10,559
we've also armed the launch escape

1194
00:51:13,990 --> 00:51:12,400
system and obviously the crew is

1195
00:51:15,990 --> 00:51:14,000
strapped in the dragon capsule and

1196
00:51:17,750 --> 00:51:16,000
they're ready to go

1197
00:51:19,750 --> 00:51:17,760
final instructions of the crew will come

1198
00:51:21,990 --> 00:51:19,760
in about a minute and a half at t minus

1199
00:51:23,910 --> 00:51:22,000
10. we'll listen to that the crew

1200
00:51:25,589 --> 00:51:23,920
displays will be configured for launch

1201
00:51:27,349 --> 00:51:25,599
and that setup will give the crew

1202
00:51:29,589 --> 00:51:27,359
insight into how the launch is

1203
00:51:31,589 --> 00:51:29,599
proceeding and it provides constant

1204
00:51:33,430 --> 00:51:31,599
updates on vehicle health

1205
00:51:35,750 --> 00:51:33,440
the t-minus five minutes will be in the

1206
00:51:37,829 --> 00:51:35,760
terminal count for dragon dragon will

1207
00:51:40,230 --> 00:51:37,839
transition to internal power going to

1208
00:51:42,390 --> 00:51:40,240
its onboard batteries and off of the

1209
00:51:44,150 --> 00:51:42,400
external ground power

1210
00:51:46,470 --> 00:51:44,160
we're gonna hear continued call outs on

1211
00:51:49,589 --> 00:51:46,480
the countdown net as we go from t minus

1212
00:51:51,750 --> 00:51:49,599
10 to zero and then as we fly after t0

1213
00:51:53,589 --> 00:51:51,760

and liftoff we'll hear call outs as we

1214
00:51:55,750 --> 00:51:53,599
head into space

1215
00:51:59,190 --> 00:51:55,760
that'll be letting the crew know as they

1216
00:52:01,430 --> 00:51:59,200
reach each of the milestones

1217
00:52:03,030 --> 00:52:01,440
now next big event coming up at t minus

1218
00:52:05,270 --> 00:52:03,040
10 minutes is we're going to do launch

1219
00:52:06,950 --> 00:52:05,280
commit criteria and final instructions

1220
00:52:09,190 --> 00:52:06,960
will be going to the crew

1221
00:52:12,150 --> 00:52:09,200
one other thing that you will hear

1222
00:52:14,150 --> 00:52:12,160
is during ascent you may hear one alpha

1223
00:52:17,190 --> 00:52:14,160
one bravo two alpha

1224
00:52:19,990 --> 00:52:17,200
these are launch escape states is the

1225
00:52:21,030 --> 00:52:20,000
falcon 9 flies if a launch escape was

1226
00:52:23,190 --> 00:52:21,040
required

1227
00:52:25,430 --> 00:52:23,200
the crew on board knows where they are

1228
00:52:27,430 --> 00:52:25,440
passing various points in the countdown

1229
00:52:29,270 --> 00:52:27,440
and that would tell dragon what sequence

1230
00:52:31,829 --> 00:52:29,280
of events to execute to come off of the

1231
00:52:34,230 --> 00:52:31,839
falcon 9 and bring the crew back safely

1232
00:52:36,069 --> 00:52:34,240
down under the parachutes in the ocean

1233
00:52:38,710 --> 00:52:36,079
right now t minus 10 minutes let's

1234
00:52:40,230 --> 00:52:38,720
listen in to the countdown dragon spacex

1235
00:52:44,710 --> 00:52:40,240
confirmed crew displays are configured

1236
00:52:49,349 --> 00:52:46,309
spacex and pepper we confirm they're

1237
00:52:53,030 --> 00:52:51,430
stop the mla and on behalf of the entire

1238
00:52:54,630 --> 00:52:53,040

spacex team we're honored to have you

1239
00:52:56,790 --> 00:52:54,640
aboard endeavor for its third flight to

1240
00:52:58,549 --> 00:52:56,800
the international space station axiom

1241
00:53:00,309 --> 00:52:58,559
one marks a new step in commercial space

1242
00:53:02,710 --> 00:53:00,319
flight and research we wish you a great

1243
00:53:07,109 --> 00:53:02,720
mission good luck godspeed and enjoy the

1244
00:53:10,309 --> 00:53:08,549
thanks for those awards arthur i've got

1245
00:53:21,670 --> 00:53:10,319
a few of my own i'm going to let my crew

1246
00:53:24,790 --> 00:53:22,710
and

1247
00:53:26,069 --> 00:53:24,800
a few minutes before launching on this

1248
00:53:27,750 --> 00:53:26,079
journey

1249
00:53:30,470 --> 00:53:27,760
i wish to share with you the words of

1250
00:53:31,190 --> 00:53:30,480
the greek poet constantine kawasi that

1251
00:53:34,309 --> 00:53:31,200
will

1252
00:53:37,109 --> 00:53:34,319
describe the perspective of our

1253
00:53:39,910 --> 00:53:37,119
marvelous group

1254
00:53:42,470 --> 00:53:39,920
keep ithaca always in your mind

1255
00:53:43,589 --> 00:53:42,480
arriving there is what you are designed

1256
00:53:46,950 --> 00:53:43,599
for

1257
00:53:49,030 --> 00:53:46,960
but do not hurry the journey at all

1258
00:53:50,790 --> 00:53:49,040
better if it lasts

1259
00:53:53,030 --> 00:53:50,800
for years

1260
00:53:55,510 --> 00:53:53,040
to you so you are old

1261
00:53:57,670 --> 00:53:55,520
by the time you reach the island

1262
00:53:58,710 --> 00:53:57,680
wealthy with all you have gained on the

1263
00:54:03,430 --> 00:53:58,720

way

1264
00:54:07,670 --> 00:54:03,440
not expecting isaka to make you rich

1265
00:54:14,390 --> 00:54:07,680
itaka gave you this marvelous journey

1266
00:54:19,510 --> 00:54:16,950
far less elegantly or eloquently but uh

1267
00:54:21,510 --> 00:54:19,520
you sit here on the precipice of this

1268
00:54:25,190 --> 00:54:21,520
new era in human space flight and we do

1269
00:54:31,030 --> 00:54:25,200
so on the shoulders of professionals

1270
00:54:37,190 --> 00:54:34,390
we want to thank all the teams at spacex

1271
00:54:39,829 --> 00:54:37,200
falcon 9 dragon

1272
00:54:42,870 --> 00:54:39,839
the watch team at fourth closure seeing

1273
00:54:45,589 --> 00:54:42,880
all of the folks in mission control um

1274
00:54:47,430 --> 00:54:45,599
and of course our training team

1275
00:54:49,109 --> 00:54:47,440
this massive boy's been talking they're

1276
00:54:51,030 --> 00:54:49,119
the first time the bill is hard and

1277
00:54:53,750 --> 00:54:51,040
there's no playbook it's all open for

1278
00:54:56,549 --> 00:54:53,760
running but with iss programs commercial

1279
00:54:57,990 --> 00:54:56,559
wheel development and flight operations

1280
00:55:00,549 --> 00:54:58,000
we've learned a lot and we'll continue

1281
00:55:02,549 --> 00:55:00,559
to do so

1282
00:55:04,470 --> 00:55:02,559
we want to thank kim and seth for their

1283
00:55:06,470 --> 00:55:04,480
vision but especially all the people at

1284
00:55:07,829 --> 00:55:06,480
action for putting this mission together

1285
00:55:09,750 --> 00:55:07,839
with the amount of miracles that they

1286
00:55:12,470 --> 00:55:09,760
perform

1287
00:55:14,630 --> 00:55:12,480
all of you make no mistake are the men

1288
00:55:16,470 --> 00:55:14,640

and the women in the arena

1289
00:55:23,109 --> 00:55:16,480
their faces are marred

1290
00:55:27,990 --> 00:55:25,510
will have no place with their cold

1291
00:55:30,630 --> 00:55:28,000
intended souls to know either victory

1292
00:55:32,150 --> 00:55:30,640
nor defeat

1293
00:55:46,549 --> 00:55:32,160
the crew of the great ship endeavor is

1294
00:55:51,190 --> 00:55:48,710
some heartfelt words there's one engine

1295
00:55:56,950 --> 00:55:53,270
all right so there was the call that uh

1296
00:55:59,109 --> 00:55:56,960
we have begun to chill the engines

1297
00:56:01,510 --> 00:55:59,119
on the first stage so what we're doing

1298
00:56:03,829 --> 00:56:01,520
right now is flowing a little bit of the

1299
00:56:06,710 --> 00:56:03,839
super chilled liquid oxygen

1300
00:56:08,470 --> 00:56:06,720
through the turbo pumps on those m1d

1301
00:56:09,990 --> 00:56:08,480
engines there's nine of them at the base

1302
00:56:11,430 --> 00:56:10,000
of the first stage

1303
00:56:13,349 --> 00:56:11,440
and that's essentially bringing them

1304
00:56:15,670 --> 00:56:13,359
down to the temperature of that

1305
00:56:17,829 --> 00:56:15,680
superchilled liquid oxygen to prevent

1306
00:56:19,109 --> 00:56:17,839
any thermal shock to the hardware and

1307
00:56:22,549 --> 00:56:19,119
just before that call some really

1308
00:56:25,510 --> 00:56:22,559
heartfelt words from commander mla

1309
00:56:27,990 --> 00:56:25,520
and mission specialist ayton stibba

1310
00:56:36,180 --> 00:56:28,000
really love hearing that commentary

1311
00:56:36,190 --> 00:56:43,670
[Music]

1312
00:56:50,069 --> 00:56:46,230
at this point in time the

1313
00:56:51,990 --> 00:56:50,079

at this point in time uh fuel is

1314
00:56:54,710 --> 00:56:52,000
fully loaded on both the first and

1315
00:57:01,190 --> 00:56:54,720
second stage lox loading continues

1316
00:57:05,829 --> 00:57:04,230
coming up on five and a half minutes

1317
00:57:08,470 --> 00:57:05,839
kate's let us know that we've got the

1318
00:57:10,870 --> 00:57:08,480
field load complete next is coming up

1319
00:57:13,430 --> 00:57:10,880
with g minus five minutes dragon will be

1320
00:57:16,069 --> 00:57:13,440
transitioning configuration for terminal

1321
00:57:16,950 --> 00:57:16,079
count and going on its internal battery

1322
00:57:18,950 --> 00:57:16,960
power

1323
00:57:40,470 --> 00:57:18,960
everything continues to look good as

1324
00:57:44,630 --> 00:57:42,150
dragon is in configure for terminal

1325
00:57:54,710 --> 00:57:46,069
falcon 9 tanks are pressing for

1326
00:57:58,549 --> 00:57:56,470
you've heard the call out we're

1327
00:57:59,670 --> 00:57:58,559
pressurizing the tanks for strong back

1328
00:58:01,750 --> 00:57:59,680
retract

1329
00:58:03,510 --> 00:58:01,760
we'll hear a sequence momentarily strong

1330
00:58:05,910 --> 00:58:03,520
back is retracting actually that's the

1331
00:58:07,750 --> 00:58:05,920
start of about a one minute sequence

1332
00:58:09,910 --> 00:58:07,760
about t-minus four minutes the clamp

1333
00:58:11,589 --> 00:58:09,920
arms that you can see there will open

1334
00:58:14,470 --> 00:58:11,599
and then

1335
00:58:16,069 --> 00:58:14,480
there

1336
00:58:17,589 --> 00:58:16,079
so we've heard the call out that's the

1337
00:58:19,670 --> 00:58:17,599
start of the sequence

1338
00:58:21,109 --> 00:58:19,680

doesn't mean that the clamp arms are

1339
00:58:26,950 --> 00:58:21,119
late opening

1340
00:58:30,870 --> 00:58:29,190
as you can hear the excitement and the

1341
00:58:33,670 --> 00:58:30,880
crowd is really growing

1342
00:58:37,829 --> 00:58:33,680
here at spacex headquarters at hawthorne

1343
00:58:43,270 --> 00:58:39,829
there you can see the clamp arms have

1344
00:58:55,270 --> 00:58:45,510
and next we should see the strong back

1345
00:58:59,829 --> 00:58:58,150
this structure is what we basically use

1346
00:59:02,230 --> 00:58:59,839
to transport

1347
00:59:03,430 --> 00:59:02,240
the fully integrated vehicle to and from

1348
00:59:05,190 --> 00:59:03,440
the hangar

1349
00:59:06,789 --> 00:59:05,200
from the hanger to the launch pad and

1350
00:59:15,190 --> 00:59:06,799
there you can see that strong back

1351
00:59:20,630 --> 00:59:19,030
everything continued to look nominal as

1352
00:59:23,030 --> 00:59:20,640
we're now under three and a half minutes

1353
00:59:25,829 --> 00:59:23,040
until launch

1354
00:59:28,710 --> 00:59:25,839
rp-1 fuel is fully loaded on first and

1355
00:59:33,589 --> 00:59:31,349
should be wrapping up locksload on

1356
00:59:37,349 --> 00:59:33,599
the first stage momentarily

1357
00:59:50,230 --> 00:59:37,359
and continuing to fill on second stage

1358
00:59:55,670 --> 00:59:52,870
we're under three minutes until liftoff

1359
00:59:57,430 --> 00:59:55,680
of the axiom one mission

1360
00:59:59,430 --> 00:59:57,440
dragon is in terminal count and is on

1361
01:00:01,030 --> 00:59:59,440
internal power

1362
01:00:02,549 --> 01:00:01,040
all right there we heard that dragon is

1363
01:00:04,549 --> 01:00:02,559

on internal power

1364
01:00:06,950 --> 01:00:04,559
as i was saying we're getting close the

1365
01:00:08,870 --> 01:00:06,960
crowds are growing the excitement is

1366
01:00:10,150 --> 01:00:08,880
palpable

1367
01:00:11,990 --> 01:00:10,160
you can see there on the left-hand side

1368
01:00:14,069 --> 01:00:12,000
of your screen mission control here in

1369
01:00:15,829 --> 01:00:14,079
hawthorne california just behind where

1370
01:00:17,190 --> 01:00:15,839
john and i are

1371
01:00:18,789 --> 01:00:17,200
and then on the right hand side that

1372
01:00:20,549 --> 01:00:18,799
looks like axiom mission control it's

1373
01:00:29,990 --> 01:00:20,559
like axiom mission control in houston

1374
01:00:34,230 --> 01:00:31,510
all right at this point in time that

1375
01:00:36,630 --> 01:00:34,240
locks load on first stage is complete

1376
01:00:39,990 --> 01:00:36,640
so the first stage is now fully loaded

1377
01:00:48,069 --> 01:00:40,000
with all of its propellant

1378
01:00:52,230 --> 01:00:50,069
as we've mentioned before stage two load

1379
01:00:54,150 --> 01:00:52,240
is complete

1380
01:00:56,470 --> 01:00:54,160
all right so there's that call at this

1381
01:00:57,990 --> 01:00:56,480
point in time falcon 9 dragon is an auto

1382
01:00:59,670 --> 01:00:58,000
idol

1383
01:01:02,309 --> 01:00:59,680
dragon is fully loaded with all of its

1384
01:01:05,750 --> 01:01:02,319
propellants nearly 1 million pounds

1385
01:01:05,760 --> 01:01:09,190
next event

1386
01:01:13,589 --> 01:01:11,430
the gas closeouts we finished

1387
01:01:15,109 --> 01:01:13,599
pressurizing the storage tanks on board

1388
01:01:16,789 --> 01:01:15,119

the falcon 9 they gave the crew the

1389
01:01:17,829 --> 01:01:16,799
heads up may hear some loud landing

1390
01:01:19,990 --> 01:01:17,839
noises

1391
01:01:22,390 --> 01:01:20,000
we're also going to vent down the liquid

1392
01:01:24,470 --> 01:01:22,400
oxygen line that carried the

1393
01:01:26,789 --> 01:01:24,480
box up to the second stage

1394
01:01:30,789 --> 01:01:26,799
generates a typical large white cloud of

1395
01:01:34,309 --> 01:01:32,710
big event coming up now t-minus one

1396
01:01:36,549 --> 01:01:34,319
minute all the flight computers take

1397
01:01:40,309 --> 01:01:36,559
over let's listen in to the last minute

1398
01:01:45,030 --> 01:01:42,950
fts is armed falcon 9 is in startup and

1399
01:01:54,870 --> 01:01:45,040
now controlling

1400
01:01:54,880 --> 01:02:01,109
dragon spacex go for launch

1401
01:02:08,150 --> 01:02:02,950
spacex endeavor we acknowledge go for

1402
01:02:08,160 --> 01:02:23,430
t-minus 30 seconds

1403
01:02:23,440 --> 01:02:29,029
t minus 15 seconds

1404
01:02:30,870 --> 01:02:29,910
10

1405
01:02:31,750 --> 01:02:30,880
9

1406
01:02:32,710 --> 01:02:31,760
8

1407
01:02:33,589 --> 01:02:32,720
7

1408
01:02:34,630 --> 01:02:33,599
6

1409
01:02:35,589 --> 01:02:34,640
five

1410
01:02:36,549 --> 01:02:35,599
four

1411
01:02:37,510 --> 01:02:36,559
three

1412
01:02:40,390 --> 01:02:37,520
two

1413
01:02:43,750 --> 01:02:40,400

one zero ignition

1414
01:02:54,390 --> 01:02:43,760
stop go falcon go dragon god speed axiom

1415
01:02:59,910 --> 01:02:57,750
together a new chapter begins godspeed

1416
01:03:15,430 --> 01:02:59,920
ax1

1417
01:03:20,230 --> 01:03:18,150
t-plus 38 seconds into this historic

1418
01:03:26,630 --> 01:03:20,240
mission flying crew on board dragon and

1419
01:03:30,630 --> 01:03:28,870
stage one throttle down

1420
01:03:41,510 --> 01:03:30,640
throttling down in the preparation for

1421
01:03:41,520 --> 01:03:48,960
falcon 9 is supersonic

1422
01:03:48,970 --> 01:03:52,870
[Music]

1423
01:03:58,230 --> 01:03:53,990
execute

1424
01:04:03,029 --> 01:04:00,390
burling1d engines coming back up to

1425
01:04:09,589 --> 01:04:04,150
one bravo

1426
01:04:11,829 --> 01:04:09,599
escape situation arise it tells the

1427
01:04:13,829 --> 01:04:11,839
dragonfly computer what profile to fly

1428
01:04:16,309 --> 01:04:13,839
using the super draco engines but

1429
01:04:19,270 --> 01:04:16,319
everything is looking good

1430
01:04:21,109 --> 01:04:19,280
on falcon 9.

1431
01:04:23,190 --> 01:04:21,119
we're getting nominal call-outs from all

1432
01:04:25,430 --> 01:04:23,200
the engineers and a great view from the

1433
01:04:31,510 --> 01:04:25,440
ground camera and the on-board

1434
01:04:35,589 --> 01:04:33,589
beginning to chill in the second stage

1435
01:04:37,430 --> 01:04:35,599
turbo pump in preparation for its

1436
01:04:42,549 --> 01:04:37,440
ignition coming up in just over half a

1437
01:04:46,309 --> 01:04:44,390
coming up on about three and a half g's

1438
01:04:48,069 --> 01:04:46,319

acceleration for the crew

1439
01:04:49,829 --> 01:04:48,079
we'll begin throttling down the merlin

1440
01:04:57,430 --> 01:04:49,839
engines to hold that period that level

1441
01:05:02,950 --> 01:04:59,349
next event coming up we're going to get

1442
01:05:05,270 --> 01:05:02,960
main engine cut off of the blind engines

1443
01:05:07,190 --> 01:05:05,280
get stage separation and ignition of the

1444
01:05:09,109 --> 01:05:07,200
second stage engine you've heard the

1445
01:05:19,109 --> 01:05:09,119
throttle down call out we're holding

1446
01:05:19,119 --> 01:05:23,390
and mikko

1447
01:05:33,580 --> 01:05:31,109
[Applause]

1448
01:05:37,910 --> 01:05:33,590
bad position

1449
01:05:40,230 --> 01:05:37,920
[Applause]

1450
01:05:42,710 --> 01:05:40,240
successful stage separation ignition of

1451
01:05:45,190 --> 01:05:42,720
the second stage engine on the left the

1452
01:05:47,510 --> 01:05:45,200
titanium grid fins beginning to slowly

1453
01:05:50,789 --> 01:05:47,520
deploy great views from the first stage

1454
01:05:53,029 --> 01:05:50,799
camera the first stage now begins a slow

1455
01:05:54,950 --> 01:05:53,039
flip maneuver you can see the white

1456
01:05:57,349 --> 01:05:54,960
nitrogen gas plumes

1457
01:05:58,789 --> 01:05:57,359
as we reorient for an entry back through

1458
01:05:59,750 --> 01:05:58,799
the earth's atmosphere a little bit

1459
01:06:01,589 --> 01:05:59,760
later

1460
01:06:03,349 --> 01:06:01,599
in the plus count

1461
01:06:06,150 --> 01:06:03,359
second stage we see the engine nozzles

1462
01:06:13,990 --> 01:06:07,990
everything continuing to look good on

1463
01:06:17,430 --> 01:06:15,829

we should be hearing call outs coming up

1464
01:06:30,230 --> 01:06:17,440
to the crew here shortly on how the

1465
01:06:35,029 --> 01:06:33,589
dragon spacex trajectory nominal

1466
01:06:37,430 --> 01:06:35,039
what we like to hear

1467
01:06:42,789 --> 01:06:37,440
signal bermuda

1468
01:06:44,789 --> 01:06:42,799
tracking station now getting telemetry

1469
01:06:47,829 --> 01:06:44,799
from the second stage of the falcon 9

1470
01:06:49,750 --> 01:06:47,839
with the dragon on top

1471
01:06:52,069 --> 01:06:49,760
two plus four minutes 10 seconds

1472
01:06:54,630 --> 01:06:52,079
everything continues to be nominal first

1473
01:06:56,789 --> 01:06:54,640
stage coasting to apogee and then it

1474
01:06:59,190 --> 01:06:56,799
will come back down for landing on the

1475
01:07:01,750 --> 01:06:59,200
drone ship second stage part way through

1476
01:07:03,029 --> 01:07:01,760
its lengthy burn to get the crew into

1477
01:07:05,190 --> 01:07:03,039
orbit

1478
01:07:10,470 --> 01:07:05,200
so kate four and a half minutes in

1479
01:07:14,789 --> 01:07:11,750
what a

1480
01:07:17,029 --> 01:07:14,799
absolutely picture perfect

1481
01:07:19,750 --> 01:07:17,039
liftoff

1482
01:07:25,029 --> 01:07:19,760
we've got a live view of the crew inside

1483
01:07:29,270 --> 01:07:26,150
looks like

1484
01:07:32,069 --> 01:07:29,280
uh everyone is still pretty comfy

1485
01:07:34,470 --> 01:07:32,079
uh as john had said earlier we got

1486
01:07:35,990 --> 01:07:34,480
trajectory nominal

1487
01:07:39,430 --> 01:07:36,000
all right good call out there that

1488
01:07:41,029 --> 01:07:39,440

trajectory is nominal uh

1489
01:07:42,789 --> 01:07:41,039
as john mentioned we got to about three

1490
01:07:47,190 --> 01:07:42,799
and a half g's there

1491
01:07:50,950 --> 01:07:48,630
on the left-hand side of your screen we

1492
01:07:53,270 --> 01:07:50,960
can see the first stage as it is making

1493
01:07:55,829 --> 01:07:53,280
its way back down to earth it's

1494
01:07:58,309 --> 01:07:55,839
targeting a landing on our drone ship a

1495
01:07:59,910 --> 01:07:58,319
shortfall of gravitas which is parked a

1496
01:08:03,349 --> 01:07:59,920
couple hundred miles off the coast of

1497
01:08:05,829 --> 01:08:03,359
florida out in the atlantic ocean

1498
01:08:08,470 --> 01:08:05,839
second stage on the right hand side

1499
01:08:11,029 --> 01:08:08,480
everything continues to be nominal there

1500
01:08:14,069 --> 01:08:11,039
as the mvac engine is powering the

1501
01:08:15,029 --> 01:08:14,079
second stage and dragon in denver it's

1502
01:08:17,510 --> 01:08:15,039
dragon

1503
01:08:20,330 --> 01:08:17,520
endeavor

1504
01:08:28,149 --> 01:08:20,340
to its targeted drop-off orbit

1505
01:08:31,510 --> 01:08:29,910
absolutely beautiful views of both the

1506
01:08:34,920 --> 01:08:31,520
first and second stage

1507
01:08:34,930 --> 01:08:41,590
[Applause]

1508
01:08:44,309 --> 01:08:43,269
all right so coming up in about a minute

1509
01:08:46,309 --> 01:08:44,319
and a half

1510
01:08:49,669 --> 01:08:46,319
uh the first stage will execute the

1511
01:08:52,789 --> 01:08:49,679
first of two burns required for today's

1512
01:08:55,189 --> 01:08:52,799
landing attempt um at about t plus 7

1513
01:08:56,870 --> 01:08:55,199

minutes and 30 seconds we'll see the

1514
01:08:59,669 --> 01:08:56,880
entry burn begin

1515
01:09:01,990 --> 01:08:59,679
that's where the first stage will ignite

1516
01:09:03,910 --> 01:09:02,000
the center engine first and then a

1517
01:09:06,789 --> 01:09:03,920
couple seconds later ignite two more

1518
01:09:09,910 --> 01:09:06,799
engines so a total of three engine burn

1519
01:09:11,829 --> 01:09:09,920
which will last about 29 seconds

1520
01:09:14,470 --> 01:09:11,839
the entry burn slows the vehicle down

1521
01:09:18,070 --> 01:09:14,480
significantly as it re-enters back into

1522
01:09:21,669 --> 01:09:20,149
the first stage sees high drag which

1523
01:09:23,510 --> 01:09:21,679
grabs roughly 70 percent of that

1524
01:09:26,789 --> 01:09:23,520
velocity by the time that the landing

1525
01:09:29,510 --> 01:09:27,990
stunning view where you can see the

1526
01:09:31,990 --> 01:09:29,520
curvature of the earth there on the left

1527
01:09:41,510 --> 01:09:32,000
hand side dragon spacex trajectory

1528
01:09:47,590 --> 01:09:44,309
there you can see the nitrogen gas

1529
01:09:49,030 --> 01:09:47,600
thruster so that's the puff of

1530
01:09:50,550 --> 01:09:49,040
gas that you see there occasionally

1531
01:09:53,110 --> 01:09:50,560
that's used for

1532
01:09:54,790 --> 01:09:53,120
attitude control systems we also utilize

1533
01:09:55,990 --> 01:09:54,800
those grid fins that you see there are

1534
01:09:57,430 --> 01:09:56,000
four of them

1535
01:09:58,870 --> 01:09:57,440
placed around

1536
01:10:00,790 --> 01:09:58,880
the booster

1537
01:10:02,950 --> 01:10:00,800
and those grid fins also help steer for

1538
01:10:03,830 --> 01:10:02,960

a precise landing

1539
01:10:08,070 --> 01:10:03,840
either

1540
01:10:12,709 --> 01:10:10,390
stage two all right there we can see

1541
01:10:14,950 --> 01:10:12,719
that that entry burn has begun

1542
01:10:18,229 --> 01:10:14,960
we are targeting a landing on our drone

1543
01:10:19,669 --> 01:10:18,239
ship a shortfall of gravitas today

1544
01:10:21,430 --> 01:10:19,679
everything continuing to look nominal

1545
01:10:23,830 --> 01:10:21,440
with trajectory and

1546
01:10:30,470 --> 01:10:23,840
mvac performance there for our second

1547
01:10:36,070 --> 01:10:34,229
so we are conducting the entry burn

1548
01:10:37,669 --> 01:10:36,080
previously the booster

1549
01:10:39,750 --> 01:10:37,679
burn shut down

1550
01:10:42,470 --> 01:10:39,760
that entry burn helps slow the booster

1551
01:10:45,750 --> 01:10:42,480
down it was going about 25 times the

1552
01:10:48,229 --> 01:10:45,760
speed of sound so we slow it down as it

1553
01:11:00,390 --> 01:10:48,239
reenters the dense part of the earth's

1554
01:11:05,750 --> 01:11:02,950
the next event is second engine cutoff

1555
01:11:09,910 --> 01:11:05,760
or seco one as you see it there on the

1556
01:11:15,430 --> 01:11:12,790
attached to internal guidance

1557
01:11:16,229 --> 01:11:15,440
that's where we shut down the m back

1558
01:11:21,830 --> 01:11:16,239
engine

1559
01:11:30,630 --> 01:11:21,840
copy shannon

1560
01:11:35,430 --> 01:11:33,030
note that our landing burn and second

1561
01:11:37,510 --> 01:11:35,440
engine cutoff uh will occur about the

1562
01:11:38,950 --> 01:11:37,520
same time shut down

1563
01:11:40,950 --> 01:11:38,960

all right we got a live view of the crew

1564
01:11:42,950 --> 01:11:40,960
inside dragon endeavor there on the

1565
01:11:46,550 --> 01:11:42,960
right hand side of your screen

1566
01:11:51,270 --> 01:11:48,470
landing burn has begun for the first day

1567
01:11:54,630 --> 01:11:53,189
all right great news there dragon

1568
01:11:57,750 --> 01:11:54,640
endeavor

1569
01:12:00,310 --> 01:11:57,760
nominal orbit insertion

1570
01:12:03,510 --> 01:12:00,320
spacex endeavor we copied and it's great

1571
01:12:05,350 --> 01:12:03,520
to be here zero g and we feel fine

1572
01:12:10,149 --> 01:12:05,360
stage one landing lake deploy spacex

1573
01:12:16,149 --> 01:12:13,110
as you can see this falcon 9 has landed

1574
01:12:20,390 --> 01:12:16,159
for the fifth time

1575
01:12:20,400 --> 01:12:25,669
while we can confirm the landing page

1576
01:12:29,910 --> 01:12:27,189
confirmed landing there of the first

1577
01:12:32,070 --> 01:12:29,920
stage booster also almost simultaneously

1578
01:12:33,510 --> 01:12:32,080
great news uh for the second stage we've

1579
01:12:35,910 --> 01:12:33,520
heard that there was nominal orbit

1580
01:12:38,470 --> 01:12:35,920
insertion uh for crew dragon endeavor

1581
01:12:39,510 --> 01:12:38,480
there you can see a live view inside our

1582
01:12:41,590 --> 01:12:39,520
dragon

1583
01:12:42,950 --> 01:12:41,600
looks like the crew is beginning to

1584
01:12:44,790 --> 01:12:42,960
adjust to zero gene if you look at the

1585
01:12:47,510 --> 01:12:44,800
right hand side corner it looks like we

1586
01:12:48,950 --> 01:12:47,520
can see the zero g indicator

1587
01:12:49,990 --> 01:12:48,960
that was one of mine

1588
01:12:51,030 --> 01:12:50,000

that was one of the things i really

1589
01:12:52,550 --> 01:12:51,040
wanted to see what they were going to

1590
01:12:55,510 --> 01:12:52,560
bring for their zero g indicators so i

1591
01:12:57,030 --> 01:12:55,520
can't wait to see what comes on it looks

1592
01:12:59,430 --> 01:12:57,040
i can't quite tell

1593
01:13:01,990 --> 01:12:59,440
pokemon

1594
01:13:03,830 --> 01:13:02,000
uh maybe okay well hopefully it'll it'll

1595
01:13:05,669 --> 01:13:03,840
come into closer view right now we'll

1596
01:13:07,430 --> 01:13:05,679
get to ask them later go to it yeah

1597
01:13:09,110 --> 01:13:07,440
great to see the crew here again

1598
01:13:12,630 --> 01:13:09,120
starting to like really getting their

1599
01:13:14,310 --> 01:13:12,640
first taste of microgravity

1600
01:13:16,070 --> 01:13:14,320
oh it has ears oh it's a bunny is that

1601
01:13:18,870 --> 01:13:16,080
bumper i think it might be i think

1602
01:13:20,950 --> 01:13:18,880
that's thumper from bambi

1603
01:13:23,590 --> 01:13:20,960
love it

1604
01:13:26,070 --> 01:13:23,600
so right now the second stage is

1605
01:13:28,550 --> 01:13:26,080
basically preparing for

1606
01:13:31,910 --> 01:13:28,560
dragon separation

1607
01:13:34,310 --> 01:13:31,920
we are the next step now that as we said

1608
01:13:39,750 --> 01:13:34,320
dragon has nominal orbital insertion the

1609
01:13:42,870 --> 01:13:41,510
use there of our

1610
01:13:44,790 --> 01:13:42,880
mvac engine

1611
01:13:47,110 --> 01:13:44,800
now shut off

1612
01:13:59,189 --> 01:13:47,120
no longer glowing

1613
01:14:06,470 --> 01:14:01,189

right now the second stage is about 200

1614
01:14:19,189 --> 01:14:09,350
preparing now for stage separation

1615
01:14:24,310 --> 01:14:21,030
for those of you that have just recently

1616
01:14:27,510 --> 01:14:24,320
joined us we had an on-time liftoff of

1617
01:14:29,510 --> 01:14:27,520
the axiom one crew they are now

1618
01:14:31,430 --> 01:14:29,520
in space and

1619
01:14:33,590 --> 01:14:31,440
coming up to separation from second

1620
01:14:34,870 --> 01:14:33,600
stage at which point

1621
01:14:37,030 --> 01:14:34,880
they will then begin to make their

1622
01:14:45,510 --> 01:14:37,040
journey continue their journey to the

1623
01:14:49,189 --> 01:14:46,870
the view that you're currently looking

1624
01:14:51,430 --> 01:14:49,199
at is inside the dragon trunk

1625
01:14:55,740 --> 01:14:51,440
which as you can see has just separated

1626
01:15:02,229 --> 01:14:59,990
[Applause]

1627
01:15:05,430 --> 01:15:02,239
on behalf of the falcon 19 welcome to

1628
01:15:06,790 --> 01:15:05,440
space thanks for flying falcon 9.

1629
01:15:08,950 --> 01:15:06,800
you guys enjoy your trip to that

1630
01:15:10,870 --> 01:15:08,960
wonderful space station in the sky do

1631
01:15:13,350 --> 01:15:10,880
some great research for us

1632
01:15:17,430 --> 01:15:13,360
we'll see you back here underground

1633
01:15:21,189 --> 01:15:19,669
and mla and and uh that's the crew

1634
01:15:22,390 --> 01:15:21,199
endeavor glad we got to have some fun

1635
01:15:23,669 --> 01:15:22,400
this morning

1636
01:15:25,350 --> 01:15:23,679
we'll probably be calling an early

1637
01:15:26,709 --> 01:15:25,360
weekend over here at the cape pass you

1638
01:15:27,750 --> 01:15:26,719

over to anna and the team you'll be in

1639
01:15:29,350 --> 01:15:27,760
good hands

1640
01:15:34,390 --> 01:15:29,360
godspeed endeavor enjoy the rest of your

1641
01:15:38,630 --> 01:15:37,270
hey mark it was a lot of fun i've been

1642
01:15:40,149 --> 01:15:38,640
to the guests we had a little bit more

1643
01:15:43,110 --> 01:15:40,159
than you did every thank you and your

1644
01:15:45,110 --> 01:15:43,120
launch team birthed you in the falcon 19

1645
01:15:54,310 --> 01:15:45,120
that was an override and we're looking

1646
01:15:58,229 --> 01:15:55,910
all right some

1647
01:16:04,950 --> 01:15:58,239
nice words there from a couple of key

1648
01:16:08,550 --> 01:16:07,189
my first quindar tone of the mission

1649
01:16:12,709 --> 01:16:08,560
yeah

1650
01:16:17,030 --> 01:16:15,189
there we expected this

1651
01:16:18,870 --> 01:16:17,040
expected loss to signal bermuda and new

1652
01:16:20,790 --> 01:16:18,880
hampshire there we can see

1653
01:16:22,310 --> 01:16:20,800
uh dragon endeavor

1654
01:16:24,630 --> 01:16:22,320
on its way to the international space

1655
01:16:25,750 --> 01:16:24,640
station it has separated there's a view

1656
01:16:27,990 --> 01:16:25,760
inside

1657
01:16:34,630 --> 01:16:28,000
nominal dehumidifier activation service

1658
01:16:40,149 --> 01:16:37,430
there we can see over the shoulder of

1659
01:16:45,590 --> 01:16:42,550
over the shoulder previously commander

1660
01:16:49,430 --> 01:16:45,600
mla was on the left and pilot larry

1661
01:17:02,870 --> 01:16:51,270
live view inside the cabin they just got

1662
01:17:07,350 --> 01:17:03,990
all right

1663
01:17:09,510 --> 01:17:07,360

so we can see that everyone is

1664
01:17:11,830 --> 01:17:09,520
in space we can see that zero g

1665
01:17:15,110 --> 01:17:11,840
indicator floating around a great view

1666
01:17:17,510 --> 01:17:15,120
there um of dragon endeavor now in space

1667
01:17:19,510 --> 01:17:17,520
with the axiom one crew on their way to

1668
01:17:21,189 --> 01:17:19,520
the international space station yeah i

1669
01:17:22,470 --> 01:17:21,199
mean this is a day of first you know

1670
01:17:23,990 --> 01:17:22,480
this is my first time getting to

1671
01:17:25,830 --> 01:17:24,000
participate in a launch like this is the

1672
01:17:27,750 --> 01:17:25,840
first for axiom and this is a first

1673
01:17:29,590 --> 01:17:27,760
first base flight and it's just

1674
01:17:31,750 --> 01:17:29,600
wonderful to see such a picture picture

1675
01:17:35,030 --> 01:17:31,760
perfect launch it really well we saw the

1676
01:17:36,310 --> 01:17:35,040
landing and we saw uh orbital or uh zero

1677
01:17:40,709 --> 01:17:36,320
g insertion at the same time i mean that

1678
01:17:43,910 --> 01:17:42,229
all right well as i just said today's

1679
01:17:45,830 --> 01:17:43,920
launch is one for the history books so

1680
01:17:47,590 --> 01:17:45,840
to punctuate this milestone that nasa

1681
01:17:49,590 --> 01:17:47,600
and commercial companies are able to

1682
01:17:51,830 --> 01:17:49,600
achieve together we go now to kennedy

1683
01:17:54,390 --> 01:17:51,840
space center where megan cruz is with

1684
01:17:56,229 --> 01:17:54,400
nasa's kathy leaders

1685
01:17:58,950 --> 01:17:56,239
i am here right now with the associate

1686
01:18:00,709 --> 01:17:58,960
administrator of nasa's space operations

1687
01:18:02,390 --> 01:18:00,719
mission directorate so great to have you

1688
01:18:05,270 --> 01:18:02,400

here kathy what did you think of the

1689
01:18:07,189 --> 01:18:05,280
launch oh my gosh it's always like you

1690
01:18:09,030 --> 01:18:07,199
know right in the

1691
01:18:11,430 --> 01:18:09,040
bottom of my throat i'm holding can't

1692
01:18:13,750 --> 01:18:11,440
breathe can't breathe yes but what a

1693
01:18:15,590 --> 01:18:13,760
beautiful beautiful sight yeah so good

1694
01:18:17,910 --> 01:18:15,600
to see it i want to tell everybody

1695
01:18:20,149 --> 01:18:17,920
working artemis one wet dress we're off

1696
01:18:23,110 --> 01:18:20,159
the range we're off the range for axiom

1697
01:18:25,270 --> 01:18:23,120
one and we can get moving but um you

1698
01:18:27,030 --> 01:18:25,280
always wanna hear

1699
01:18:29,590 --> 01:18:27,040
the engine cut off you always want to

1700
01:18:31,910 --> 01:18:29,600
hear that second stage engines lighting

1701
01:18:34,070 --> 01:18:31,920
you always want to hear you know each of

1702
01:18:36,310 --> 01:18:34,080
these stages and we need to just

1703
01:18:39,110 --> 01:18:36,320
keep carefully working through

1704
01:18:40,870 --> 01:18:39,120
the different steps to get that crew

1705
01:18:43,430 --> 01:18:40,880
there to the international space station

1706
01:18:45,669 --> 01:18:43,440
safely yeah what does axiom one

1707
01:18:46,950 --> 01:18:45,679
represent axiom one and also future

1708
01:18:49,430 --> 01:18:46,960
private astronaut missions to the

1709
01:18:53,430 --> 01:18:49,440
international space station hey you know

1710
01:18:55,830 --> 01:18:53,440
nasa's original goal was to enable

1711
01:18:57,990 --> 01:18:55,840
commercial industry that was actually in

1712
01:19:01,350 --> 01:18:58,000
our original space act agreement and so

1713
01:19:03,510 --> 01:19:01,360

here we are you know 60 years later

1714
01:19:05,350 --> 01:19:03,520
enabling that through our missions and

1715
01:19:07,830 --> 01:19:05,360
so i just feel like this is a

1716
01:19:09,910 --> 01:19:07,840
culmination of 60 years of work for us

1717
01:19:12,070 --> 01:19:09,920
and here we are once again getting to

1718
01:19:14,790 --> 01:19:12,080
see and for the first time the first

1719
01:19:16,870 --> 01:19:14,800
time getting to have commercial

1720
01:19:18,790 --> 01:19:16,880
you know private astronauts going to the

1721
01:19:21,030 --> 01:19:18,800
international space station and they'll

1722
01:19:22,950 --> 01:19:21,040
get to see what our government that what

1723
01:19:24,950 --> 01:19:22,960
they're calling professional astronauts

1724
01:19:27,750 --> 01:19:24,960
doing their real work but they're also

1725
01:19:29,669 --> 01:19:27,760
getting to do their work too and it's a

1726
01:19:32,070 --> 01:19:29,679
it's another place where

1727
01:19:34,470 --> 01:19:32,080
learning to peacefully work

1728
01:19:36,470 --> 01:19:34,480
in space i think is moving us forward

1729
01:19:38,229 --> 01:19:36,480
yeah so important and you know we just

1730
01:19:40,390 --> 01:19:38,239
watched axiom one lift off from that

1731
01:19:42,229 --> 01:19:40,400
launch pad right there behind us in a

1732
01:19:44,709 --> 01:19:42,239
couple of weeks we're going to see crew

1733
01:19:47,189 --> 01:19:44,719
4 launch from that same launch pad and

1734
01:19:48,790 --> 01:19:47,199
then just right next to it pad 39v we

1735
01:19:51,430 --> 01:19:48,800
have nasa's brand new space launch

1736
01:19:53,430 --> 01:19:51,440
system can you recall a busier time

1737
01:19:56,310 --> 01:19:53,440
we've had here at the space coast and

1738
01:19:58,870 --> 01:19:56,320

how is kennedy space center managing its

1739
01:20:00,950 --> 01:19:58,880
new role as this multi-user spaceport so

1740
01:20:03,430 --> 01:20:00,960
i think somebody else this is i mean bob

1741
01:20:05,750 --> 01:20:03,440
cabana had this dream of a multi-user

1742
01:20:08,070 --> 01:20:05,760
spaceport here so i think he should be

1743
01:20:10,310 --> 01:20:08,080
very very proud of his ksc team and

1744
01:20:12,550 --> 01:20:10,320
janet petro and her team are obviously

1745
01:20:14,870 --> 01:20:12,560
leading the way right now because this

1746
01:20:17,350 --> 01:20:14,880
is not easy to do it's not easy to go

1747
01:20:19,350 --> 01:20:17,360
make sure all these people have all the

1748
01:20:21,430 --> 01:20:19,360
capabilities and are obviously working

1749
01:20:24,149 --> 01:20:21,440
with our air force uh

1750
01:20:26,629 --> 01:20:24,159
sister agency there too and making sure

1751
01:20:28,950 --> 01:20:26,639
that all these launches get supported in

1752
01:20:31,189 --> 01:20:28,960
a seamless way just an amazing job yeah

1753
01:20:33,750 --> 01:20:31,199
a lot of juggling that has to happen so

1754
01:20:35,830 --> 01:20:33,760
you know i just talked about sls we are

1755
01:20:38,390 --> 01:20:35,840
looking forward to the moon with that

1756
01:20:41,830 --> 01:20:38,400
launch later this year you know

1757
01:20:43,750 --> 01:20:41,840
why is it still so important to maintain

1758
01:20:46,070 --> 01:20:43,760
a presence in low earth orbit when we're

1759
01:20:48,310 --> 01:20:46,080
looking towards the moon now because we

1760
01:20:50,229 --> 01:20:48,320
still don't have everything figured out

1761
01:20:52,229 --> 01:20:50,239
how to do things yet

1762
01:20:54,790 --> 01:20:52,239
for the moon and mars

1763
01:20:58,070 --> 01:20:54,800

and really the cheapest place for us to

1764
01:21:00,310 --> 01:20:58,080
see a differential gravity environment

1765
01:21:03,189 --> 01:21:00,320
and for the long term it's still leo

1766
01:21:05,590 --> 01:21:03,199
yeah and so we've got to continue to do

1767
01:21:07,430 --> 01:21:05,600
these long duration flights keep doing

1768
01:21:09,590 --> 01:21:07,440
our medical protocols keep doing our

1769
01:21:10,870 --> 01:21:09,600
physical protocols keep testing out our

1770
01:21:12,629 --> 01:21:10,880
equipment

1771
01:21:14,390 --> 01:21:12,639
through those long duration missions

1772
01:21:16,310 --> 01:21:14,400
it's only place where we can do that

1773
01:21:18,629 --> 01:21:16,320
right now and so

1774
01:21:21,510 --> 01:21:18,639
we still need to be able to have this

1775
01:21:24,629 --> 01:21:21,520
kind of a test bed for us to be

1776
01:21:27,189 --> 01:21:24,639
checking out and proving our protocols

1777
01:21:29,110 --> 01:21:27,199
our research our technology before you

1778
01:21:31,270 --> 01:21:29,120
go put somebody in a rocket that's going

1779
01:21:33,750 --> 01:21:31,280
to go to mars right so

1780
01:21:36,709 --> 01:21:33,760
just like always we prepare we get

1781
01:21:38,470 --> 01:21:36,719
ourselves ready and a lower orbit

1782
01:21:41,470 --> 01:21:38,480
destination is a perfect place to do

1783
01:21:43,830 --> 01:21:41,480
that and again how does us fostering

1784
01:21:46,229 --> 01:21:43,840
commercialization efforts in space how

1785
01:21:48,229 --> 01:21:46,239
does that free us up to pursue these

1786
01:21:50,629 --> 01:21:48,239
other dreams that we have as an agency

1787
01:21:51,910 --> 01:21:50,639
so you know the administrator today in

1788
01:21:55,110 --> 01:21:51,920

in the um

1789
01:21:57,590 --> 01:21:55,120
pre-mission conference he said you know

1790
01:22:00,550 --> 01:21:57,600
we right now are doing this is our first

1791
01:22:02,870 --> 01:22:00,560
step we're working with a a commercial

1792
01:22:04,229 --> 01:22:02,880
company to have them come to our

1793
01:22:06,470 --> 01:22:04,239
international space station and we're

1794
01:22:08,310 --> 01:22:06,480
learning to work together and figuring

1795
01:22:09,910 --> 01:22:08,320
out how to work together and this is

1796
01:22:12,470 --> 01:22:09,920
going to be an important step for us

1797
01:22:14,550 --> 01:22:12,480
because moving forward we would actually

1798
01:22:17,510 --> 01:22:14,560
like to now be able to

1799
01:22:19,110 --> 01:22:17,520
buy a ride and time on orbit yeah with

1800
01:22:21,270 --> 01:22:19,120
the commercial company to be able to

1801
01:22:23,110 --> 01:22:21,280
have them do that and so this is the

1802
01:22:24,950 --> 01:22:23,120
first step of their learning from us and

1803
01:22:26,310 --> 01:22:24,960
that's learning from them and then in

1804
01:22:28,390 --> 01:22:26,320
the future you know we're going to have

1805
01:22:30,709 --> 01:22:28,400
space station for another eight years

1806
01:22:33,110 --> 01:22:30,719
but we would like by the early 2030s for

1807
01:22:35,350 --> 01:22:33,120
us to be flipping the rules yeah and

1808
01:22:37,669 --> 01:22:35,360
have our professional astronauts going

1809
01:22:40,070 --> 01:22:37,679
up and and checking and doing and

1810
01:22:42,070 --> 01:22:40,080
focusing on the research and technology

1811
01:22:44,790 --> 01:22:42,080
we need for exploration

1812
01:22:46,709 --> 01:22:44,800
but allowing commercial providers to be

1813
01:22:49,030 --> 01:22:46,719

doing the hard work of maintaining the

1814
01:22:50,229 --> 01:22:49,040
laboratory kathy what an exciting future

1815
01:22:52,229 --> 01:22:50,239
i'm looking forward to seeing it and

1816
01:22:56,390 --> 01:22:52,239
thank you again for being here thank you

1817
01:23:02,149 --> 01:22:58,870
all right hey thanks megan it is great

1818
01:23:03,270 --> 01:23:02,159
to see the ax1 mission on orbit the team

1819
01:23:05,350 --> 01:23:03,280
here

1820
01:23:07,590 --> 01:23:05,360
with the space station already we're

1821
01:23:09,350 --> 01:23:07,600
ready to get them on board so their

1822
01:23:11,430 --> 01:23:09,360
journey just started they've got about

1823
01:23:12,790 --> 01:23:11,440
20 and a half hours until they're docked

1824
01:23:15,030 --> 01:23:12,800
to the space station again they're

1825
01:23:16,790 --> 01:23:15,040
headed for the zenith port on node 2

1826
01:23:19,110 --> 01:23:16,800
that's the space facing one on the very

1827
01:23:24,310 --> 01:23:19,120
top uh with that docking scheduled right

1828
01:23:25,910 --> 01:23:24,320
now for 11 45 gmt on saturday uh that is

1829
01:23:28,709 --> 01:23:25,920
just about

1830
01:23:30,629 --> 01:23:28,719
6 45 i have a feather

1831
01:23:32,390 --> 01:23:30,639
in my right hand a hammer

1832
01:23:34,070 --> 01:23:32,400
but i guess one of the reasons

1833
01:23:36,550 --> 01:23:34,080
we got here today was because of a

1834
01:23:38,950 --> 01:23:36,560
gentleman named galileo a long time ago

1835
01:23:41,590 --> 01:23:38,960
who made a rather significant discovery

1836
01:23:43,110 --> 01:23:41,600
about falling objects in gravity fields

1837
01:23:45,510 --> 01:23:43,120
and we thought that

1838
01:23:46,229 --> 01:23:45,520

where would be a better place to confirm

1839
01:23:47,510 --> 01:23:46,239
his

1840
01:23:49,350 --> 01:23:47,520
findings and

1841
01:23:51,270 --> 01:23:49,360
on the moon

1842
01:23:52,229 --> 01:23:51,280
and so we thought we'd try it here for

1843
01:23:54,070 --> 01:23:52,239
you

1844
01:23:55,830 --> 01:23:54,080
the feather happens to be appropriately

1845
01:24:36,850 --> 01:23:55,840
a falcon feather

1846
01:24:36,860 --> 01:24:40,870
[Music]

1847
01:24:40,880 --> 01:25:19,830
international

1848
01:25:19,840 --> 01:25:30,330
and nasa