1
00:01:25,109 --> 00:01:23,350
[Music]

2
00:01:26,550 --> 00:01:25,119
and you are looking live at a falcon 9

3
00:01:28,710 --> 00:01:26,560
rocket on the launch pad at the cape

4
00:01:31,030 --> 00:01:28,720
canaveral air force station in florida

5
00:01:32,870 --> 00:01:31,040
at 601 this evening the aerospace

6
00:01:34,789 --> 00:01:32,880
company spacex will launch a dragon

7
00:01:37,510 --> 00:01:34,799
cargo spacecraft on a nasa mission to

8
00:01:39,109 --> 00:01:37,520
resupply the international space station

9
00:01:41,270 --> 00:01:39,119
good evening and welcome everyone to

10
00:01:42,870 --> 00:01:41,280
nasa's kennedy space center for our live

11
00:01:44,950 --> 00:01:42,880
coverage of the launch of the 18th

12
00:01:47,910 --> 00:01:44,960
resupply mission for spacex i'm your

13
00:01:49,670 --> 00:01:47,920

host jennifer wolfinger we are about 16

14
00:01:51,270 --> 00:01:49,680
minutes away from the planned liftoff of

15
00:01:54,069 --> 00:01:51,280
a falcon 9 rocket from the coast of

16
00:01:55,429 --> 00:01:54,079
florida the mission to fly much needed

17
00:01:56,950 --> 00:01:55,439
astronaut supplies and research

18
00:01:58,630 --> 00:01:56,960
experiments up to the international

19
00:02:00,389 --> 00:01:58,640
space station

20
00:02:02,149 --> 00:02:00,399
and we have a team of correspondents

21
00:02:03,910 --> 00:02:02,159
across the country helping us cover all

22
00:02:05,270 --> 00:02:03,920
the angles of this launch

23
00:02:06,870 --> 00:02:05,280
we will head to the mission director

24
00:02:08,949 --> 00:02:06,880
center here on the space coast to get

25
00:02:10,309 --> 00:02:08,959
updates on the weather and the countdown

26
00:02:12,550 --> 00:02:10,319
and we'll head west to spacex

27
00:02:14,390 --> 00:02:12,560
headquarters in hawthorne california

28
00:02:16,070 --> 00:02:14,400
and check in at mission control houston

29
00:02:17,670 --> 00:02:16,080
at johnson space center

30
00:02:20,470 --> 00:02:17,680
we also have a correspondent here with

31
00:02:22,309 --> 00:02:20,480
one of the agency's top engineers

32
00:02:25,110 --> 00:02:22,319
but first here are some quick facts

33
00:02:27,350 --> 00:02:25,120
about today's launch

34
00:02:29,030 --> 00:02:27,360
spacex transported the falcon 9 rocket

35
00:02:30,869 --> 00:02:29,040
out to the launch pad and lifted it to

36
00:02:32,550 --> 00:02:30,879
vertical launch position for the 18th

37
00:02:34,630 --> 00:02:32,560
cargo resupply mission to the

38
00:02:35,990 --> 00:02:34,640

international space station

39
00:02:37,830 --> 00:02:36,000
the plan is to keep the dragon

40
00:02:39,509 --> 00:02:37,840
spacecraft docked to station for about

41
00:02:40,710 --> 00:02:39,519
four weeks before bringing it back to

42
00:02:42,390 --> 00:02:40,720
earth

43
00:02:44,070 --> 00:02:42,400
this is the third flight for the dragon

44
00:02:46,550 --> 00:02:44,080
spacecraft and the second time this

45
00:02:48,470 --> 00:02:46,560
falcon booster has been flown

46
00:02:50,150 --> 00:02:48,480
dragon will deliver more than 5 000

47
00:02:51,910 --> 00:02:50,160
pounds of astronaut supplies and

48
00:02:54,309 --> 00:02:51,920
payloads for science research to the

49
00:02:55,990 --> 00:02:54,319
orbiting laboratory

50
00:02:57,270 --> 00:02:56,000
now let's bring in nasa's daryl nail

51
00:02:58,710 --> 00:02:57,280
who's in the mission director's center

52
00:03:01,990 --> 00:02:58,720
just a few miles away from the launch

53
00:03:04,229 --> 00:03:02,000
pad daryl hey jen yes so weather is

54
00:03:06,550 --> 00:03:04,239
improving that was a concern yesterday

55
00:03:08,790 --> 00:03:06,560
and the cause of a scrubbed launch and a

56
00:03:11,670 --> 00:03:08,800
24-hour hold and now here we are back

57
00:03:13,750 --> 00:03:11,680
again trying it again and we have some

58
00:03:16,070 --> 00:03:13,760
weather issues as you look at this

59
00:03:18,790 --> 00:03:16,080
particular angle you can see that

60
00:03:21,830 --> 00:03:18,800
there's a cloud deck off in the distance

61
00:03:23,670 --> 00:03:21,840
that is a concern we just lifted the

62
00:03:25,990 --> 00:03:23,680
thick cloud layer rule which is a

63
00:03:28,309 --> 00:03:26,000

constraint that prevents launch in the

64
00:03:30,149 --> 00:03:28,319
cases of very thick clouds but then you

65
00:03:32,550 --> 00:03:30,159
look at this angle and you can see

66
00:03:35,430 --> 00:03:32,560
nothing but blue skies as we look out

67
00:03:37,670 --> 00:03:35,440
towards the east in the north so it is a

68
00:03:40,550 --> 00:03:37,680
dynamic situation and that's because we

69
00:03:42,710 --> 00:03:40,560
have a cold front that has stalled out

70
00:03:44,869 --> 00:03:42,720
over central florida i want to show you

71
00:03:46,789 --> 00:03:44,879
the radar and you can see what we mean

72
00:03:48,309 --> 00:03:46,799
here you see all the clouds around the

73
00:03:51,670 --> 00:03:48,319
green and the blue

74
00:03:53,910 --> 00:03:51,680
moving uh from west to east over florida

75
00:03:55,030 --> 00:03:53,920
you see where space launch complex 40 is

76
00:03:57,110 --> 00:03:55,040
and that's the spot where we'll be

77
00:04:00,309 --> 00:03:57,120
launching the rocket as you see those

78
00:04:03,190 --> 00:04:00,319
clouds moving and that rain moving to

79
00:04:05,910 --> 00:04:03,200
the east it has been dissipating a

80
00:04:09,270 --> 00:04:05,920
little earlier today we had issues with

81
00:04:11,830 --> 00:04:09,280
disturbed weather and thick clouds but

82
00:04:14,070 --> 00:04:11,840
weather officers just lifted the thick

83
00:04:16,390 --> 00:04:14,080
cloud layer rule and then just about an

84
00:04:19,430 --> 00:04:16,400
hour ago they lifted the disturbed

85
00:04:21,430 --> 00:04:19,440
weather rule so conditions are improving

86
00:04:23,749 --> 00:04:21,440
and that's a good thing here's our

87
00:04:25,270 --> 00:04:23,759
overall forecast for you the winds 8 to

88
00:04:28,550 --> 00:04:25,280

12 miles per hour out of the west

89
00:04:30,230 --> 00:04:28,560
northwest temperature low 80s concerns

90
00:04:31,110 --> 00:04:30,240
are disturbed weather and thick cloud

91
00:04:33,670 --> 00:04:31,120
rule

92
00:04:35,590 --> 00:04:33,680
but we are 50 percent go because of

93
00:04:38,390 --> 00:04:35,600
those lingering conditions around the

94
00:04:41,510 --> 00:04:38,400
pad but as of right now there's good

95
00:04:43,670 --> 00:04:41,520
news we are go for launch in terms of

96
00:04:45,830 --> 00:04:43,680
the weather right now

97
00:04:48,710 --> 00:04:45,840
the launch director not working any

98
00:04:50,950 --> 00:04:48,720
other issues with regards to the pad

99
00:04:53,749 --> 00:04:50,960
the rocket or the spacecraft and that's

100
00:04:56,070 --> 00:04:53,759
good news so everything's looking go

101
00:04:58,070 --> 00:04:56,080
at the moment we are counting down they

102
00:05:00,230 --> 00:04:58,080
are fueling up the rocket and we'll have

103
00:05:01,590 --> 00:05:00,240
an update for you in just a little bit

104
00:05:02,790 --> 00:05:01,600
so we'll send it back to you in the

105
00:05:04,310 --> 00:05:02,800
studio jen

106
00:05:05,830 --> 00:05:04,320
thanks daryl and we'll check back with

107
00:05:08,150 --> 00:05:05,840
you a little later

108
00:05:09,990 --> 00:05:08,160
right now we are about t minus 13

109
00:05:11,590 --> 00:05:10,000
minutes and counting let's check in with

110
00:05:13,590 --> 00:05:11,600
spacex headquarters in hawthorne

111
00:05:15,590 --> 00:05:13,600
california where the falcon 9 rocket and

112
00:05:17,350 --> 00:05:15,600
crew dragon were designed and built

113
00:05:19,909 --> 00:05:17,360

virgil kellehessen is joining us from

114
00:05:21,189 --> 00:05:19,919
spacex's mission control center virgil

115
00:05:24,629 --> 00:05:21,199
can you tell us a little bit about

116
00:05:26,550 --> 00:05:24,639
dragon's history and reusability

117
00:05:29,430 --> 00:05:26,560
sure thing jennifer this mission marks

118
00:05:30,870 --> 00:05:29,440
spacex's ninth launch of 2019 and today

119
00:05:33,189 --> 00:05:30,880
we'll be launching a flight proven

120
00:05:34,870 --> 00:05:33,199
dragon spacecraft this launch is also

121
00:05:36,629 --> 00:05:34,880
particularly exciting as it will be the

122
00:05:38,870 --> 00:05:36,639
first time we've flown dragon for a

123
00:05:40,550 --> 00:05:38,880
third mission this vehicle visited the

124
00:05:43,909 --> 00:05:40,560
international space station previously

125
00:05:47,110 --> 00:05:43,919
for our crs6 mission back in april 2015

126
00:05:49,350 --> 00:05:47,120
and for crs 13 in december 2017

127
00:05:51,110 --> 00:05:49,360
both falcon 9 and dragon were designed

128
00:05:52,870 --> 00:05:51,120
with re-flight in mind so the vehicle

129
00:05:54,550 --> 00:05:52,880
hardware is built to support multiple

130
00:05:56,950 --> 00:05:54,560
missions with minimal minimal

131
00:05:58,950 --> 00:05:56,960
refurbishment in between as noted this

132
00:06:00,230 --> 00:05:58,960
dragon has flown twice before while the

133
00:06:02,230 --> 00:06:00,240
booster you see on screen we'll be

134
00:06:03,990 --> 00:06:02,240
launching today has flown once

135
00:06:05,430 --> 00:06:04,000
after stage separation we'll be bringing

136
00:06:07,350 --> 00:06:05,440
it back to land and landing zone one at

137
00:06:08,629 --> 00:06:07,360
cape canaveral so that can be reused on

138
00:06:09,830 --> 00:06:08,639

future missions

139
00:06:12,309 --> 00:06:09,840
to provide a little historical

140
00:06:13,590 --> 00:06:12,319
background in 2010 spacex became the

141
00:06:15,590 --> 00:06:13,600
first private company to send a

142
00:06:17,510 --> 00:06:15,600
spacecraft to orbit and return it to

143
00:06:18,870 --> 00:06:17,520
earth then only two years later dragon

144
00:06:21,189 --> 00:06:18,880
became the first privately developed

145
00:06:22,710 --> 00:06:21,199
spacecraft to visit the space station

146
00:06:24,710 --> 00:06:22,720
our dragon spacecraft has been flying

147
00:06:26,870 --> 00:06:24,720
for nearly seven years now and today is

148
00:06:29,029 --> 00:06:26,880
one of the few vehicles that can deliver

149
00:06:31,270 --> 00:06:29,039
significant cargo to the iss and the

150
00:06:33,430 --> 00:06:31,280
only one that can deliver cargo from it

151
00:06:35,430 --> 00:06:33,440
to date spacex has made 19 trips to the

152
00:06:37,670 --> 00:06:35,440
iss and were under contract with nasa

153
00:06:39,830 --> 00:06:37,680
for a total of 26 of these cargo

154
00:06:41,270 --> 00:06:39,840
resupply missions with that back to you

155
00:06:42,710 --> 00:06:41,280
jennifer

156
00:06:44,390 --> 00:06:42,720
thanks virgil

157
00:06:46,150 --> 00:06:44,400
liftoff of today's rocket from launch

158
00:06:49,110 --> 00:06:46,160
complex 40 is timed right down to the

159
00:06:50,629 --> 00:06:49,120
very second the reason for this spacex

160
00:06:51,909 --> 00:06:50,639
needs to get their cargo spacecraft

161
00:06:53,830 --> 00:06:51,919
lined up to rendezvous with the

162
00:06:55,350 --> 00:06:53,840
international space station

163
00:06:57,189 --> 00:06:55,360

for more on this let's check in with

164
00:07:01,029 --> 00:06:57,199
nasa's leah cheshire who is live at

165
00:07:04,150 --> 00:07:02,550
thanks jennifer and welcome to the

166
00:07:06,390 --> 00:07:04,160
international space station flight

167
00:07:08,390 --> 00:07:06,400
control room in houston

168
00:07:10,230 --> 00:07:08,400
this is a team of flight controllers and

169
00:07:11,990 --> 00:07:10,240
each of them are experts on a specific

170
00:07:14,710 --> 00:07:12,000
system aboard the international space

171
00:07:16,870 --> 00:07:14,720
station they're being led today by greg

172
00:07:19,029 --> 00:07:16,880
whitney

173
00:07:21,110 --> 00:07:19,039
we also have six astronauts aboard the

174
00:07:23,350 --> 00:07:21,120
international space station that's

175
00:07:25,749 --> 00:07:23,360
christina cook alexia chinnan and nick

176
00:07:27,430 --> 00:07:25,759
hague who all arrived in march

177
00:07:29,749 --> 00:07:27,440
they're joined by luca parmitano

178
00:07:32,070 --> 00:07:29,759
alexander skvortsov and andrew morgan

179
00:07:34,629 --> 00:07:32,080
who just arrived on the 50th anniversary

180
00:07:36,790 --> 00:07:34,639
of the apollo 11 moon landing this past

181
00:07:38,550 --> 00:07:36,800
saturday july 20th

182
00:07:40,710 --> 00:07:38,560
we're nearing the 10 o'clock hour so the

183
00:07:42,309 --> 00:07:40,720
astronauts are off duty and they

184
00:07:45,430 --> 00:07:42,319
actually have the opportunity to be

185
00:07:47,350 --> 00:07:45,440
watching the launch this afternoon

186
00:07:48,950 --> 00:07:47,360
once dragon launches today it will

187
00:07:52,309 --> 00:07:48,960
arrive at the international space

188
00:07:54,309 --> 00:07:52,319

station on saturday morning july 27th

189
00:07:56,629 --> 00:07:54,319
there will be a process of astronaut

190
00:07:59,189 --> 00:07:56,639
nick hague entering the cupola module

191
00:08:01,270 --> 00:07:59,199
and he'll use the canadarm2 to reach out

192
00:08:03,430 --> 00:08:01,280
and grapple the spacecraft while backed

193
00:08:05,510 --> 00:08:03,440
up by nasa's christina cook

194
00:08:06,550 --> 00:08:05,520
he'll then turn the controls back over

195
00:08:08,710 --> 00:08:06,560
to

196
00:08:11,350 --> 00:08:08,720
robotics controllers here on the ground

197
00:08:13,990 --> 00:08:11,360
who will continue using the canadarm2 to

198
00:08:15,990 --> 00:08:14,000
reposition the spacecraft bring it up to

199
00:08:18,230 --> 00:08:16,000
the station's harmony module where it

200
00:08:19,430 --> 00:08:18,240
will be birthed and remain for about a

201
00:08:21,189 --> 00:08:19,440
month

202
00:08:22,950 --> 00:08:21,199
those are the processes and the

203
00:08:25,670 --> 00:08:22,960
milestones we'll be looking forward to

204
00:08:27,749 --> 00:08:25,680
this saturday july 27th and you can tune

205
00:08:30,390 --> 00:08:27,759
in to our live coverage beginning at 7

206
00:08:32,070 --> 00:08:30,400
30 a.m central time for now we're just

207
00:08:33,190 --> 00:08:32,080
looking forward to the launch back to

208
00:08:35,670 --> 00:08:33,200
you jennifer

209
00:08:37,190 --> 00:08:35,680
thanks leah the dragon spacecraft will

210
00:08:39,029 --> 00:08:37,200
be filled with critical materials to

211
00:08:39,990 --> 00:08:39,039
directly support science and research

212
00:08:42,149 --> 00:08:40,000
that will take place on the

213
00:08:43,990 --> 00:08:42,159

international space station

214
00:08:47,190 --> 00:08:44,000
a new international docking adapter

215
00:08:49,670 --> 00:08:47,200
called ida 3 is one of crs 18's primary

216
00:08:51,030 --> 00:08:49,680
payloads when installed the adapter will

217
00:08:52,790 --> 00:08:51,040
provide a connecting point for

218
00:08:54,949 --> 00:08:52,800
spacecraft designed to carry astronauts

219
00:08:56,870 --> 00:08:54,959
for nasa's commercial crew program as

220
00:08:58,150 --> 00:08:56,880
well as non-nasa missions

221
00:09:00,230 --> 00:08:58,160
the adapters are built to the

222
00:09:01,990 --> 00:09:00,240
international docking system standard

223
00:09:03,509 --> 00:09:02,000
which means any spacecraft designed

224
00:09:05,030 --> 00:09:03,519
using these measurements can use the

225
00:09:08,070 --> 00:09:05,040
adapter

226
00:09:10,150 --> 00:09:08,080
the bio fabrication facility or bff is

227
00:09:11,509 --> 00:09:10,160
designed to print organ-like tissues in

228
00:09:13,269 --> 00:09:11,519
microgravity

229
00:09:15,190 --> 00:09:13,279
printing the complex structures found

230
00:09:16,790 --> 00:09:15,200
inside human organs has proven difficult

231
00:09:18,070 --> 00:09:16,800
to accomplish in earth's gravity

232
00:09:20,870 --> 00:09:18,080
environment

233
00:09:23,030 --> 00:09:20,880
bff is an early step in a long-term plan

234
00:09:24,949 --> 00:09:23,040
to eventually manufacture whole human

235
00:09:27,030 --> 00:09:24,959
organs in space

236
00:09:28,389 --> 00:09:27,040
another exciting payload is the bio rock

237
00:09:30,389 --> 00:09:28,399
investigation

238
00:09:32,310 --> 00:09:30,399

with biorock we hope to gain insights

239
00:09:34,230 --> 00:09:32,320
into how microbes grow in space and how

240
00:09:36,470 --> 00:09:34,240
we might use them in human exploration

241
00:09:38,310 --> 00:09:36,480
and settlement of space from mining to

242
00:09:41,030 --> 00:09:38,320
turning rocks into soil on the moon and

243
00:09:44,310 --> 00:09:42,790
we are now about eight minutes from

244
00:09:45,829 --> 00:09:44,320
launch let's head back over to the

245
00:09:47,750 --> 00:09:45,839
mission director center to get an update

246
00:09:49,269 --> 00:09:47,760
from nasa's darrell now

247
00:09:51,110 --> 00:09:49,279
all right jennifer that's right we're

248
00:09:52,790 --> 00:09:51,120
here at hangar ae at the cape canaveral

249
00:09:55,110 --> 00:09:52,800
air force station where things are

250
00:09:57,670 --> 00:09:55,120
looking good weather-wise they weren't

251
00:09:59,829 --> 00:09:57,680
earlier today in fact as you know we had

252
00:10:00,630 --> 00:09:59,839
rain throughout the area that rolled

253
00:10:02,389 --> 00:10:00,640
over

254
00:10:04,470 --> 00:10:02,399
the spaceport here

255
00:10:07,750 --> 00:10:04,480
but the rain has stopped

256
00:10:09,430 --> 00:10:07,760
you see a patch of blue sky uh

257
00:10:11,990 --> 00:10:09,440
in the previous angle and right there

258
00:10:14,470 --> 00:10:12,000
you see a whole bunch of blue sky so the

259
00:10:17,750 --> 00:10:14,480
weather has been improving as we've gone

260
00:10:21,670 --> 00:10:17,760
along today going from 70 percent no go

261
00:10:23,269 --> 00:10:21,680
to a 50 50 shot of uh going and if you

262
00:10:25,509 --> 00:10:23,279
just look at the conditions from some of

263
00:10:28,230 --> 00:10:25,519

these cameras you can clearly see some

264
00:10:30,790 --> 00:10:28,240
sunlight shining there on the rocket we

265
00:10:33,110 --> 00:10:30,800
know overhead it's looking good but

266
00:10:35,670 --> 00:10:33,120
weather officers are concerned with a 10

267
00:10:39,269 --> 00:10:35,680
mile radius around the launch pad as

268
00:10:40,949 --> 00:10:39,279
well as 20 miles out from the pad

269
00:10:43,190 --> 00:10:40,959
this would be downrange where the

270
00:10:45,430 --> 00:10:43,200
rockets going you can see here on our

271
00:10:48,630 --> 00:10:45,440
weather radar where space launch complex

272
00:10:51,590 --> 00:10:48,640
40 is in regards to this map and we've

273
00:10:54,389 --> 00:10:51,600
had good signs from this right here you

274
00:10:57,110 --> 00:10:54,399
see the weather the blue the green

275
00:10:59,269 --> 00:10:57,120
kind of dissipating as it goes along and

276
00:11:01,110 --> 00:10:59,279
that's showing the rain

277
00:11:03,350 --> 00:11:01,120
that's good news because they lifted

278
00:11:06,230 --> 00:11:03,360
that disturbed weather rule earlier

279
00:11:08,550 --> 00:11:06,240
today and you can certainly see why

280
00:11:10,949 --> 00:11:08,560
but as far as the thick clouds that is

281
00:11:13,269 --> 00:11:10,959
something they are still keeping an eye

282
00:11:15,670 --> 00:11:13,279
on now we just heard that they are

283
00:11:19,269 --> 00:11:15,680
chilling the engines now as you get a

284
00:11:21,829 --> 00:11:19,279
beautiful panorama shot of landing zone

285
00:11:24,150 --> 00:11:21,839
one where the booster will be coming

286
00:11:26,470 --> 00:11:24,160
back to land and we want to talk a

287
00:11:28,550 --> 00:11:26,480
little bit about the rocket and the

288
00:11:30,230 --> 00:11:28,560

spacecraft on this particular mission

289
00:11:32,150 --> 00:11:30,240
right there is the first time the

290
00:11:34,230 --> 00:11:32,160
booster came back the one that's on the

291
00:11:36,790 --> 00:11:34,240
pad today and a beautiful landing stuck

292
00:11:40,870 --> 00:11:36,800
it right there in the center

293
00:11:42,790 --> 00:11:40,880
that particular booster flew on crs 17

294
00:11:45,990 --> 00:11:42,800
came back down to land right here in

295
00:11:48,790 --> 00:11:46,000
cape canaveral against the backdrop of a

296
00:11:51,670 --> 00:11:48,800
beautiful ocean here at the atlantic and

297
00:11:53,509 --> 00:11:51,680
uh it's just a serene scene all around

298
00:11:56,389 --> 00:11:53,519
the pad there as it

299
00:11:59,829 --> 00:11:56,399
rocket engines fired to bring it down to

300
00:12:01,590 --> 00:11:59,839
a very uh beautiful landing and then

301
00:12:04,150 --> 00:12:01,600
there's the spacecraft at the top of the

302
00:12:06,389 --> 00:12:04,160
rocket which is also familiar to launch

303
00:12:09,269 --> 00:12:06,399
and there you can see a live look as

304
00:12:11,670 --> 00:12:09,279
oxygen liquid oxygen is venting off from

305
00:12:14,710 --> 00:12:11,680
the sides a close-up look at the side

306
00:12:17,750 --> 00:12:14,720
shows you uh just how it's been into

307
00:12:20,629 --> 00:12:17,760
space the two iss badges that you see

308
00:12:22,870 --> 00:12:20,639
under the letter p in spacex those mark

309
00:12:27,590 --> 00:12:22,880
the two previous missions that this

310
00:12:29,269 --> 00:12:27,600
dragon has flown on crs 13 and crs-6 no

311
00:12:30,230 --> 00:12:29,279
stranger to the international space

312
00:12:32,629 --> 00:12:30,240
station

313
00:12:35,110 --> 00:12:32,639

both greatly successful missions and now

314
00:12:38,389 --> 00:12:35,120
it is back for a third mission which

315
00:12:40,870 --> 00:12:38,399
marks a record for spacex and then on

316
00:12:43,910 --> 00:12:40,880
the right just underneath the x you can

317
00:12:46,949 --> 00:12:43,920
see the word apollo 50th and that was a

318
00:12:49,509 --> 00:12:46,959
nice badge that spacex put on there to

319
00:12:51,110 --> 00:12:49,519
help us commemorate apollo's 50th

320
00:12:53,269 --> 00:12:51,120
anniversary for

321
00:12:56,470 --> 00:12:53,279
apollo 11 which we just wrapped up a

322
00:12:58,550 --> 00:12:56,480
week of uh anniversary events uh for

323
00:13:00,389 --> 00:12:58,560
apollo 11 the return of neil armstrong

324
00:13:03,430 --> 00:13:00,399
buzz aldrin and michael

325
00:13:05,430 --> 00:13:03,440
collins from space on that historic

326
00:13:06,629 --> 00:13:05,440
mission to the moon in fact yesterday

327
00:13:10,790 --> 00:13:06,639
would mark

328
00:13:13,190 --> 00:13:10,800
50 years to the day that they returned

329
00:13:14,470 --> 00:13:13,200
in a splashdown out there in the pacific

330
00:13:15,910 --> 00:13:14,480
ocean

331
00:13:17,990 --> 00:13:15,920
now as you look at the rocket you'll

332
00:13:19,430 --> 00:13:18,000
note that top to bottom

333
00:13:22,790 --> 00:13:19,440
you see water

334
00:13:24,790 --> 00:13:22,800
vapor uh streaming off the side and then

335
00:13:27,030 --> 00:13:24,800
uh up near the

336
00:13:29,190 --> 00:13:27,040
the black portion of the rocket you see

337
00:13:31,269 --> 00:13:29,200
it venting some of that liquid oxygen

338
00:13:33,990 --> 00:13:31,279

and that's just to allow that pressure

339
00:13:37,990 --> 00:13:34,000
relief to go there but that rocket there

340
00:13:39,269 --> 00:13:38,000
is so cold and the air around it is so

341
00:13:42,310 --> 00:13:39,279
humid

342
00:13:44,069 --> 00:13:42,320
that's what creates that water vapor uh

343
00:13:46,550 --> 00:13:44,079
that you see coming off

344
00:13:48,150 --> 00:13:46,560
the falcon 9 rocket

345
00:13:51,189 --> 00:13:48,160
we're hearing from the launch director

346
00:13:52,629 --> 00:13:51,199
he's talking to his crew and uh so far

347
00:13:53,750 --> 00:13:52,639
everything's looking good we've

348
00:13:56,710 --> 00:13:53,760
proceeded

349
00:13:58,949 --> 00:13:56,720
uh pretty pretty good for this count no

350
00:14:01,430 --> 00:13:58,959
major issues were worked during the

351
00:14:04,629 --> 00:14:01,440
count and we're sitting at four minutes

352
00:14:07,910 --> 00:14:04,639
now and counting until launch and the

353
00:14:09,269 --> 00:14:07,920
weather is go and that's a good thing

354
00:14:11,509 --> 00:14:09,279
as we look at the rocket there you can

355
00:14:13,110 --> 00:14:11,519
clearly see we've got a beautiful

356
00:14:15,910 --> 00:14:13,120
blue sky above

357
00:14:17,829 --> 00:14:15,920
yesterday we had some issues as you if

358
00:14:19,509 --> 00:14:17,839
you followed the launch yesterday we had

359
00:14:21,910 --> 00:14:19,519
70 percent no go

360
00:14:23,750 --> 00:14:21,920
we got right up to 30 seconds

361
00:14:25,990 --> 00:14:23,760
and they called it off

362
00:14:27,750 --> 00:14:26,000
because the weather constraints

363
00:14:29,990 --> 00:14:27,760

wouldn't allow it to go

364
00:14:31,670 --> 00:14:30,000
and um but wouldn't you know it 12

365
00:14:33,750 --> 00:14:31,680
minutes later

366
00:14:34,710 --> 00:14:33,760
the range went green the weather went

367
00:14:37,110 --> 00:14:34,720
green

368
00:14:39,590 --> 00:14:37,120
so it was similar to today

369
00:14:41,750 --> 00:14:39,600
in that we had weather that was looking

370
00:14:44,870 --> 00:14:41,760
a little dicey and early going

371
00:14:46,870 --> 00:14:44,880
but then just steadily improved

372
00:14:48,629 --> 00:14:46,880
all right we're three minutes and 21

373
00:14:50,230 --> 00:14:48,639
seconds now and so

374
00:14:53,430 --> 00:14:50,240
things are starting to ramp up here in

375
00:14:59,110 --> 00:14:55,030
they're getting ready to check the

376
00:15:03,110 --> 00:15:00,550
they're also sending up some weather

377
00:15:05,750 --> 00:15:03,120
balloons to make sure that the upper

378
00:15:07,430 --> 00:15:05,760
levels of the atmosphere are still good

379
00:15:09,269 --> 00:15:07,440
to go because you can see in this shot

380
00:15:10,150 --> 00:15:09,279
you see the clouds off to the

381
00:15:11,990 --> 00:15:10,160
right

382
00:15:14,069 --> 00:15:12,000
they're still worried about thick clouds

383
00:15:16,949 --> 00:15:14,079
so they've got weather balloons going up

384
00:15:19,189 --> 00:15:18,470
and we're just now hearing they closed

385
00:15:21,189 --> 00:15:19,199
out

386
00:15:23,269 --> 00:15:21,199
the locks

387
00:15:24,790 --> 00:15:23,279
liquid oxygen we've cleared our two

388
00:15:27,269 --> 00:15:24,800

constraints we were tracking earlier

389
00:15:29,189 --> 00:15:27,279
today what's this acceptable for flight

390
00:15:31,590 --> 00:15:29,199
evaluation of

391
00:15:33,749 --> 00:15:31,600
uh dragon paint on the trunk section

392
00:15:35,990 --> 00:15:33,759
indicates uh no concerns

393
00:15:39,749 --> 00:15:36,000
again now t-mass two minutes thirty

394
00:15:50,069 --> 00:15:41,590
so good sign there from the launch

395
00:15:55,189 --> 00:15:52,230
in just about 60 seconds

396
00:16:00,150 --> 00:15:55,199
they'll um put the falcon 9 in startup

397
00:16:04,150 --> 00:16:02,550
and right about the same time

398
00:16:05,269 --> 00:16:04,160
they'll command the flight computer for

399
00:16:12,550 --> 00:16:05,279
the final

400
00:16:12,560 --> 00:16:27,430
hd lock loads closed down

401
00:16:32,710 --> 00:16:29,670
some beautiful views around the cape

402
00:16:35,749 --> 00:16:32,720
as we are go for launch in terms of the

403
00:16:38,150 --> 00:16:35,759
weather we're now listening for the

404
00:16:40,790 --> 00:16:38,160
launch director to tell us

405
00:16:43,509 --> 00:16:40,800
whether they are go for launch

406
00:16:49,189 --> 00:16:43,519
from his team and that's going to happen

407
00:16:52,550 --> 00:16:51,269
see there all the venting both on the

408
00:16:57,509 --> 00:16:52,560
rocket and

409
00:16:57,519 --> 00:17:06,630
she's fueled up and ready to go

410
00:17:12,949 --> 00:17:09,429
falcon 9 startup

411
00:17:21,029 --> 00:17:14,230
all right now we're listening for that

412
00:17:21,039 --> 00:17:23,750
go for lunch

413
00:17:23,760 --> 00:17:32,070

and there it is the final seconds now

414
00:17:37,110 --> 00:17:33,830
at about 18 seconds they're going to

415
00:17:43,909 --> 00:17:37,120
flood the pad with water 30 seconds

416
00:17:50,789 --> 00:17:46,549
ignition is at three seconds

417
00:17:50,799 --> 00:17:55,990
minus 15 seconds

418
00:18:00,789 --> 00:17:58,830
and the final seconds now eight

419
00:18:01,669 --> 00:18:00,799
seven six

420
00:18:02,549 --> 00:18:01,679
five

421
00:18:03,750 --> 00:18:02,559
four

422
00:18:04,710 --> 00:18:03,760
three

423
00:18:05,590 --> 00:18:04,720
two

424
00:18:08,150 --> 00:18:05,600
one

425
00:18:11,029 --> 00:18:08,160
zero ignition

426
00:18:13,750 --> 00:18:11,039
and liftoff of the falcon 9 rocket and

427
00:18:15,990 --> 00:18:13,760
the dragon spacecraft on the heels of

428
00:18:18,710 --> 00:18:16,000
the 50th anniversary of apollo 11's

429
00:18:21,029 --> 00:18:18,720
return for the moon we send more science

430
00:18:27,990 --> 00:18:21,039
and supplies up to the international

431
00:18:28,000 --> 00:18:35,510
one propulsion is nominal

432
00:18:35,520 --> 00:18:39,350
vehicle is pitching downrange

433
00:18:39,360 --> 00:18:54,710
beautiful so far

434
00:18:54,720 --> 00:18:58,789
foreign

435
00:19:07,350 --> 00:19:01,110
approaching max q maximum pressure of a

436
00:19:24,310 --> 00:19:10,710
the vehicle is supersonic

437
00:19:30,950 --> 00:19:25,990
vehicle is experiencing maximum

438
00:19:30,960 --> 00:19:36,070

effect engine chill

439
00:19:42,870 --> 00:19:38,390
so they begin chilling the engine on the

440
00:19:49,990 --> 00:19:45,110
beautiful shot there looking up the tail

441
00:20:05,350 --> 00:19:51,669
and there's the cape getting smaller and

442
00:20:09,029 --> 00:20:06,870
all right we're approaching main engine

443
00:20:11,990 --> 00:20:09,039
cutoff

444
00:20:27,669 --> 00:20:12,000
you'll see separation just a little bit

445
00:20:27,679 --> 00:20:31,190
and down they go

446
00:20:36,630 --> 00:20:32,390
nico

447
00:20:40,149 --> 00:20:38,710
and there goes the booster

448
00:20:42,310 --> 00:20:40,159
which is coming back to land here at the

449
00:20:46,310 --> 00:20:42,320
cape ignition stage one blue stack

450
00:20:49,830 --> 00:20:47,750
and there it is great shot of that

451
00:21:00,789 --> 00:20:49,840
booster coming off

452
00:21:09,909 --> 00:21:02,470
well you can see it clear as day in the

453
00:21:13,669 --> 00:21:12,070
that's the first of three burns

454
00:21:21,350 --> 00:21:13,679
as that booster gets ready to come back

455
00:21:26,549 --> 00:21:23,750
what a great shot

456
00:21:32,070 --> 00:21:26,559
and there's the second stage

457
00:21:32,080 --> 00:21:44,789
stage one boost back shutdown

458
00:21:49,909 --> 00:21:46,390
both vehicles are following nominal

459
00:21:55,190 --> 00:21:52,549
see the grid fins being deployed

460
00:21:57,110 --> 00:21:55,200
let's help steel steer the uh

461
00:22:29,830 --> 00:21:57,120
the booster back down to earth

462
00:22:34,710 --> 00:22:32,070
so you can see the

463
00:22:37,909 --> 00:22:34,720

little exhaust there that is steering

464
00:22:42,789 --> 00:22:37,919
that booster back down

465
00:22:46,070 --> 00:22:44,310
still got a shot of that booster coming

466
00:23:07,750 --> 00:22:46,080
down now it's vertical

467
00:23:19,830 --> 00:23:09,029
and it is

468
00:23:25,909 --> 00:23:21,590
both vehicles continue to follow nominal

469
00:23:30,390 --> 00:23:28,070
so spacex confirming that everything's

470
00:23:33,029 --> 00:23:30,400
looking good for both the booster that's

471
00:23:35,110 --> 00:23:33,039
falling back as well as the second stage

472
00:23:45,990 --> 00:23:35,120
the spacecraft they're

473
00:23:51,669 --> 00:23:47,590
it's hard to keep a track on that

474
00:24:00,549 --> 00:23:51,679
booster because it is falling fast

475
00:24:04,070 --> 00:24:02,390
all right we're going to toss it over to

476
00:24:06,230 --> 00:24:04,080
spacex and let them take it from here

477
00:24:07,190 --> 00:24:06,240
for the landing of the first stage as

478
00:24:11,190 --> 00:24:07,200
well as

479
00:24:15,029 --> 00:24:13,190
thank you daryl in order to make its way

480
00:24:16,710 --> 00:24:15,039
back to our landing zone the first stage

481
00:24:18,870 --> 00:24:16,720
is going to execute a series of three

482
00:24:20,310 --> 00:24:18,880
burns the first is a boost back burn

483
00:24:22,070 --> 00:24:20,320
which you've seen earlier which is meant

484
00:24:24,230 --> 00:24:22,080
to slow the rocket down and orient it

485
00:24:26,070 --> 00:24:24,240
for re-entry shortly after this first

486
00:24:28,310 --> 00:24:26,080
burn as you saw the grid fins deployed

487
00:24:29,830 --> 00:24:28,320
there's the fins located near the top of

488
00:24:32,070 --> 00:24:29,840

the first stage and they're deployed to

489
00:24:33,750 --> 00:24:32,080
help guide the rocket during descent

490
00:24:35,590 --> 00:24:33,760
following the boost back burn falcon 9

491
00:24:37,590 --> 00:24:35,600
executes an entry burn which is coming

492
00:24:38,870 --> 00:24:37,600
up shortly it's to slow itself down

493
00:24:40,950 --> 00:24:38,880
before hitting the dense part of the

494
00:24:42,870 --> 00:24:40,960
atmosphere now last is the landing burn

495
00:24:44,390 --> 00:24:42,880
which happens just before touchdown

496
00:24:46,070 --> 00:24:44,400
providing the booster a soft descent to

497
00:24:51,430 --> 00:24:46,080
land and our four landing legs also

498
00:24:54,549 --> 00:24:52,549
you just heard the call out for the

499
00:25:11,990 --> 00:24:54,559
stage one entry burn that will go for

500
00:25:17,029 --> 00:25:15,350
stage one entry burn shutdown

501
00:25:18,549 --> 00:25:17,039
at this point both the boost back burn

502
00:25:20,070 --> 00:25:18,559
and the entry burn have been completed

503
00:25:22,549 --> 00:25:20,080
so we're just waiting on that final

504
00:25:24,390 --> 00:25:22,559
landing burn coming up in about 10 to 15

505
00:25:25,669 --> 00:25:24,400
seconds let's keep an eye on the screen

506
00:25:27,110 --> 00:25:25,679
and see if we can see those engines

507
00:25:31,269 --> 00:25:27,120
light should be coming up in about 10

508
00:25:31,279 --> 00:25:50,310
fts is saved

509
00:25:50,320 --> 00:26:04,070
stage one entry transonic

510
00:26:07,190 --> 00:26:05,430
and you can hear the landing burn just

511
00:26:09,350 --> 00:26:07,200
started they heard the call out watch

512
00:26:16,870 --> 00:26:09,360
those landing legs to deploy coming up

513
00:26:16,880 --> 00:26:26,710

stage 2 is under terminal guidance

514
00:26:26,720 --> 00:26:33,669
those landing legs deploy

515
00:26:38,549 --> 00:26:36,230
and touchdown of the falcon 9 landing

516
00:26:40,710 --> 00:26:38,559
zone 1 and cape canaveral you can hear

517
00:26:43,269 --> 00:26:40,720
me congratulations everyone here at

518
00:26:45,110 --> 00:26:43,279
spacex ferg another successful landing

519
00:26:46,630 --> 00:26:45,120
this secondary mission is an important

520
00:26:49,190 --> 00:26:46,640
part of our commitment to vehicle

521
00:26:52,230 --> 00:26:49,200
reusability and this marks the 44th

522
00:26:55,269 --> 00:26:52,240
successful first stage recovery that's

523
00:26:59,029 --> 00:26:56,950
now back to our primary mission

524
00:27:01,510 --> 00:26:59,039
continuing with our second stage on its

525
00:27:04,149 --> 00:27:01,520
way to desired orbit the mvac d or

526
00:27:05,510 --> 00:27:04,159
merlin vacuum engine that you should see

527
00:27:08,310 --> 00:27:05,520
on screen shortly he's preparing to

528
00:27:10,470 --> 00:27:08,320
power down as expected the second engine

529
00:27:15,590 --> 00:27:10,480
cutoff is coming up shortly

530
00:27:19,269 --> 00:27:16,950
at this point there was a call up for a

531
00:27:21,430 --> 00:27:19,279
good orbit up next is deployment of

532
00:27:23,269 --> 00:27:21,440
dragon from that second stage now when

533
00:27:25,190 --> 00:27:23,279
dragon separates from the second stage

534
00:27:27,830 --> 00:27:25,200
we will get the first glimp inside its

535
00:27:29,430 --> 00:27:27,840
trunk dragon carries two types of cargo

536
00:27:31,430 --> 00:27:29,440
unpressurized cargo in that trunk

537
00:27:32,870 --> 00:27:31,440
section and pressurized cargo inside the

538
00:27:34,870 --> 00:27:32,880

capsule itself

539
00:27:36,470 --> 00:27:34,880
at this point we're about a few seconds

540
00:27:38,789 --> 00:27:36,480
or so from dragon separation so let's

541
00:27:53,740 --> 00:27:38,799
listen in for the call out on the net

542
00:28:00,830 --> 00:27:59,269
[Applause]

543
00:28:03,190 --> 00:28:00,840
on

544
00:28:05,590 --> 00:28:03,200
countdown successful deployment of the

545
00:28:07,190 --> 00:28:05,600
dragon spacecraft with dragon deployed

546
00:28:09,510 --> 00:28:07,200
the next major milestone will be

547
00:28:11,269 --> 00:28:09,520
deployment of the solar arrays as dragon

548
00:28:13,909 --> 00:28:11,279
makes its way to the international space

549
00:28:15,510 --> 00:28:13,919
station that's coming up in just about

550
00:28:17,990 --> 00:28:15,520
two minutes now let's pass it off to

551
00:28:21,350 --> 00:28:18,000
leah cheshire for coverage of the solar

552
00:28:25,350 --> 00:28:23,430
thanks virgil and wow that is so

553
00:28:26,389 --> 00:28:25,360
exciting to see not only a launch but an

554
00:28:29,029 --> 00:28:26,399
awesome

555
00:28:31,590 --> 00:28:29,039
return and also we are looking forward

556
00:28:33,190 --> 00:28:31,600
to the solar array deploys the next part

557
00:28:35,190 --> 00:28:33,200
of dragon's mission

558
00:28:36,870 --> 00:28:35,200
so that occurs about 12 minutes after

559
00:28:38,549 --> 00:28:36,880
launch and during the launch the

560
00:28:40,549 --> 00:28:38,559
international space station was flying

561
00:28:43,110 --> 00:28:40,559
about 254

562
00:28:45,350 --> 00:28:43,120
statute miles over oman

563
00:28:47,269 --> 00:28:45,360

near the arabian sea so we are going to

564
00:29:23,190 --> 00:28:47,279
take just a moment and wait for that

565
00:29:26,789 --> 00:29:25,510
this is dragon cc on countdown one

566
00:29:29,029 --> 00:29:26,799
dragon's propulsion system has

567
00:30:21,909 --> 00:29:29,039
successfully primed and all thrusters

568
00:30:31,430 --> 00:30:24,149
this is dragon cc on countdown one

569
00:30:53,190 --> 00:30:33,590
a great shot there of dragon beginning

570
00:30:53,200 --> 00:32:06,389
expected lost signal in bermuda

571
00:32:09,590 --> 00:32:08,630
and obviously we've got a great view of

572
00:32:13,029 --> 00:32:09,600
those

573
00:32:15,190 --> 00:32:13,039
solar arrays and

574
00:32:17,269 --> 00:32:15,200
just got the confirmation of successful

575
00:32:19,590 --> 00:32:17,279
deployments so sounds like they are

576
00:32:21,110 --> 00:32:19,600
providing power to the dragon over its

577
00:32:22,549 --> 00:32:21,120
two-day journey to the international

578
00:32:24,389 --> 00:32:22,559
space station

579
00:32:25,909 --> 00:32:24,399
dragon will begin firing its thrusters

580
00:32:28,470 --> 00:32:25,919
to bring it up to the same level as the

581
00:32:31,269 --> 00:32:28,480
space station which is traveling 17

582
00:32:33,750 --> 00:32:31,279
500 miles an hour and when it arrives on

583
00:32:36,389 --> 00:32:33,760
july 27th it will be the fifth visiting

584
00:32:38,070 --> 00:32:36,399
vehicle on the space station

585
00:32:40,470 --> 00:32:38,080
when it arrives it has a few uh

586
00:32:41,990 --> 00:32:40,480
checkpoints that it'll meet so first

587
00:32:43,990 --> 00:32:42,000
it'll become it'll come upon the

588
00:32:45,669 --> 00:32:44,000

approach ellipsoid that's an invisible

589
00:32:47,430 --> 00:32:45,679
line about a kilometer around the

590
00:32:49,669 --> 00:32:47,440
station and that's when the joint

591
00:32:51,190 --> 00:32:49,679
operations begin between mission control

592
00:32:54,070 --> 00:32:51,200
and spacex

593
00:32:56,549 --> 00:32:54,080
it'll then move on to a 250 meter hold

594
00:32:58,789 --> 00:32:56,559
point where a series of checks will be

595
00:33:00,950 --> 00:32:58,799
done on the dragon and then cross the

596
00:33:03,669 --> 00:33:00,960
200 meter keep out sphere that's another

597
00:33:06,310 --> 00:33:03,679
invisible line around the space station

598
00:33:08,470 --> 00:33:06,320
it'll move up to a 30 meter hold point

599
00:33:10,230 --> 00:33:08,480
that's the final hold point for dragon

600
00:33:12,310 --> 00:33:10,240
and the crews will continue to do some

601
00:33:13,990 --> 00:33:12,320
checks on the vehicle to make sure it's

602
00:33:17,029 --> 00:33:14,000
ready for capture

603
00:33:19,269 --> 00:33:17,039
it'll be about 10 to 12 meters away when

604
00:33:22,630 --> 00:33:19,279
nick hague takes the control of the

605
00:33:25,750 --> 00:33:22,640
canada arm 2 backed up by christina cook

606
00:33:27,190 --> 00:33:25,760
reaches out and grapples the spacecraft

607
00:33:29,669 --> 00:33:27,200
as we mentioned he will turn those

608
00:33:32,310 --> 00:33:29,679
controls over to robotics controllers on

609
00:33:34,789 --> 00:33:32,320
the ground who will use the canada arm 2

610
00:33:37,509 --> 00:33:34,799
to maneuver dragon into a birthing

611
00:33:39,909 --> 00:33:37,519
position up at the harmony module on the

612
00:33:42,070 --> 00:33:39,919
international space station

613
00:33:44,070 --> 00:33:42,080

the crew will begin to access the cargo

614
00:33:46,470 --> 00:33:44,080
over the next month while dragon remains

615
00:33:48,470 --> 00:33:46,480
attached before reloading it with

616
00:33:50,549 --> 00:33:48,480
supplies science that's been conducted

617
00:33:53,350 --> 00:33:50,559
on the space station and sending it back

618
00:33:55,110 --> 00:33:53,360
for a safe splash down

619
00:33:57,590 --> 00:33:55,120
but first we're just looking forward to

620
00:33:59,029 --> 00:33:57,600
dragon arrival so after that successful

621
00:34:01,110 --> 00:33:59,039
solar array deploy and now you know

622
00:34:02,870 --> 00:34:01,120
what's coming up next you can join us

623
00:34:06,230 --> 00:34:02,880
for the live coverage on saturday

624
00:34:08,470 --> 00:34:06,240
morning at 7 30 a.m central time with

625
00:34:11,109 --> 00:34:08,480
all of that thank you jennifer and back

626
00:34:12,310 --> 00:34:11,119
to you at kennedy space center

627
00:34:15,270 --> 00:34:12,320
thanks leah

628
00:34:16,629 --> 00:34:15,280
join us now spacex's virgil kellehessen

629
00:34:20,069 --> 00:34:16,639
virgil can you tell us a little bit

630
00:34:22,069 --> 00:34:20,079
about how launch went tonight

631
00:34:23,990 --> 00:34:22,079
be my pleasure jennifer we had a

632
00:34:26,310 --> 00:34:24,000
beautiful launch at space launch complex

633
00:34:28,310 --> 00:34:26,320
40 today and also a re-landing at uh

634
00:34:30,230 --> 00:34:28,320
landing zone one this was our seventh

635
00:34:32,230 --> 00:34:30,240
mission to launch a flight proven dragon

636
00:34:34,069 --> 00:34:32,240
to the space station i can confirm

637
00:34:36,470 --> 00:34:34,079
dragon is in good orbit as we saw the

638
00:34:38,710 --> 00:34:36,480

solar array is deployed on time and the

639
00:34:40,629 --> 00:34:38,720
gnc bay door opening should be underway

640
00:34:42,470 --> 00:34:40,639
shortly dragon is on its way to the

641
00:34:43,909 --> 00:34:42,480
international space station on track for

642
00:34:46,310 --> 00:34:43,919
capture on saturday morning at

643
00:34:48,470 --> 00:34:46,320
approximately 10 am eastern daylight

644
00:34:51,270 --> 00:34:48,480
time after birthing the astronauts

645
00:34:53,669 --> 00:34:51,280
aboard the iss will unload those 5 500

646
00:34:55,430 --> 00:34:53,679
pounds of crew supplies and payloads

647
00:34:57,190 --> 00:34:55,440
then dragon will return to earth after

648
00:34:59,270 --> 00:34:57,200
approximately one month stay at the

649
00:35:01,910 --> 00:34:59,280
orbiting laboratory all around it's been

650
00:35:03,990 --> 00:35:01,920
a successful mission so far and with

651
00:35:06,550 --> 00:35:04,000
that i want to thank you nasa the air

652
00:35:07,910 --> 00:35:06,560
force the faa and all of our customers

653
00:35:09,990 --> 00:35:07,920
for their support and hard work to

654
00:35:11,750 --> 00:35:10,000
ensure today's launch of success

655
00:35:13,670 --> 00:35:11,760
back to you jennifer

656
00:35:14,950 --> 00:35:13,680
thanks virgil along with all the

657
00:35:16,630 --> 00:35:14,960
supplies and equipment for the

658
00:35:18,069 --> 00:35:16,640
astronauts aboard the space station

659
00:35:20,069 --> 00:35:18,079
there's also a tremendous amount of

660
00:35:28,980 --> 00:35:20,079
science on this mission here's a look at

661
00:35:56,930 --> 00:35:34,320
[Music]

662
00:36:30,800 --> 00:35:56,940
[Applause]

663
00:37:11,030 --> 00:36:36,120

[Music]

664
00:37:14,150 --> 00:37:12,470
dragon is on its way to the space

665
00:37:16,790 --> 00:37:14,160
station with plenty of science on board

666
00:37:18,390 --> 00:37:16,800
for expedition 60 and beyond but there's

667
00:37:20,710 --> 00:37:18,400
also something traveling in dragon's

668
00:37:22,390 --> 00:37:20,720
trunk let's go to nasa's laura aguiar

669
00:37:24,230 --> 00:37:22,400
who is with a guest who can explain this

670
00:37:26,550 --> 00:37:24,240
cargo

671
00:37:28,470 --> 00:37:26,560
thank you so nasa has been setting the

672
00:37:30,550 --> 00:37:28,480
standard for space exploration and

673
00:37:33,030 --> 00:37:30,560
joining me now is jason august he's the

674
00:37:35,910 --> 00:37:33,040
project manager of nasa docking systems

675
00:37:37,430 --> 00:37:35,920
jason tell us what's in dragon's trunk

676
00:37:39,910 --> 00:37:37,440
well what we have here is the

677
00:37:43,030 --> 00:37:39,920
international docking adapter or ida

678
00:37:44,870 --> 00:37:43,040
this is ida 3 that will be flying we've

679
00:37:47,910 --> 00:37:44,880
previously flown a docking adapter to

680
00:37:49,589 --> 00:37:47,920
the space station ida 2 and this

681
00:37:52,470 --> 00:37:49,599
particular docking adapter will be

682
00:37:54,950 --> 00:37:52,480
installed on the top of node 2 in the

683
00:37:57,190 --> 00:37:54,960
node 2 zenith location so when the

684
00:37:59,270 --> 00:37:57,200
dragon gets to the space station what

685
00:38:01,430 --> 00:37:59,280
happens next well

686
00:38:05,030 --> 00:38:01,440
dragon will be birthing to the bottom of

687
00:38:07,430 --> 00:38:05,040
node 2 in at the node 2 nader location

688
00:38:10,790 --> 00:38:07,440

and what will happen is the ssr ms or

689
00:38:13,510 --> 00:38:10,800
the robotic arm with the spdm or the

690
00:38:16,390 --> 00:38:13,520
special purpose dexterous manipulator

691
00:38:18,470 --> 00:38:16,400
will actually grapple the ida and

692
00:38:20,550 --> 00:38:18,480
extract that from the trunk once it's

693
00:38:22,310 --> 00:38:20,560
extracted it will maneuver to a position

694
00:38:25,030 --> 00:38:22,320
where it can where it can thread the

695
00:38:27,990 --> 00:38:25,040
needle between the gem module and the

696
00:38:30,870 --> 00:38:28,000
pmm and go all the way to the top of the

697
00:38:33,270 --> 00:38:30,880
space station at the node to zenith

698
00:38:36,150 --> 00:38:33,280
location and then it will

699
00:38:38,950 --> 00:38:36,160
interface the idea with the pressurized

700
00:38:41,270 --> 00:38:38,960
mating adapter pma3

701
00:38:43,190 --> 00:38:41,280
okay so

702
00:38:44,950 --> 00:38:43,200
why do we have two adapters

703
00:38:47,190 --> 00:38:44,960
well we need two adapters because we're

704
00:38:49,109 --> 00:38:47,200
going to have more than one

705
00:38:51,270 --> 00:38:49,119
docked visiting vehicle at the space

706
00:38:52,710 --> 00:38:51,280
station at any given time

707
00:38:54,630 --> 00:38:52,720
we're going to have two commercial

708
00:38:56,470 --> 00:38:54,640
providers that will be

709
00:38:59,589 --> 00:38:56,480
ferrying crew to and from the space

710
00:39:01,670 --> 00:38:59,599
station that's spacex and boeing and we

711
00:39:03,030 --> 00:39:01,680
will also have future cargo missions

712
00:39:04,630 --> 00:39:03,040
visiting that will dock the space

713
00:39:07,349 --> 00:39:04,640

station as well so with all of that

714
00:39:09,990 --> 00:39:07,359
traffic we can't handle that with just

715
00:39:12,230 --> 00:39:10,000
one port so we need two docking ports

716
00:39:13,349 --> 00:39:12,240
well jason thank you very much it seems

717
00:39:15,109 --> 00:39:13,359
like we have something to look forward

718
00:39:17,510 --> 00:39:15,119
to on this mission

719
00:39:19,349 --> 00:39:17,520
back to you

720
00:39:20,950 --> 00:39:19,359
the international space station u.s

721
00:39:22,790 --> 00:39:20,960
national laboratory is sponsoring more

722
00:39:24,790 --> 00:39:22,800
than 50 experiments that just launched

723
00:39:26,690 --> 00:39:24,800
today here's a closer look at that

724
00:39:28,390 --> 00:39:26,700
research

725
00:39:29,589 --> 00:39:28,400
[Music]

726
00:39:31,349 --> 00:39:29,599
investigations sponsored by the

727
00:39:33,030 --> 00:39:31,359
international space station u.s national

728
00:39:35,510 --> 00:39:33,040
laboratory are primed for launch on

729
00:39:38,550 --> 00:39:35,520
spacex's 18th commercial resupply

730
00:39:39,990 --> 00:39:38,560
services mission to orbiting laboratory

731
00:39:41,589 --> 00:39:40,000
when we say that this launch is packed

732
00:39:43,990 --> 00:39:41,599
with research

733
00:39:45,670 --> 00:39:44,000
we need it this launch has more payloads

734
00:39:46,550 --> 00:39:45,680
than we have ever sent on a single

735
00:39:48,470 --> 00:39:46,560
mission

736
00:39:50,710 --> 00:39:48,480
private sector companies academic

737
00:39:53,670 --> 00:39:50,720
researchers stem projects life and

738
00:39:55,109 --> 00:39:53,680

physical sciences all on this mission

739
00:39:57,190 --> 00:39:55,119
so let's get an idea about some of the

740
00:39:58,180 --> 00:39:57,200
payloads that are launching on spacex

741
00:39:59,349 --> 00:39:58,190
crs18

742
00:40:00,950 --> 00:39:59,359
[Music]

743
00:40:02,390 --> 00:40:00,960
the goodyear tire and rubber company is

744
00:40:04,390 --> 00:40:02,400
sending what they hope is the first of

745
00:40:06,390 --> 00:40:04,400
many investigations to the iss national

746
00:40:08,150 --> 00:40:06,400
lab this initial experiment will

747
00:40:10,390 --> 00:40:08,160
evaluate the formation of silica

748
00:40:12,470 --> 00:40:10,400
particles in microgravity silica is a

749
00:40:14,710 --> 00:40:12,480
common material used in consumer tires

750
00:40:16,630 --> 00:40:14,720
however silica and rubber are materials

751
00:40:18,069 --> 00:40:16,640
that don't easily bond can the

752
00:40:20,230 --> 00:40:18,079
microgravity environment of the space

753
00:40:23,030 --> 00:40:20,240
station allow goodyear to find silica

754
00:40:24,550 --> 00:40:23,040
morphologies not possible on earth if so

755
00:40:26,630 --> 00:40:24,560
this could lead to improvements in fuel

756
00:40:29,270 --> 00:40:26,640
efficiency and other performance factors

757
00:40:30,870 --> 00:40:29,280
in consumer tires

758
00:40:32,950 --> 00:40:30,880
the space station is an ever-evolving

759
00:40:34,630 --> 00:40:32,960
research platform and nasa and the iss

760
00:40:36,150 --> 00:40:34,640
national lab are constantly sponsoring

761
00:40:38,230 --> 00:40:36,160
new facilities on the orbiting

762
00:40:40,390 --> 00:40:38,240
laboratory to increase the capacity for

763
00:40:42,470 --> 00:40:40,400

innovative research

764
00:40:44,390 --> 00:40:42,480
this launch america's first automated

765
00:40:46,309 --> 00:40:44,400
bio printer for use in space will make

766
00:40:48,390 --> 00:40:46,319
its way to station

767
00:40:49,670 --> 00:40:48,400
developed by techshot this bioprinter

768
00:40:51,910 --> 00:40:49,680
will initially seek to print

769
00:40:53,270 --> 00:40:51,920
cardiac-like tissue the printed tissues

770
00:40:55,030 --> 00:40:53,280
will remain on station until they are

771
00:40:57,109 --> 00:40:55,040
strong enough for the return trip to be

772
00:40:59,030 --> 00:40:57,119
analyzed on earth while the ability to

773
00:41:01,109 --> 00:40:59,040
manufacture human organs is likely many

774
00:41:03,349 --> 00:41:01,119
years away this bioprinter could lead to

775
00:41:05,270 --> 00:41:03,359
unique methods of industrial biomedicine

776
00:41:08,150 --> 00:41:05,280
and microgravity to develop materials

777
00:41:09,829 --> 00:41:08,160
for patient care on earth

778
00:41:11,349 --> 00:41:09,839
part of the role of the iss national lab

779
00:41:13,270 --> 00:41:11,359
is to inspire and educate the next

780
00:41:14,950 --> 00:41:13,280
generation and what better way to do

781
00:41:17,349 --> 00:41:14,960
that than by forming fun and exciting

782
00:41:18,870 --> 00:41:17,359
collaborations with unique partners

783
00:41:20,630 --> 00:41:18,880
not many young students understand the

784
00:41:22,870 --> 00:41:20,640
term non-newtonian fluidics in a

785
00:41:24,630 --> 00:41:22,880
microgravity environment

786
00:41:26,069 --> 00:41:24,640
however just about every young student

787
00:41:27,430 --> 00:41:26,079
is familiar with nickelodeon and its

788
00:41:29,270 --> 00:41:27,440

iconic slime

789
00:41:31,109 --> 00:41:29,280
so on this mission nickelodeon slime and

790
00:41:33,109 --> 00:41:31,119
space will make its way to station for a

791
00:41:35,190 --> 00:41:33,119
variety of demonstrations to educate

792
00:41:37,109 --> 00:41:35,200
students on the basic concepts of fluid

793
00:41:41,349 --> 00:41:37,119
flow and microgravity pair with normal

794
00:41:45,270 --> 00:41:43,430
so there you have it advanced materials

795
00:41:47,510 --> 00:41:45,280
industrial biomedicine education

796
00:41:49,510 --> 00:41:47,520
payloads new facilities and repeat

797
00:41:51,030 --> 00:41:49,520
flight partners this mission represents

798
00:41:52,870 --> 00:41:51,040
the demand that continues to build as

799
00:41:55,109 --> 00:41:52,880
more researchers and companies recognize

800
00:41:56,550 --> 00:41:55,119
the unique potential for sustained r d

801
00:41:58,470 --> 00:41:56,560
in microgravity

802
00:42:00,069 --> 00:41:58,480
to learn more about all iss national

803
00:42:01,670 --> 00:42:00,079
have sponsored payloads on this mission

804
00:42:03,270 --> 00:42:01,680
and how to become part of the space

805
00:42:09,990 --> 00:42:03,280
station research community visit

806
00:42:13,430 --> 00:42:11,750
joining me now is patrick o'neill the

807
00:42:15,349 --> 00:42:13,440
national lab expert you just saw in the

808
00:42:17,109 --> 00:42:15,359
video thanks for being here thank you so

809
00:42:18,630 --> 00:42:17,119
much for having me so you shared some

810
00:42:19,910 --> 00:42:18,640
information about the lab and the video

811
00:42:21,190 --> 00:42:19,920
can you tell us a little bit more about

812
00:42:22,630 --> 00:42:21,200
the research well i'm not sure if i can

813
00:42:24,230 --> 00:42:22,640

do as good of a job as the guy that was

814
00:42:25,670 --> 00:42:24,240
in that video just now but by the way

815
00:42:26,710 --> 00:42:25,680
first and foremost what a beautiful

816
00:42:28,309 --> 00:42:26,720
launch

817
00:42:30,230 --> 00:42:28,319
it never gets old and it's always so

818
00:42:31,990 --> 00:42:30,240
awesome to be out here to see a rocket

819
00:42:33,190 --> 00:42:32,000
go up and then on top of that to know

820
00:42:34,950 --> 00:42:33,200
that there is an incredible amount of

821
00:42:37,190 --> 00:42:34,960
science that's equally going up on that

822
00:42:38,150 --> 00:42:37,200
vehicle so uh about the research that's

823
00:42:40,230 --> 00:42:38,160
going on that's sponsored by the

824
00:42:42,069 --> 00:42:40,240
national laboratory so we just saw that

825
00:42:43,910 --> 00:42:42,079
video where we focused on a couple of

826
00:42:45,910 --> 00:42:43,920
payloads one of them from goodyear one

827
00:42:47,510 --> 00:42:45,920
of them from techshot who's going to be

828
00:42:48,870 --> 00:42:47,520
sending a bio printer up and then one of

829
00:42:50,950 --> 00:42:48,880
them from nickelodeon who's going to be

830
00:42:52,710 --> 00:42:50,960
doing a series of stem demonstrations

831
00:42:53,910 --> 00:42:52,720
and all of that's terrific but i also

832
00:42:55,349 --> 00:42:53,920
wanted to talk a little bit about some

833
00:42:57,510 --> 00:42:55,359
of the other investigations that are

834
00:42:58,870 --> 00:42:57,520
going to be going up on this mission um

835
00:43:00,790 --> 00:42:58,880
so as i mentioned in the video

836
00:43:02,390 --> 00:43:00,800
previously we're sending more payloads

837
00:43:04,390 --> 00:43:02,400
on this launch than we have ever sent

838
00:43:06,069 --> 00:43:04,400

for a national lab mission to the space

839
00:43:07,990 --> 00:43:06,079
station so that's exciting in and of

840
00:43:09,670 --> 00:43:08,000
itself but i think it's equally exciting

841
00:43:11,030 --> 00:43:09,680
when we talk about the amount of

842
00:43:13,910 --> 00:43:11,040
companies that are involved so we have

843
00:43:15,829 --> 00:43:13,920
17 separate investigations or payloads i

844
00:43:17,829 --> 00:43:15,839
should say that are private sector

845
00:43:19,910 --> 00:43:17,839
related so that's first of all that

846
00:43:21,829 --> 00:43:19,920
shows that there is a continuous demand

847
00:43:23,750 --> 00:43:21,839
for commercial researchers private

848
00:43:25,349 --> 00:43:23,760
sector utilization of the space station

849
00:43:26,950 --> 00:43:25,359
and then on top of that you know the

850
00:43:28,790 --> 00:43:26,960
types of people that are using it so

851
00:43:30,550 --> 00:43:28,800
we're looking at big pharmaceutical

852
00:43:31,990 --> 00:43:30,560
companies so astrazeneca for instance

853
00:43:33,510 --> 00:43:32,000
they are part of this mission and this

854
00:43:35,109 --> 00:43:33,520
is actually their second mission to the

855
00:43:37,349 --> 00:43:35,119
space station which is something that is

856
00:43:39,109 --> 00:43:37,359
also a very exciting trend because it's

857
00:43:40,790 --> 00:43:39,119
not just having one experiment but the

858
00:43:42,790 --> 00:43:40,800
fact that companies are doing multiple

859
00:43:44,069 --> 00:43:42,800
investigations and iterating on the

860
00:43:45,990 --> 00:43:44,079
science that they're doing it

861
00:43:48,150 --> 00:43:46,000
demonstrates that they see the value of

862
00:43:50,069 --> 00:43:48,160
leveraging this orbiting platform

863
00:43:52,069 --> 00:43:50,079

so again we mentioned aspergenica we

864
00:43:53,670 --> 00:43:52,079
also have other smaller pharmaceutical

865
00:43:55,670 --> 00:43:53,680
companies that are looking to use the

866
00:43:57,190 --> 00:43:55,680
space station as a way of enhancing

867
00:43:59,109 --> 00:43:57,200
their business models

868
00:44:01,349 --> 00:43:59,119
but then outside of some of these

869
00:44:03,349 --> 00:44:01,359
commercial companies we have non-profit

870
00:44:05,030 --> 00:44:03,359
entities so we have the national stem

871
00:44:06,309 --> 00:44:05,040
cell foundation which is looking at an

872
00:44:08,309 --> 00:44:06,319
investigation

873
00:44:10,550 --> 00:44:08,319
dedicated towards parkinson's disease

874
00:44:12,150 --> 00:44:10,560
and multiple sclerosis we have rodents

875
00:44:13,829 --> 00:44:12,160
that are going up on this we have 40

876
00:44:15,829 --> 00:44:13,839
separate mice that are going up on this

877
00:44:17,990 --> 00:44:15,839
mission that are going to help us better

878
00:44:19,829 --> 00:44:18,000
understand aging characteristics so that

879
00:44:22,150 --> 00:44:19,839
we can improve our lives as we continue

880
00:44:23,589 --> 00:44:22,160
to age gracefully here on earth so i

881
00:44:26,230 --> 00:44:23,599
mean that's just kind of a basic

882
00:44:28,950 --> 00:44:26,240
snapshot and then also we did talk about

883
00:44:30,550 --> 00:44:28,960
nickelodeon there's more than 40 uh

884
00:44:32,470 --> 00:44:30,560
student experiments in total that are

885
00:44:33,910 --> 00:44:32,480
going up on this mission so it's it's

886
00:44:35,510 --> 00:44:33,920
not just for

887
00:44:37,109 --> 00:44:35,520
big companies it's not for small

888
00:44:39,190 --> 00:44:37,119

companies it's not just for non-profits

889
00:44:41,510 --> 00:44:39,200
but it's also for using the space

890
00:44:42,950 --> 00:44:41,520
station as a way of enhancing uh and

891
00:44:45,190 --> 00:44:42,960
exciting the next generation of

892
00:44:46,870 --> 00:44:45,200
scientists and engineers that's really

893
00:44:49,190 --> 00:44:46,880
fascinating thank you for being here to

894
00:44:50,710 --> 00:44:49,200
tell us all about that

895
00:44:53,349 --> 00:44:50,720
now we're going to go back to nasa's

896
00:44:54,630 --> 00:44:53,359
daryl nail who has a special guest daryl

897
00:44:56,870 --> 00:44:54,640
thanks jen that's right we're here with

898
00:44:58,550 --> 00:44:56,880
bill spech he is the deputy manager of

899
00:45:01,109 --> 00:44:58,560
the international space station

900
00:45:03,190 --> 00:45:01,119
transportation integration office at

901
00:45:05,510 --> 00:45:03,200
nasa bill thank you for joining us after

902
00:45:08,230 --> 00:45:05,520
the launch no problem it looks like a

903
00:45:10,150 --> 00:45:08,240
beauty from where we were watching it

904
00:45:12,230 --> 00:45:10,160
you're obviously watching a very

905
00:45:14,309 --> 00:45:12,240
official capacity what's the official

906
00:45:16,069 --> 00:45:14,319
word uh from you oh no it was a great

907
00:45:17,510 --> 00:45:16,079
launch uh you know we were really happy

908
00:45:19,109 --> 00:45:17,520
to see the weather clear out the way it

909
00:45:20,790 --> 00:45:19,119
did

910
00:45:22,309 --> 00:45:20,800
it was a little bit touch and go after

911
00:45:23,750 --> 00:45:22,319
yesterday and continue to watch the

912
00:45:25,270 --> 00:45:23,760
forecast as we went but the clouds

913
00:45:27,349 --> 00:45:25,280

cleared out and

914
00:45:29,670 --> 00:45:27,359
we got to see a great launch yeah 70

915
00:45:32,710 --> 00:45:29,680
percent no-go yesterday got all the way

916
00:45:34,390 --> 00:45:32,720
up to the 624 launch point and and had

917
00:45:37,510 --> 00:45:34,400
uh weather delays so couldn't do it but

918
00:45:39,109 --> 00:45:37,520
then 12 12 minutes later it cleared yes

919
00:45:41,190 --> 00:45:39,119
you could have launched

920
00:45:43,030 --> 00:45:41,200
today same setup 70

921
00:45:45,030 --> 00:45:43,040
but then the weather started to clear

922
00:45:47,670 --> 00:45:45,040
just in time about an hour all those

923
00:45:49,829 --> 00:45:47,680
weather constraints lifted and it hit

924
00:45:51,670 --> 00:45:49,839
right on right on time at 601 right when

925
00:45:53,030 --> 00:45:51,680
you needed to yep absolutely you know

926
00:45:55,270 --> 00:45:53,040
it's an instantaneous launch window to

927
00:45:57,270 --> 00:45:55,280
get to iss for for this

928
00:45:58,630 --> 00:45:57,280
and so they have to hit that time frame

929
00:45:59,910 --> 00:45:58,640
and that's why we couldn't go yesterday

930
00:46:01,190 --> 00:45:59,920
with the weather the way it was even

931
00:46:02,470 --> 00:46:01,200
though it cleared out so quickly

932
00:46:04,470 --> 00:46:02,480
afterwards

933
00:46:05,589 --> 00:46:04,480
you got to go right on time to to catch

934
00:46:07,589 --> 00:46:05,599
up with the space station the way you

935
00:46:09,270 --> 00:46:07,599
need to did you watch the launch live

936
00:46:11,589 --> 00:46:09,280
outside or did you watch it on the

937
00:46:13,990 --> 00:46:11,599
monitors so uh we were over at the uh

938
00:46:15,750 --> 00:46:14,000

the spacex launch control center and uh

939
00:46:16,950 --> 00:46:15,760
we were watching it we ran outside to go

940
00:46:18,150 --> 00:46:16,960
watch it because you got it you got to

941
00:46:19,349 --> 00:46:18,160
take a look at it outside you don't

942
00:46:21,190 --> 00:46:19,359
really get the effect when you're in the

943
00:46:23,109 --> 00:46:21,200
building washington on the monitors yeah

944
00:46:26,390 --> 00:46:23,119
it was just a beautiful launch all the

945
00:46:28,309 --> 00:46:26,400
way from start to finish it seemed to us

946
00:46:31,190 --> 00:46:28,319
how about that landing man it's

947
00:46:32,790 --> 00:46:31,200
impressive every time you see it and uh

948
00:46:35,190 --> 00:46:32,800
you know it was great to see this one

949
00:46:37,030 --> 00:46:35,200
land successfully uh and uh because we

950
00:46:39,430 --> 00:46:37,040
flew this this booster on our previous

951
00:46:41,190 --> 00:46:39,440
mission and so this has been one that

952
00:46:43,109 --> 00:46:41,200
we've used before and you know we'll

953
00:46:44,710 --> 00:46:43,119
probably use again and the dragon flying

954
00:46:46,470 --> 00:46:44,720
for the third time now to the

955
00:46:49,430 --> 00:46:46,480
international space station your

956
00:46:51,349 --> 00:46:49,440
thoughts on the 5 000 pounds of supplies

957
00:46:53,030 --> 00:46:51,359
and science that are going up you know

958
00:46:55,190 --> 00:46:53,040
there's dozens of new investigations

959
00:46:56,870 --> 00:46:55,200
going up on this flight i can't wait for

960
00:46:59,190 --> 00:46:56,880
it to get up there and for them to get

961
00:47:01,190 --> 00:46:59,200
started on it a couple of really

962
00:47:02,550 --> 00:47:01,200
interesting ones that caught my eye as i

963
00:47:03,510 --> 00:47:02,560

was looking through it they're looking

964
00:47:06,950 --> 00:47:03,520
at

965
00:47:08,309 --> 00:47:06,960
growing moss in space and seeing how it

966
00:47:09,430 --> 00:47:08,319
develops differently than it does down

967
00:47:11,030 --> 00:47:09,440
here on earth

968
00:47:12,550 --> 00:47:11,040
and obviously that has applications as

969
00:47:15,430 --> 00:47:12,560
you look forward to exploring other

970
00:47:17,910 --> 00:47:15,440
planets and how did things grow

971
00:47:20,230 --> 00:47:17,920
another one that caught my eye which is

972
00:47:21,589 --> 00:47:20,240
another one for terrestrial use

973
00:47:23,030 --> 00:47:21,599
goodyear tire actually has an

974
00:47:25,670 --> 00:47:23,040
investigation going up on this one

975
00:47:27,910 --> 00:47:25,680
looking at silica fillers and that can

976
00:47:29,750 --> 00:47:27,920
improve tire performance improve gas

977
00:47:31,430 --> 00:47:29,760
mileage and improve efficiency for our

978
00:47:33,270 --> 00:47:31,440
vehicles and help us out here on the

979
00:47:35,750 --> 00:47:33,280
ground and it bursts with the space

980
00:47:37,990 --> 00:47:35,760
station on saturday and saturday morning

981
00:47:39,990 --> 00:47:38,000
yes they'll unload everything into the

982
00:47:42,069 --> 00:47:40,000
international space station

983
00:47:43,670 --> 00:47:42,079
your thoughts going forward there is an

984
00:47:46,069 --> 00:47:43,680
international docking adapter that's

985
00:47:48,150 --> 00:47:46,079
also going up um it's berthing now with

986
00:47:49,829 --> 00:47:48,160
the current docking adapter

987
00:47:52,630 --> 00:47:49,839
it's the same adapter but now you'll

988
00:47:55,030 --> 00:47:52,640

have two places where um

989
00:47:57,430 --> 00:47:55,040
the cargo spacecraft can conduct well so

990
00:48:00,069 --> 00:47:57,440
this uh this actually this vehicle goes

991
00:48:03,589 --> 00:48:00,079
to the uh the bottom part the nadir port

992
00:48:05,750 --> 00:48:03,599
of the harmony node um which is a

993
00:48:07,589 --> 00:48:05,760
it's a birthing mechanism in this case

994
00:48:08,790 --> 00:48:07,599
of this vehicle the docking mechanism

995
00:48:09,910 --> 00:48:08,800
that we're the docking adapter that

996
00:48:11,430 --> 00:48:09,920
we're bringing up will actually go on

997
00:48:12,950 --> 00:48:11,440
the top

998
00:48:14,390 --> 00:48:12,960
and matches the one that we have on the

999
00:48:17,430 --> 00:48:14,400
forward of the space station that we

1000
00:48:19,750 --> 00:48:17,440
docked the spacex demo one mission to

1001
00:48:21,829 --> 00:48:19,760
and so this will enable us to

1002
00:48:23,990 --> 00:48:21,839
now have two docked vehicles to the us

1003
00:48:26,470 --> 00:48:24,000
side of the station at the same time

1004
00:48:28,470 --> 00:48:26,480
allowing us to do crew handovers more

1005
00:48:30,390 --> 00:48:28,480
efficiently and allowing them to talk to

1006
00:48:31,750 --> 00:48:30,400
each other as they're exchanging things

1007
00:48:33,910 --> 00:48:31,760
that are going on for one crew that's

1008
00:48:35,589 --> 00:48:33,920
coming up and the crew that's leaving

1009
00:48:36,950 --> 00:48:35,599
to help really familiarize them with the

1010
00:48:38,549 --> 00:48:36,960
vehicle and everything that's going on

1011
00:48:40,309 --> 00:48:38,559
in the current status

1012
00:48:42,230 --> 00:48:40,319
live face-to-face and how are you

1013
00:48:44,309 --> 00:48:42,240

feeling after this launch oh it feels

1014
00:48:46,549 --> 00:48:44,319
great it feels really good

1015
00:48:48,390 --> 00:48:46,559
this is the 18th one for for spacex

1016
00:48:50,309 --> 00:48:48,400
under the crs contract we've got a

1017
00:48:51,910 --> 00:48:50,319
couple more left with them under crs1

1018
00:48:54,870 --> 00:48:51,920
and then it's on to our serious two

1019
00:48:56,390 --> 00:48:54,880
missions so it's great it's uh we're

1020
00:48:57,430 --> 00:48:56,400
really happy to get it going and look

1021
00:48:58,950 --> 00:48:57,440
forward to getting it captured on

1022
00:49:00,150 --> 00:48:58,960
saturday morning bill svetch thank you

1023
00:49:01,829 --> 00:49:00,160
for joining us appreciate them

1024
00:49:03,910 --> 00:49:01,839
appreciate it that's going to wrap it up

1025
00:49:06,069 --> 00:49:03,920
for us here at hanger ae we'll toss it

1026
00:49:08,150 --> 00:49:06,079
back to jen in the studio

1027
00:49:10,069 --> 00:49:08,160
thanks daryl and that's going to wrap up

1028
00:49:11,670 --> 00:49:10,079
our coverage for more information visit

1029
00:49:16,870 --> 00:49:11,680
nasa.gov

1030
00:49:18,549 --> 00:49:16,880
spacex i'm jennifer wolfinger from

1031
00:49:20,549 --> 00:49:18,559
everyone here at nasa's kennedy space

1032
00:49:22,150 --> 00:49:20,559
center thank you for joining us for the

1033
00:49:24,870 --> 00:49:22,160
successful launch and landing of

1034
00:49:26,630 --> 00:49:24,880
spacex's daca 9 rocket we leave you now

1035
00:49:40,309 --> 00:49:26,640
with another look at today's launch have

1036
00:49:42,069 --> 00:49:41,190
six

1037
00:49:42,950 --> 00:49:42,079
five

1038
00:49:45,109 --> 00:49:42,960

four

1039
00:49:45,990 --> 00:49:45,119
three two

1040
00:49:48,549 --> 00:49:46,000
one

1041
00:49:51,430 --> 00:49:48,559
zero ignition

1042
00:49:54,230 --> 00:49:51,440
and liftoff of the falcon 9 rocket and

1043
00:49:56,309 --> 00:49:54,240
the dragon spacecraft on the heels of

1044
00:49:59,109 --> 00:49:56,319
the 50th anniversary of apollo 11's

1045
00:50:01,430 --> 00:49:59,119
return for the moon we send more science

1046
00:50:02,750 --> 00:50:01,440
and supplies up to the international

1047
00:50:08,069 --> 00:50:02,760
space station

1048
00:50:08,079 --> 00:50:15,910
stage one propulsion is nominal

1049
00:50:15,920 --> 00:50:19,349
vehicle is pitching downrange

1050
00:50:19,359 --> 00:50:25,030
looking beautiful so far