1
00:00:01,370 --> 00:00:20,630
[Music]

2
00:00:25,269 --> 00:00:23,189
good morning it's wednesday july 21st

3
00:00:27,269 --> 00:00:25,279
i'm nasa's gary jordan you're looking at

4
00:00:29,189 --> 00:00:27,279
a live view inside the international

5
00:00:31,109 --> 00:00:29,199
space station flight control room as we

6
00:00:33,030 --> 00:00:31,119
await the departure of crew dragon

7
00:00:34,950 --> 00:00:33,040
endeavor from one docking port on the

8
00:00:38,069 --> 00:00:34,960
international space station to another

9
00:00:39,350 --> 00:00:38,079
in what we refer to as a port relocation

10
00:00:42,630 --> 00:00:39,360
dragon will be moving from the

11
00:00:45,350 --> 00:00:42,640
international docking adapter 2 or ida 2

12
00:00:47,350 --> 00:00:45,360
on the forward harmony port to the ida 3

13
00:00:49,350 --> 00:00:47,360

on the zenith or space facing harmony

14
00:00:51,270 --> 00:00:49,360
port this will free up the forward port

15
00:00:53,430 --> 00:00:51,280
for the arrival of boeing starliner on

16
00:00:55,270 --> 00:00:53,440
its upcoming orbital flight test 2 or

17
00:00:56,950 --> 00:00:55,280
oft2 mission

18
00:00:58,549 --> 00:00:56,960
we expect dragon to push away from the

19
00:01:00,470 --> 00:00:58,559
station with nasa astronauts shane

20
00:01:02,869 --> 00:01:00,480
kimbrough and megan macarthur european

21
00:01:04,789 --> 00:01:02,879
space agency astronaut tomah pesquet and

22
00:01:08,230 --> 00:01:04,799
japan aerospace exploration agency

23
00:01:11,590 --> 00:01:08,240
astronaut aki hoshide on board at 5 45

24
00:01:13,670 --> 00:01:11,600
a.m central time 10 45 gmt and joining

25
00:01:15,350 --> 00:01:13,680
me from spacex and hawthorne to walk you

26
00:01:16,870 --> 00:01:15,360
through everything today is kate tyce

27
00:01:19,030 --> 00:01:16,880
hey kate

28
00:01:21,190 --> 00:01:19,040
good morning gary good morning everyone

29
00:01:24,070 --> 00:01:21,200
i'm kate tys a senior certification

30
00:01:26,870 --> 00:01:24,080
engineer here at spacex headquarters in

31
00:01:29,510 --> 00:01:26,880
hawthorne california this will be the

32
00:01:32,149 --> 00:01:29,520
second port relocation of a crew dragon

33
00:01:34,630 --> 00:01:32,159
spacecraft at this point the crew is

34
00:01:37,030 --> 00:01:34,640
fully suited up both the dragon and

35
00:01:38,710 --> 00:01:37,040
a-pass hatches have been closed and the

36
00:01:41,270 --> 00:01:38,720
vestibule leak checks are almost

37
00:01:43,350 --> 00:01:41,280
complete there are four seats configured

38
00:01:45,910 --> 00:01:43,360

right now inside dragons uh they're

39
00:01:48,069 --> 00:01:45,920
numbered from one to four from right to

40
00:01:49,749 --> 00:01:48,079
left when looking at the seats

41
00:01:51,830 --> 00:01:49,759
from the other direction so what we see

42
00:01:53,910 --> 00:01:51,840
on the screen now is actually four would

43
00:01:55,910 --> 00:01:53,920
be on our far left and number one would

44
00:01:58,870 --> 00:01:55,920
be on our far right

45
00:02:00,310 --> 00:01:58,880
shane is in seat number two uh there on

46
00:02:02,870 --> 00:02:00,320
the right hand side which is the

47
00:02:06,069 --> 00:02:02,880
commander seat and megan is beside him

48
00:02:07,670 --> 00:02:06,079
in c3 which for crew dragon is the pilot

49
00:02:09,749 --> 00:02:07,680
seat there on the left in front of the

50
00:02:12,229 --> 00:02:09,759
screen

51
00:02:14,470 --> 00:02:12,239
two on the other side of shane is tama

52
00:02:17,510 --> 00:02:14,480
in seat one and on the other side of

53
00:02:19,670 --> 00:02:17,520
megan is aki in seat four

54
00:02:22,150 --> 00:02:19,680
the joint nasa and spacex teams just

55
00:02:24,390 --> 00:02:22,160
completed their go no go for undocking

56
00:02:25,830 --> 00:02:24,400
and all systems are go for today's

57
00:02:28,150 --> 00:02:25,840
relocation

58
00:02:30,710 --> 00:02:28,160
once dragon pushes away from station the

59
00:02:31,830 --> 00:02:30,720
full maneuver will last approximately 45

60
00:02:33,589 --> 00:02:31,840
minutes

61
00:02:35,670 --> 00:02:33,599
while dragon is just moving parking

62
00:02:37,589 --> 00:02:35,680
spots the crew and the vehicle have

63
00:02:39,430 --> 00:02:37,599

undergone all of the same checkouts and

64
00:02:41,509 --> 00:02:39,440
preparations as if they were getting

65
00:02:43,830 --> 00:02:41,519
ready to return to earth

66
00:02:46,229 --> 00:02:43,840
that way in the unlikely event that we

67
00:02:48,150 --> 00:02:46,239
see an off-nominal scenario the crew and

68
00:02:50,309 --> 00:02:48,160
the vehicle are prepared to deorbit and

69
00:02:52,470 --> 00:02:50,319
return home safely now we're getting

70
00:02:55,350 --> 00:02:52,480
some views inside the cabin of crude

71
00:02:57,910 --> 00:02:55,360
dragon endeavor uh on the left there uh

72
00:02:59,509 --> 00:02:57,920
commander of crew dragon endeavour shane

73
00:03:02,229 --> 00:02:59,519
kimbrough and on the right of your

74
00:03:04,710 --> 00:03:02,239
screen uh pilot megan mcarthur and of

75
00:03:06,309 --> 00:03:04,720
course uh pesque and aki hoshide

76
00:03:08,390 --> 00:03:06,319
flanking them on both sides they're

77
00:03:11,910 --> 00:03:08,400
awaiting uh some of the next steps here

78
00:03:14,229 --> 00:03:11,920
as we transition uh uh very shortly to

79
00:03:16,149 --> 00:03:14,239
undocking and with the continuation of

80
00:03:17,509 --> 00:03:16,159
depressurizing the vestibule but before

81
00:03:19,750 --> 00:03:17,519
we go into greater detail on what's

82
00:03:21,830 --> 00:03:19,760
involved in the port relocation process

83
00:03:23,509 --> 00:03:21,840
let's first recap what's happened so far

84
00:03:27,190 --> 00:03:23,519
this morning the crew woke up at one

85
00:03:28,949 --> 00:03:27,200
o'clock a.m central time 6 gmt to get

86
00:03:30,710 --> 00:03:28,959
ready for today brushing their teeth

87
00:03:32,229 --> 00:03:30,720
eating some food and getting ready for

88
00:03:35,430 --> 00:03:32,239

the crew suit-up activities which

89
00:03:37,990 --> 00:03:35,440
occurred at about 2 55 a.m central time

90
00:03:40,070 --> 00:03:38,000
today crew members taman aki suited up

91
00:03:41,670 --> 00:03:40,080
before boarding dragon while shane

92
00:03:43,430 --> 00:03:41,680
kimbrough and megan mcarthur waited

93
00:03:45,190 --> 00:03:43,440
until they finished closing dragon's

94
00:03:47,750 --> 00:03:45,200
hatch before suiting up

95
00:03:49,589 --> 00:03:47,760
so about 3 30 a.m central time the four

96
00:03:51,910 --> 00:03:49,599
astronauts boarded dragon for the port

97
00:03:54,550 --> 00:03:51,920
relocation maneuver it wasn't too long

98
00:03:57,509 --> 00:03:54,560
after that about 3 40 a.m central time 8

99
00:04:00,710 --> 00:03:57,519
40 gmt uh that shane kimbrough and megan

100
00:04:03,030 --> 00:04:00,720
macarthur closed the crew dragons hatch

101
00:04:04,470 --> 00:04:03,040
they put their space spacex spacesuits

102
00:04:05,990 --> 00:04:04,480
on which will be worn throughout today's

103
00:04:07,670 --> 00:04:06,000
maneuver you see them wearing them right

104
00:04:09,270 --> 00:04:07,680
now and of course once they finish

105
00:04:11,589 --> 00:04:09,280
suiting up all four crew members

106
00:04:14,550 --> 00:04:11,599
performed leak checks on their suits it

107
00:04:16,789 --> 00:04:14,560
was about 4 18 a.m central time that the

108
00:04:19,110 --> 00:04:16,799
a pass hatch was closed this is the

109
00:04:20,710 --> 00:04:19,120
hatch on the station side nasa astronaut

110
00:04:23,350 --> 00:04:20,720
mark vande high affixed the docking

111
00:04:25,510 --> 00:04:23,360
target to the outside of the apas hatch

112
00:04:27,670 --> 00:04:25,520
before closing it then creating a space

113
00:04:29,270 --> 00:04:27,680

between the dragon and the station known

114
00:04:31,590 --> 00:04:29,280
as the vestibule which continues to

115
00:04:33,270 --> 00:04:31,600
depress right now down to vacuum

116
00:04:34,790 --> 00:04:33,280
vandenheim then made his way out of the

117
00:04:36,629 --> 00:04:34,800
pressurized mating adapter leaving the

118
00:04:38,469 --> 00:04:36,639
forward hatch on the node 2 open but

119
00:04:40,469 --> 00:04:38,479
ensuring the xena patched is closed

120
00:04:42,390 --> 00:04:40,479
he'll monitor the relocation maneuver

121
00:04:44,870 --> 00:04:42,400
from the cupola vestibule

122
00:04:47,030 --> 00:04:44,880
depressurization started very shortly

123
00:04:48,870 --> 00:04:47,040
after the apas hatch was closed about 4

124
00:04:51,030 --> 00:04:48,880
20 am central time

125
00:04:53,990 --> 00:04:51,040
it took a while to get down to 5 pounds

126
00:04:56,310 --> 00:04:54,000
per square inch or 5 psi they allowed

127
00:04:58,070 --> 00:04:56,320
some time for thermal uh stabilization

128
00:04:59,510 --> 00:04:58,080
before performing some leak checks and

129
00:05:02,390 --> 00:04:59,520
then are now in the process of

130
00:05:04,790 --> 00:05:02,400
continuing down from 5 psi down to

131
00:05:06,310 --> 00:05:04,800
vacuum very shortly here the teams in

132
00:05:08,230 --> 00:05:06,320
mission control houston and mission

133
00:05:11,430 --> 00:05:08,240
control in hawthorne will conduct a

134
00:05:13,110 --> 00:05:11,440
joint go no go for undocking

135
00:05:15,189 --> 00:05:13,120
that brings us up to speed with the

136
00:05:17,670 --> 00:05:15,199
events of the day from this point

137
00:05:19,270 --> 00:05:17,680
forward here's what we can expect

138
00:05:22,629 --> 00:05:19,280

around 5 40

139
00:05:24,469 --> 00:05:22,639
central or 10 40 gmt an undocking

140
00:05:26,150 --> 00:05:24,479
command will be sent followed by a few

141
00:05:28,230 --> 00:05:26,160
minutes for the two umbilicals that

142
00:05:30,950 --> 00:05:28,240
connect power and data between the two

143
00:05:34,310 --> 00:05:30,960
spacecraft to detach and for 12 hooks

144
00:05:37,830 --> 00:05:34,320
holding dragon into place to retract

145
00:05:40,629 --> 00:05:37,840
at about 10 45 gmt after the hooks have

146
00:05:43,110 --> 00:05:40,639
retracted dragon will fire its service

147
00:05:45,189 --> 00:05:43,120
section draco thrusters in two short

148
00:05:46,950 --> 00:05:45,199
bursts to break the stiction between it

149
00:05:48,870 --> 00:05:46,960
and the docking port and physically

150
00:05:51,510 --> 00:05:48,880
separate from station

151
00:05:53,350 --> 00:05:51,520
dragon will slowly back off from station

152
00:05:55,270 --> 00:05:53,360
which is illustrated there in the blue

153
00:05:57,830 --> 00:05:55,280
section that you see on your screen

154
00:06:00,070 --> 00:05:57,840
and activate its lidar which stands for

155
00:06:02,150 --> 00:06:00,080
light detection and ranging to begin

156
00:06:04,309 --> 00:06:02,160
tracking the space station once it

157
00:06:06,629 --> 00:06:04,319
acquires a solid signal the ground will

158
00:06:08,629 --> 00:06:06,639
command dragon to hold approximately 60

159
00:06:10,390 --> 00:06:08,639
meters away from station

160
00:06:12,629 --> 00:06:10,400
once everything looks good dragon will

161
00:06:14,309 --> 00:06:12,639
begin to move from in front of station

162
00:06:15,830 --> 00:06:14,319
to above it and that's the yellow

163
00:06:17,110 --> 00:06:15,840

section there that we see transition

164
00:06:19,189 --> 00:06:17,120
maneuver

165
00:06:21,029 --> 00:06:19,199
from there on our times are approximate

166
00:06:22,950 --> 00:06:21,039
and will change in real time based on

167
00:06:27,189 --> 00:06:22,960
dragon's performance

168
00:06:29,189 --> 00:06:27,199
around 5 54 central or 1054 gmt dragon

169
00:06:33,189 --> 00:06:29,199
will begin to maneuver towards the

170
00:06:34,950 --> 00:06:33,199
zenith port of harmony and ida 3.

171
00:06:36,629 --> 00:06:34,960
we expect dragon to take about 15

172
00:06:38,950 --> 00:06:36,639
minutes to make the trip up above

173
00:06:40,469 --> 00:06:38,960
station with a check in halfway and

174
00:06:43,110 --> 00:06:40,479
you'll hear that called out as the

175
00:06:45,830 --> 00:06:43,120
midpoint it'll stop and hold once it's

176
00:06:47,749 --> 00:06:45,840
60 meters directly above the node 2

177
00:06:49,589 --> 00:06:47,759
zenith port and prepare for final

178
00:06:51,749 --> 00:06:49,599
approach which is the purple section

179
00:06:53,270 --> 00:06:51,759
there on your screen

180
00:06:55,270 --> 00:06:53,280
flight controllers in hawthorne will

181
00:06:57,189 --> 00:06:55,280
once again command dragon to begin its

182
00:07:00,150 --> 00:06:57,199
approach flying in until it reaches

183
00:07:02,309 --> 00:07:00,160
waypoint 2 just 20 meters away from the

184
00:07:04,390 --> 00:07:02,319
station once dragon reaches that 20

185
00:07:05,749 --> 00:07:04,400
meter mark it will hold one final time

186
00:07:07,430 --> 00:07:05,759
for our teams on the ground and

187
00:07:09,670 --> 00:07:07,440
astronauts on board the dragon to do a

188
00:07:11,430 --> 00:07:09,680

final check before docking there aren't

189
00:07:13,670 --> 00:07:11,440
any strict requirements to complete

190
00:07:15,189 --> 00:07:13,680
docking during the day or a night pass

191
00:07:17,430 --> 00:07:15,199
but there is always the chance that they

192
00:07:19,670 --> 00:07:17,440
will hold to continue until lighting

193
00:07:21,430 --> 00:07:19,680
conditions on the docking port are ideal

194
00:07:23,990 --> 00:07:21,440
once ready the dragon will begin its

195
00:07:27,029 --> 00:07:24,000
final approach dragon will make initial

196
00:07:29,189 --> 00:07:27,039
initial contact with ida 3 and its soft

197
00:07:32,150 --> 00:07:29,199
capture system will retract to bring the

198
00:07:33,830 --> 00:07:32,160
spacecraft in closer for a hard capture

199
00:07:36,070 --> 00:07:33,840
which is accomplished by deploying 12

200
00:07:40,070 --> 00:07:36,080
hooks to firmly hold dragon in place

201
00:07:42,710 --> 00:07:40,080
that process takes about 15 minutes

202
00:07:44,710 --> 00:07:42,720
after all docking events are successful

203
00:07:46,950 --> 00:07:44,720
flight controllers will configure dragon

204
00:07:49,670 --> 00:07:46,960
for docked operations connecting power

205
00:07:50,950 --> 00:07:49,680
and data to the spacecraft once more

206
00:07:52,950 --> 00:07:50,960
the crew will be able to get out of

207
00:07:54,950 --> 00:07:52,960
their spacesuits and set them up to dry

208
00:07:57,589 --> 00:07:54,960
and begin operations to get the hatches

209
00:08:00,469 --> 00:07:57,599
back open this includes pressurizing the

210
00:08:02,390 --> 00:08:00,479
vegetable and a new round of leak checks

211
00:08:04,309 --> 00:08:02,400
depending on the exact timing the crew

212
00:08:06,390 --> 00:08:04,319
has the option to have lunch inside

213
00:08:07,430 --> 00:08:06,400

dragon or wait until they're back aboard

214
00:08:09,270 --> 00:08:07,440
station

215
00:08:11,029 --> 00:08:09,280
we expect it to take about two hours

216
00:08:13,670 --> 00:08:11,039
before the hatch is open

217
00:08:26,869 --> 00:08:13,680
and that will happen around 8 45 a.m

218
00:08:31,990 --> 00:08:29,589
today will mark the 89th day on station

219
00:08:35,269 --> 00:08:32,000
for this crew who have lifted off from

220
00:08:38,230 --> 00:08:35,279
kennedy space center on april 23rd at 5

221
00:08:40,790 --> 00:08:38,240
49 a.m eastern and arrived at station

222
00:08:43,589 --> 00:08:40,800
about 24 hours later

223
00:08:45,750 --> 00:08:43,599
so far the crew members have dedicated

224
00:08:47,590 --> 00:08:45,760
hundreds of hours to scientific research

225
00:08:49,509 --> 00:08:47,600
in the orbiting laboratory and have

226
00:08:51,910 --> 00:08:49,519
completed a series of spacewalks to

227
00:08:54,389 --> 00:08:51,920
install the first new solar array that

228
00:08:56,070 --> 00:08:54,399
launched this spring on the spacex cargo

229
00:08:58,710 --> 00:08:56,080
dragon spacecraft

230
00:09:00,790 --> 00:08:58,720
the mission is the second of six

231
00:09:03,590 --> 00:09:00,800
final reconfigurations for undock are

232
00:09:06,230 --> 00:09:03,600
complete and nominal ground is go for

233
00:09:08,710 --> 00:09:06,240
undocking at the targeted time of one

234
00:09:33,670 --> 00:09:08,720
zero four zero please confirm crew

235
00:09:37,190 --> 00:09:35,670
and station houston on the big loop

236
00:09:40,070 --> 00:09:37,200
performs steps

237
00:09:44,949 --> 00:09:40,080
two through the end of one decimal 602

238
00:09:52,949 --> 00:09:47,110

station copies rss crew is ready for

239
00:09:56,070 --> 00:09:54,470
with that both the teams in mission

240
00:09:57,990 --> 00:09:56,080
control hawthorne and mission control

241
00:09:59,670 --> 00:09:58,000
houston as well as the crew on board the

242
00:10:01,350 --> 00:09:59,680
dragon and of course on board the

243
00:10:03,829 --> 00:10:01,360
international space station all teams

244
00:10:05,910 --> 00:10:03,839
are go for initiating the undock command

245
00:10:07,750 --> 00:10:05,920
here in one minute once the on dock

246
00:10:10,150 --> 00:10:07,760
command is initiated it'll take several

247
00:10:12,550 --> 00:10:10,160
minutes for the series of hooks to uh

248
00:10:14,150 --> 00:10:12,560
start to unlatch there are 12 hooks that

249
00:10:15,750 --> 00:10:14,160
are currently securing crew dragon

250
00:10:28,550 --> 00:10:15,760
endeavor to the international space

251
00:10:40,069 --> 00:10:30,389
command has been sent on time we'll be

252
00:10:45,430 --> 00:10:43,350
several steps will uh will occur to

253
00:10:46,949 --> 00:10:45,440
undock from the international space

254
00:10:49,430 --> 00:10:46,959
station for the crew dragon endeavor

255
00:10:51,910 --> 00:10:49,440
today the undock command being sent

256
00:10:54,069 --> 00:10:51,920
first the umbilical will retract

257
00:11:00,150 --> 00:10:54,079
umbilicals are demated complete and

258
00:11:04,710 --> 00:11:02,230
and confirmation that that umbilical has

259
00:11:13,509 --> 00:11:04,720
been demated first set of hooks are

260
00:11:18,069 --> 00:11:15,910
like gary mentioned earlier these hooks

261
00:11:20,069 --> 00:11:18,079
while there are 12 of them we open them

262
00:12:06,550 --> 00:11:20,079
in sets of two

263
00:12:10,069 --> 00:12:08,150

getting a look from the forward camera

264
00:12:12,949 --> 00:12:10,079
of crew dragon endeavor today that's

265
00:12:14,949 --> 00:12:12,959
looking at the docking target that uh

266
00:12:18,550 --> 00:12:14,959
nasa astronaut mark vande high affects

267
00:12:20,870 --> 00:12:18,560
to the a pass hatch before it was closed

268
00:12:23,509 --> 00:12:20,880
vestibule is uh depressurized and now

269
00:12:25,750 --> 00:12:23,519
the undock command has been sent we're

270
00:12:28,389 --> 00:12:25,760
awaiting confirmation of two sets of

271
00:12:30,790 --> 00:12:28,399
hooks there are six hooks on each set to

272
00:12:33,350 --> 00:12:30,800
uh uh start to unlatch once they're

273
00:12:35,750 --> 00:12:33,360
unlatched uh the dragon itself will

274
00:12:37,590 --> 00:12:35,760
execute a series of undocking burns and

275
00:12:39,350 --> 00:12:37,600
we'll see physical separation of the

276
00:12:40,230 --> 00:12:39,360
dragon from the international space

277
00:12:41,990 --> 00:12:40,240
station

278
00:12:43,829 --> 00:12:42,000
as mentioned earlier the relocation will

279
00:12:45,509 --> 00:12:43,839
free up harmony's forward port for

280
00:12:47,030 --> 00:12:45,519
docking for the docking of another

281
00:12:51,350 --> 00:12:47,040
commercial spacecraft built to carry

282
00:12:53,190 --> 00:12:51,360
humans boeing's cst-100 starliner

283
00:12:54,949 --> 00:12:53,200
here's the new docking location for

284
00:12:57,430 --> 00:12:54,959
today and here's of course the starliner

285
00:13:00,150 --> 00:12:57,440
that will be coming up on july 30th and

286
00:13:02,550 --> 00:13:00,160
arrive at the station uh about 24 hours

287
00:13:08,470 --> 00:13:02,560
later launching on july 30th

288
00:13:14,310 --> 00:13:11,430

good news there call out the

289
00:13:16,710 --> 00:13:14,320
first set of hooks is open

290
00:13:45,990 --> 00:13:16,720
and we're now going to listen in for the

291
00:13:50,629 --> 00:13:48,310
as the second set of hooks continue to

292
00:13:52,069 --> 00:13:50,639
drive uh it will be very shortly after

293
00:13:53,990 --> 00:13:52,079
they are finished driving and we have

294
00:13:56,550 --> 00:13:54,000
successful confirmation that those last

295
00:13:59,350 --> 00:13:56,560
set of hooks are are done uh from

296
00:14:00,949 --> 00:13:59,360
unlatching uh very shortly after that we

297
00:14:02,710 --> 00:14:00,959
should be seeing physical separation

298
00:14:03,509 --> 00:14:02,720
from this camera view

299
00:14:05,030 --> 00:14:03,519
that

300
00:14:07,590 --> 00:14:05,040
docking target you're seeing right at

301
00:14:08,949 --> 00:14:07,600
the crosshairs the center of the camera

302
00:14:11,509 --> 00:14:08,959
view from the

303
00:14:13,750 --> 00:14:11,519
dragon itself uh we'll start to see that

304
00:14:15,990 --> 00:14:13,760
view getting a little bit smaller as

305
00:14:38,310 --> 00:14:16,000
dragon itself backs straight away to the

306
00:14:43,350 --> 00:14:40,550
after the hooks have retracted dragon

307
00:14:44,870 --> 00:14:43,360
will fire its draco thrusters in two

308
00:14:46,710 --> 00:14:44,880
short bursts

309
00:14:48,629 --> 00:14:46,720
to break the stiction between it and the

310
00:14:49,910 --> 00:14:48,639
docking port and physically separate

311
00:14:51,910 --> 00:14:49,920
from station

312
00:15:09,030 --> 00:14:51,920
so we'll be able to see that here just

313
00:15:09,040 --> 00:15:15,269

all hooks open and nominal

314
00:15:15,279 --> 00:15:26,870
okay listen so first

315
00:15:26,880 --> 00:15:37,990
separation is confirmed

316
00:15:42,790 --> 00:15:40,550
okay as you can see there undocking

317
00:15:45,590 --> 00:15:42,800
confirmed of crew dragon endeavor from

318
00:15:49,910 --> 00:15:45,600
the international space station on time

319
00:15:51,509 --> 00:15:49,920
at 5 45 am central 10 45 gmt

320
00:15:52,829 --> 00:15:51,519
while station and dragon flew

321
00:15:56,710 --> 00:15:52,839
approximately

322
00:15:58,949 --> 00:15:56,720
263 miles over the south pacific flying

323
00:16:01,829 --> 00:15:58,959
west of chile

324
00:16:05,990 --> 00:16:01,839
dragon separation visually confirmed

325
00:16:13,910 --> 00:16:08,470
dragon spacex on the big load relocate

326
00:16:13,920 --> 00:16:22,150
double copies

327
00:16:26,230 --> 00:16:23,350
heard the call out there that the

328
00:16:28,870 --> 00:16:26,240
relocate burn was complete that was the

329
00:16:30,949 --> 00:16:28,880
final of the three burns of the

330
00:16:33,829 --> 00:16:30,959
uh the service section draco's performed

331
00:17:08,390 --> 00:16:33,839
that final relocate burn lasted about 21

332
00:17:12,870 --> 00:17:10,630
dragon already about 50 meters away from

333
00:17:14,949 --> 00:17:12,880
the station it's heading to a 60 meter

334
00:17:21,909 --> 00:17:14,959
hold point before transferring to the

335
00:17:26,630 --> 00:17:24,549
dragon is working to acquire lidar

336
00:17:28,950 --> 00:17:26,640
tracking which will be used by dragon to

337
00:17:31,350 --> 00:17:28,960
autonomously execute this relocation

338
00:17:33,270 --> 00:17:31,360

maneuver

339
00:18:24,230 --> 00:17:33,280
like gary mentioned before we expect it

340
00:18:28,390 --> 00:18:26,310
some station on the big loop iss

341
00:18:35,350 --> 00:18:28,400
thrusters are enabled

342
00:18:38,549 --> 00:18:36,549
you're getting a live view from the

343
00:18:41,270 --> 00:18:38,559
international space station

344
00:18:42,549 --> 00:18:41,280
dragon spacex on the big loop we've

345
00:18:44,630 --> 00:18:42,559
confirmed good position within the

346
00:18:46,630 --> 00:18:44,640
corridor and will be commanding go to

347
00:18:51,270 --> 00:18:46,640
relocate shortly you are go to raise

348
00:19:12,630 --> 00:18:53,590
okay we're looking good in the corridor

349
00:19:16,390 --> 00:19:14,310
what you're hearing now is all the teams

350
00:19:18,870 --> 00:19:16,400
in mission control houston and from this

351
00:19:21,110 --> 00:19:18,880
view here mission control in hawthorne

352
00:19:23,350 --> 00:19:21,120
agreeing to

353
00:19:25,590 --> 00:19:23,360
go ahead and initiate the transfer from

354
00:19:28,789 --> 00:19:25,600
one docking access to the other

355
00:19:31,590 --> 00:19:28,799
dragon now holding in front of its uh

356
00:19:34,150 --> 00:19:31,600
original docking access undocking from

357
00:19:36,630 --> 00:19:34,160
the forward harmony port right on time 5

358
00:19:39,510 --> 00:19:36,640
45 am central time it's a little bit

359
00:19:41,430 --> 00:19:39,520
further than 60 meters 95 meters and

360
00:19:42,789 --> 00:19:41,440
holding but from here the teams are

361
00:19:44,310 --> 00:19:42,799
looking to make sure that everything's

362
00:19:46,950 --> 00:19:44,320
good before initiating that transfer

363
00:19:48,549 --> 00:19:46,960

maneuver it'll move really from where it

364
00:19:50,789 --> 00:19:48,559
is now in front of the international

365
00:19:53,190 --> 00:19:50,799
space station to directly above it

366
00:19:55,350 --> 00:19:53,200
that'll be the new docking access right

367
00:21:02,789 --> 00:19:55,360
in front of the ida 3

368
00:21:05,990 --> 00:21:04,390
from the external cameras of the

369
00:21:08,310 --> 00:21:06,000
international space station you can see

370
00:21:09,270 --> 00:21:08,320
there in the distance uh the crew dragon

371
00:21:12,789 --> 00:21:09,280
holding

372
00:21:17,669 --> 00:21:12,799
right now at about 87 meters from uh its

373
00:21:21,110 --> 00:21:20,070
teams are analyzing the uh the making

374
00:21:23,590 --> 00:21:21,120
sure that

375
00:21:25,270 --> 00:21:23,600
crew dragon itself is ready to for the

376
00:21:27,190 --> 00:21:25,280
next maneuver to transition to the new

377
00:21:28,630 --> 00:21:27,200
docking axis right now you can see it

378
00:21:30,390 --> 00:21:28,640
directly in front of its original

379
00:21:32,230 --> 00:21:30,400
docking port it'll swing

380
00:21:33,909 --> 00:21:32,240
upwards from this view

381
00:21:36,470 --> 00:21:33,919
to the new docking port that's on the

382
00:21:37,990 --> 00:21:36,480
zenith or space facing side

383
00:22:42,789 --> 00:21:38,000
of the international space station's

384
00:22:46,470 --> 00:22:44,470
now getting views from the international

385
00:22:48,789 --> 00:22:46,480
space station flight control room will

386
00:22:50,710 --> 00:22:48,799
be losing the views from the outside of

387
00:22:52,070 --> 00:22:50,720
the station periodically throughout

388
00:22:53,750 --> 00:22:52,080

today's coverage

389
00:22:56,549 --> 00:22:53,760
and during the transition maneuver we'll

390
00:22:58,070 --> 00:22:56,559
briefly describe why this is occurring

391
00:23:00,789 --> 00:22:58,080
uh it is

392
00:23:02,950 --> 00:23:00,799
in part due to the location of dragon

393
00:23:05,750 --> 00:23:02,960
relative to the tdrs satellites

394
00:23:07,110 --> 00:23:05,760
but as we are looking at the live view

395
00:23:09,110 --> 00:23:07,120
from the international space station

396
00:23:11,830 --> 00:23:09,120
flight control room we're watching the

397
00:23:13,990 --> 00:23:11,840
uh dragon itself move inward toward that

398
00:23:16,470 --> 00:23:14,000
60 meter hold point it went out uh

399
00:23:18,950 --> 00:23:16,480
commanded hold to at 60 meters and moved

400
00:23:20,149 --> 00:23:18,960
out to about 95 meters now it's about 80

401
00:23:21,750 --> 00:23:20,159
meters

402
00:23:23,990 --> 00:23:21,760
from the international space station

403
00:23:25,190 --> 00:23:24,000
teams are just analyzing making sure uh

404
00:23:26,630 --> 00:23:25,200
the dragons in the right place and

405
00:23:28,950 --> 00:23:26,640
everything is configured getting ready

406
00:24:30,870 --> 00:23:28,960
to execute that transition maneuver from

407
00:24:35,990 --> 00:24:33,350
in case you've just joined

408
00:24:39,430 --> 00:24:36,000
spacex crew dragon

409
00:24:43,029 --> 00:24:39,440
had an on-time undocking at 5 45 am

410
00:24:44,789 --> 00:24:43,039
central 1045 gmt

411
00:24:47,990 --> 00:24:44,799
while the station and dragon flew

412
00:24:49,029 --> 00:24:48,000
approximately 263 miles over the south

413
00:24:52,470 --> 00:24:49,039

pacific

414
00:24:57,350 --> 00:24:54,070
dragon is

415
00:24:59,750 --> 00:24:57,360
about 70 meters away from station 10

416
00:25:23,750 --> 00:24:59,760
meters to go back to the 60 meter hold

417
00:25:27,190 --> 00:25:25,269
teams here in the international space

418
00:25:29,350 --> 00:25:27,200
station flight control room are busy not

419
00:25:31,269 --> 00:25:29,360
only monitoring crew dragon as it makes

420
00:25:32,390 --> 00:25:31,279
its way back to the 60 meter hold point

421
00:25:34,230 --> 00:25:32,400
now at about

422
00:25:35,909 --> 00:25:34,240
just under 62 meters we'll be arriving

423
00:25:38,390 --> 00:25:35,919
there shortly they're also configuring

424
00:25:40,549 --> 00:25:38,400
the international space station itself

425
00:25:42,630 --> 00:25:40,559
it has a series of steps through the

426
00:25:44,470 --> 00:25:42,640
relocation maneuver

427
00:25:46,070 --> 00:25:44,480
the solar arrays themselves are

428
00:25:47,350 --> 00:25:46,080
feathered and locked in a position

429
00:25:49,830 --> 00:25:47,360
throughout the duration of today's

430
00:25:52,230 --> 00:25:49,840
maneuver and attitude control has since

431
00:25:53,590 --> 00:25:52,240
been handed over to the russian segment

432
00:25:55,990 --> 00:25:53,600
from here

433
00:25:58,549 --> 00:25:56,000
the adco the attitude determination and

434
00:26:00,710 --> 00:25:58,559
control officer has been given the go to

435
00:26:02,630 --> 00:26:00,720
uh transition to the docking attitude

436
00:26:04,950 --> 00:26:02,640
this will hold international space

437
00:26:06,710 --> 00:26:04,960
station in the position ready for when

438
00:26:08,549 --> 00:26:06,720

the crew dragon endeavor makes its

439
00:26:11,029 --> 00:26:08,559
relocation maneuver to the new docking

440
00:26:13,029 --> 00:26:11,039
access station will be in the predicted

441
00:26:19,510 --> 00:26:13,039
attitude position ready to receive

442
00:27:23,750 --> 00:26:21,190
and we receive confirmation dragon has

443
00:27:27,190 --> 00:27:25,350
for those just joining you're looking at

444
00:27:29,590 --> 00:27:27,200
a live view of mission control in

445
00:27:31,350 --> 00:27:29,600
hawthorne teams there are working with

446
00:27:33,669 --> 00:27:31,360
teams here in mission control houston

447
00:27:35,669 --> 00:27:33,679
monitoring the port relocation maneuver

448
00:27:38,789 --> 00:27:35,679
of crew dragon endeavor crew dragon

449
00:27:41,430 --> 00:27:38,799
undocked uh on time 5 45 a.m central

450
00:27:44,070 --> 00:27:41,440
time moving out with a commanded hold at

451
00:27:46,470 --> 00:27:44,080
60 meters as it drifted out to about 95

452
00:27:48,710 --> 00:27:46,480
meters and slowly made its way back to

453
00:27:51,510 --> 00:27:48,720
the 60 meter hold point now it's holding

454
00:27:53,269 --> 00:27:51,520
steady we're just waiting for that go to

455
00:27:56,149 --> 00:27:53,279
initiate the transition maneuver from

456
00:27:58,149 --> 00:27:56,159
the original docking axis uh where crew

457
00:28:00,389 --> 00:27:58,159
dragon has been calling its home for the

458
00:28:02,230 --> 00:28:00,399
past 89 days at the forward harmony port

459
00:28:04,070 --> 00:28:02,240
it'll be transitioning to the zenith or

460
00:28:06,950 --> 00:28:04,080
space facing port

461
00:28:08,789 --> 00:28:06,960
where it will have where it will

462
00:28:10,230 --> 00:28:08,799
that will be its new home

463
00:28:25,990 --> 00:28:10,240

until it

464
00:28:30,630 --> 00:28:28,149
copies and confirms uh we are holding at

465
00:28:33,990 --> 00:28:30,640
the 60 meter hold point we are waiting

466
00:28:34,950 --> 00:28:34,000
ground go to begin the access maneuver

467
00:29:03,750 --> 00:28:34,960
we'll

468
00:29:08,630 --> 00:29:05,430
as gary mentioned

469
00:29:11,669 --> 00:29:08,640
this crew 2 capsule it will remain at

470
00:29:13,990 --> 00:29:11,679
this port until it returns to earth

471
00:29:17,029 --> 00:29:14,000
in a couple of months but before it does

472
00:29:18,149 --> 00:29:17,039
that it'll get a visit from the new crew

473
00:29:20,070 --> 00:29:18,159
3 crew

474
00:29:21,110 --> 00:29:20,080
as they will be using

475
00:29:24,149 --> 00:29:21,120
the

476
00:29:25,510 --> 00:29:24,159
ida 2 port where this dragon capsule

477
00:29:28,070 --> 00:29:25,520
just left

478
00:29:30,870 --> 00:29:28,080
and similarly to how we had a full

479
00:29:32,870 --> 00:29:30,880
health with two dragon two crew dragons

480
00:29:34,149 --> 00:29:32,880
on station at once both crew one and

481
00:29:36,549 --> 00:29:34,159
crew two

482
00:29:38,230 --> 00:29:36,559
we will have a similar on the big loop

483
00:29:40,789 --> 00:29:38,240
ground will be commanding relocate

484
00:29:42,549 --> 00:29:40,799
transfer to begin the access transition

485
00:29:50,470 --> 00:29:42,559
as a reminder the soft capture ring

486
00:29:50,480 --> 00:29:55,029
copies and we're ready

487
00:30:01,430 --> 00:29:57,590
and station houston on the big loop

488
00:30:07,590 --> 00:30:01,440

monitor per block delta step 3 and 1

489
00:30:07,600 --> 00:31:19,029
happy and work

490
00:31:22,070 --> 00:31:20,630
once again you're getting a live view

491
00:31:23,909 --> 00:31:22,080
from the uh

492
00:31:25,669 --> 00:31:23,919
uh flight control rooms in mission

493
00:31:27,029 --> 00:31:25,679
control hawthorne teams there working

494
00:31:29,269 --> 00:31:27,039
with teams here in mission control

495
00:31:31,029 --> 00:31:29,279
houston uh monitoring to today's

496
00:31:33,029 --> 00:31:31,039
operation we had a good commanded hold

497
00:31:35,029 --> 00:31:33,039
at 60 meters in front of the new docking

498
00:31:38,389 --> 00:31:35,039
access and teams initiated the

499
00:31:40,870 --> 00:31:38,399
relocation maneuver uh now we are on our

500
00:31:42,789 --> 00:31:40,880
way the crew dragon itself from the

501
00:32:00,470 --> 00:31:42,799
original docking access to the new

502
00:32:03,990 --> 00:32:01,909
teams here in mission control houston

503
00:32:05,909 --> 00:32:04,000
have confirmed that that motion from the

504
00:32:08,149 --> 00:32:05,919
original docking access to the new one

505
00:32:10,389 --> 00:32:08,159
is looking good uh the crew dragon on

506
00:32:12,789 --> 00:32:10,399
the expected trajectory to arrive at its

507
00:32:14,630 --> 00:32:12,799
new docking axis in the meantime the

508
00:32:16,310 --> 00:32:14,640
international space station itself has

509
00:32:18,630 --> 00:32:16,320
been configured

510
00:32:20,549 --> 00:32:18,640
for its docking attitude making sure

511
00:32:21,990 --> 00:32:20,559
that when crew dragon arrives on the new

512
00:32:23,590 --> 00:32:22,000
docking axis

513
00:32:25,830 --> 00:32:23,600

the station will be in the predicted

514
00:32:27,830 --> 00:32:25,840
position everything's looking good as we

515
00:33:00,070 --> 00:32:27,840
transition from one docking axis to the

516
00:33:04,149 --> 00:33:01,830
now you may have noticed we've been

517
00:33:06,230 --> 00:33:04,159
showing a lot of views live views from

518
00:33:07,669 --> 00:33:06,240
the various control rooms and the flight

519
00:33:10,389 --> 00:33:07,679
control teams that are supporting

520
00:33:11,990 --> 00:33:10,399
today's maneuver from the ground it's

521
00:33:13,750 --> 00:33:12,000
expected that we'll have a gap in some

522
00:33:15,909 --> 00:33:13,760
live video from the international space

523
00:33:17,830 --> 00:33:15,919
station during the port relocation now

524
00:33:19,830 --> 00:33:17,840
this is all due to the equipment

525
00:33:22,230 --> 00:33:19,840
locations and orbital mechanics of some

526
00:33:23,909 --> 00:33:22,240
of the communication equipment that's on

527
00:33:25,350 --> 00:33:23,919
board the international space station

528
00:33:27,110 --> 00:33:25,360
one of our cronus flight controllers who

529
00:33:28,389 --> 00:33:27,120
manages cameras and communications with

530
00:33:30,230 --> 00:33:28,399
the space station

531
00:33:32,470 --> 00:33:30,240
chris white recently gave a good

532
00:33:34,310 --> 00:33:32,480
explainer on twitter as to why we are

533
00:33:37,110 --> 00:33:34,320
seeing just the views here and not the

534
00:33:39,509 --> 00:33:37,120
views from space now that live video

535
00:33:41,350 --> 00:33:39,519
comes down thanks to our ku band which

536
00:33:43,350 --> 00:33:41,360
is a high data rate communications from

537
00:33:45,909 --> 00:33:43,360
space to ground the antenna that

538
00:33:47,590 --> 00:33:45,919

provides that is uh points to one of the

539
00:33:49,590 --> 00:33:47,600
tdrs or tracking and data relay

540
00:33:51,909 --> 00:33:49,600
satellites which then release the signal

541
00:33:53,509 --> 00:33:51,919
back to the ground that antenna happens

542
00:33:55,909 --> 00:33:53,519
to be located on the top part of the

543
00:33:58,070 --> 00:33:55,919
section uh stop top part of the station

544
00:33:59,669 --> 00:33:58,080
where it could most effectively point uh

545
00:34:02,630 --> 00:33:59,679
at the different tdrs satellites which

546
00:34:04,789 --> 00:34:02,640
orbit about 22 a little bit more than 22

547
00:34:06,389 --> 00:34:04,799
000 miles above the earth to give you

548
00:34:08,550 --> 00:34:06,399
some perspective the international space

549
00:34:11,589 --> 00:34:08,560
station is currently orbiting at roughly

550
00:34:13,589 --> 00:34:11,599
250 miles now those satellites provide

551
00:34:15,990 --> 00:34:13,599
communication to multiple spacecraft and

552
00:34:17,990 --> 00:34:16,000
satellites including familiar ones like

553
00:34:20,470 --> 00:34:18,000
the space station dragon hubble space

554
00:34:22,950 --> 00:34:20,480
telescope now for today's operation the

555
00:34:24,629 --> 00:34:22,960
tdrs were in range of uh would be behind

556
00:34:26,389 --> 00:34:24,639
the dragon during his approach so that

557
00:34:28,869 --> 00:34:26,399
means any signal that the antenna would

558
00:34:30,550 --> 00:34:28,879
send would reflect off of dragon which

559
00:34:32,950 --> 00:34:30,560
could potentially damage the antennas

560
00:34:34,389 --> 00:34:32,960
tracking sensors so to prevent this the

561
00:34:36,470 --> 00:34:34,399
cronus flight controller here in mission

562
00:34:38,389 --> 00:34:36,480
control houston activates what's called

563
00:34:40,550 --> 00:34:38,399

a mask which basically prevents the

564
00:34:41,909 --> 00:34:40,560
antenna from pointing at a specific area

565
00:34:43,349 --> 00:34:41,919
of the sky

566
00:34:45,430 --> 00:34:43,359
any uh

567
00:34:47,109 --> 00:34:45,440
spacecraft that approaches zenith or the

568
00:34:48,710 --> 00:34:47,119
space facing side

569
00:34:51,270 --> 00:34:48,720
port of harmony which is part of the

570
00:34:53,190 --> 00:34:51,280
maneuver today has large area off limits

571
00:34:55,750 --> 00:34:53,200
to the antenna uh

572
00:34:57,750 --> 00:34:55,760
for the the antenna to point and if the

573
00:34:59,910 --> 00:34:57,760
antenna can't point at the closest tdrs

574
00:35:02,710 --> 00:34:59,920
satellite then we can't send the video

575
00:35:05,349 --> 00:35:02,720
signal

576
00:35:07,030 --> 00:35:05,359
here's a view from uh the a cargo dragon

577
00:35:09,430 --> 00:35:07,040
undocking from this position you can see

578
00:35:10,310 --> 00:35:09,440
the cargo dragon there on the left that

579
00:35:12,069 --> 00:35:10,320
uh

580
00:35:13,750 --> 00:35:12,079
that dish that you see there on the

581
00:35:15,109 --> 00:35:13,760
right is a space to ground antenna

582
00:35:16,870 --> 00:35:15,119
that's the one that points to the

583
00:35:17,990 --> 00:35:16,880
tracking and data relay satellites you

584
00:35:20,069 --> 00:35:18,000
see it's pointing in the general

585
00:35:21,349 --> 00:35:20,079
vicinity of the crew dragon so that's

586
00:35:23,670 --> 00:35:21,359
part of the reason why we're not seeing

587
00:35:25,829 --> 00:35:23,680
a lot of live views today we may be able

588
00:35:27,670 --> 00:35:25,839

to see some live views as dragon makes

589
00:35:29,510 --> 00:35:27,680
its final approach from the 20 meter

590
00:35:30,870 --> 00:35:29,520
hold point at waypoint 2 down to the

591
00:35:32,950 --> 00:35:30,880
docking axis

592
00:35:35,510 --> 00:35:32,960
but otherwise we're going to play it

593
00:35:38,230 --> 00:35:35,520
safe and mask off the area as dragon

594
00:35:39,750 --> 00:35:38,240
makes its position right in between the

595
00:35:41,589 --> 00:35:39,760
dish there that you see on the right the

596
00:35:43,510 --> 00:35:41,599
space to ground antenna and the tracking

597
00:35:46,230 --> 00:35:43,520
and data rios relay satellites in

598
00:37:00,150 --> 00:35:46,240
geosynchronous orbit more than 22 000

599
00:37:04,870 --> 00:37:02,790
for those just joining crew dragon has

600
00:37:05,910 --> 00:37:04,880
undocked from the international space

601
00:37:09,430 --> 00:37:05,920
station

602
00:37:12,790 --> 00:37:09,440
and is currently making its way to the

603
00:37:14,230 --> 00:37:12,800
midpoint in these in this relocation

604
00:37:15,510 --> 00:37:14,240
maneuver

605
00:37:17,030 --> 00:37:15,520
it will

606
00:37:20,150 --> 00:37:17,040
stop and hold

607
00:37:23,430 --> 00:37:20,160
once it's 60 meters directly above the

608
00:37:28,950 --> 00:37:23,440
node 2 zenith port and prepare for final

609
00:37:32,790 --> 00:37:31,109
by controllers in hawthorne well once

610
00:37:34,790 --> 00:37:32,800
again command dragon to begin its

611
00:37:37,670 --> 00:37:34,800
approach flying in until it reaches

612
00:37:42,550 --> 00:37:37,680
waypoint 2 which is just 20 meters away

613
00:37:46,150 --> 00:37:44,069

once it's there

614
00:37:48,150 --> 00:37:46,160
the crew dragon will hold one final time

615
00:37:50,390 --> 00:37:48,160
for teams on the ground and the

616
00:37:52,390 --> 00:37:50,400
astronauts aboard dragon to do a final

617
00:37:54,630 --> 00:37:52,400
check before docking

618
00:37:56,870 --> 00:37:54,640
there aren't any strict requirements to

619
00:37:59,190 --> 00:37:56,880
complete docking during a day or night

620
00:38:01,510 --> 00:37:59,200
pass but there's always the chance that

621
00:38:03,589 --> 00:38:01,520
this could hold uh

622
00:38:06,230 --> 00:38:03,599
excuse me this could hold this hold

623
00:38:09,349 --> 00:38:06,240
could continue until lighting conditions

624
00:38:12,150 --> 00:38:09,359
on the docking port are ideal

625
00:38:36,950 --> 00:38:12,160
once ready dragon will begin its final

626
00:38:49,670 --> 00:38:38,950
and we're just about one minute until

627
00:38:54,470 --> 00:38:52,069
throughout this maneuver to um

628
00:38:57,430 --> 00:38:54,480
uh the new docking access this

629
00:38:59,030 --> 00:38:57,440
transition path the sta the dragon

630
00:39:01,829 --> 00:38:59,040
itself has been holding

631
00:39:03,910 --> 00:39:01,839
roughly 60 meters away from the station

632
00:39:05,750 --> 00:39:03,920
as it transitions from one docking board

633
00:39:07,270 --> 00:39:05,760
to the other as we near the midpoint

634
00:39:09,349 --> 00:39:07,280
that'll be the halfway point until we

635
00:39:11,190 --> 00:39:09,359
reach the new docking axis in the

636
00:39:13,109 --> 00:39:11,200
meantime as we make this transition

637
00:39:15,190 --> 00:39:13,119
please send in some questions using the

638
00:39:17,270 --> 00:39:15,200

hashtag ask nasa we'll do our best to

639
00:39:19,750 --> 00:39:17,280
answer them here as we continue to cover

640
00:39:35,510 --> 00:39:19,760
the port relocation maneuver and crew 2

641
00:39:48,150 --> 00:39:38,310
dragon spacex on the big loop midpoint

642
00:39:48,160 --> 00:40:00,150
never comes

643
00:40:04,550 --> 00:40:02,470
and you heard that confirmation the crew

644
00:40:06,550 --> 00:40:04,560
dragon endeavor making a successful

645
00:40:09,990 --> 00:40:06,560
maneuver from the original docking

646
00:40:12,550 --> 00:40:10,000
access after undocking on time 5 45 am

647
00:40:14,950 --> 00:40:12,560
central time moving out to about 95

648
00:40:16,710 --> 00:40:14,960
meters then back to 60 meters initiating

649
00:40:19,349 --> 00:40:16,720
the transition maneuver and holding at

650
00:40:21,910 --> 00:40:19,359
60 meters uh from the original docking

651
00:40:23,589 --> 00:40:21,920
axis to the midpoint now it's uh from

652
00:40:25,829 --> 00:40:23,599
the mid now it's making a transition

653
00:40:28,150 --> 00:40:25,839
from that midpoint to the new docking

654
00:40:29,589 --> 00:40:28,160
axis it'll take uh uh just about another

655
00:40:31,589 --> 00:40:29,599
nine minutes

656
00:40:33,670 --> 00:40:31,599
in the meantime we'll cover uh the crew

657
00:40:36,309 --> 00:40:33,680
that's currently on board crew dragon

658
00:40:38,710 --> 00:40:36,319
endeavor first is uh commander uh dragon

659
00:40:40,150 --> 00:40:38,720
commander shane kimbrough it'll be his

660
00:40:42,150 --> 00:40:40,160
or it is his

661
00:40:44,309 --> 00:40:42,160
third trip to space he was born in

662
00:40:47,030 --> 00:40:44,319
colleen texas and raised in atlanta and

663
00:40:49,510 --> 00:40:47,040

was selected as an astronaut in 2004.

664
00:40:51,030 --> 00:40:49,520
kimbrough is a retired u.s army colonel

665
00:40:53,430 --> 00:40:51,040
and holds degrees in aerospace

666
00:40:55,349 --> 00:40:53,440
engineering and operations research he

667
00:40:58,069 --> 00:40:55,359
first launched aboard the space shuttle

668
00:41:00,069 --> 00:40:58,079
endeavour on sts-126

669
00:41:02,710 --> 00:41:00,079
then aboard a russian soyuz spacecraft

670
00:41:04,470 --> 00:41:02,720
for expedition 49 and 50.

671
00:41:06,309 --> 00:41:04,480
kimbrough is the spacecraft commander

672
00:41:08,069 --> 00:41:06,319
for the crew 2 flight and is the flight

673
00:41:11,430 --> 00:41:08,079
and it is a flight engineer for

674
00:41:12,870 --> 00:41:11,440
expedition 65 and 66 on station in

675
00:41:14,230 --> 00:41:12,880
addition to the usual complement of

676
00:41:16,470 --> 00:41:14,240
science and maintenance work for our

677
00:41:18,790 --> 00:41:16,480
astronauts he completed three spacewalks

678
00:41:21,109 --> 00:41:18,800
earlier this summer with thomas k to

679
00:41:23,109 --> 00:41:21,119
install the first of this in a series of

680
00:41:27,510 --> 00:41:23,119
new solar arrays on the station bring

681
00:41:31,589 --> 00:41:29,270
this mission marks pilot megan

682
00:41:33,990 --> 00:41:31,599
macarthur's second trip to space but her

683
00:41:35,990 --> 00:41:34,000
first one to the space station she was

684
00:41:38,309 --> 00:41:36,000
born in honolulu but considers

685
00:41:40,630 --> 00:41:38,319
california her home state

686
00:41:41,910 --> 00:41:40,640
nasa selected macarthur as an astronaut

687
00:41:43,670 --> 00:41:41,920
in 2000

688
00:41:45,910 --> 00:41:43,680

she holds degrees in aerospace

689
00:41:47,910 --> 00:41:45,920
engineering and oceanography

690
00:41:51,750 --> 00:41:47,920
macarthur served as mission specialists

691
00:41:53,430 --> 00:41:51,760
aboard space shuttle atlantis on sts-125

692
00:41:56,390 --> 00:41:53,440
the final servicing mission of the

693
00:41:58,470 --> 00:41:56,400
hubble space telescope in 2009.

694
00:42:01,670 --> 00:41:58,480
she operated the shuttle's robotic arm

695
00:42:03,670 --> 00:42:01,680
over the course of 12 days and 21 hours

696
00:42:05,589 --> 00:42:03,680
capturing the telescope and maneuvering

697
00:42:07,670 --> 00:42:05,599
crew members throughout the five space

698
00:42:09,589 --> 00:42:07,680
walks to upgrade hubble's science

699
00:42:11,510 --> 00:42:09,599
instruments along with removal and

700
00:42:13,829 --> 00:42:11,520
replacement of other components to

701
00:42:16,309 --> 00:42:13,839
lengthen the telescope's life

702
00:42:18,630 --> 00:42:16,319
macarthur is crew dragon endeavors pilot

703
00:42:20,550 --> 00:42:18,640
for the crew 2 mission and is serving as

704
00:42:23,510 --> 00:42:20,560
a flight engineer conducting science and

705
00:42:27,750 --> 00:42:23,520
maintenance for expedition 65 and 66

706
00:42:32,069 --> 00:42:29,589
mission specialist aki hoshide is

707
00:42:34,710 --> 00:42:32,079
currently on his third trip to space

708
00:42:37,750 --> 00:42:34,720
born in tokyo hoshide was selected as an

709
00:42:39,910 --> 00:42:37,760
astronaut in 1999 by the national space

710
00:42:42,630 --> 00:42:39,920
development agency of japan known today

711
00:42:43,670 --> 00:42:42,640
as japan aerospace exploration agency or

712
00:42:45,670 --> 00:42:43,680
jaxa

713
00:42:47,430 --> 00:42:45,680

hoshide earned degrees in aerospace

714
00:42:49,829 --> 00:42:47,440
engineering and mechanical engineering

715
00:42:51,589 --> 00:42:49,839
he flew on sts-124 aboard the space

716
00:42:54,550 --> 00:42:51,599
shuttle discovery to deliver and install

717
00:42:56,230 --> 00:42:54,560
japan's science laboratory kibo he also

718
00:42:59,829 --> 00:42:56,240
flew aboard the russian soyuz on

719
00:43:02,069 --> 00:42:59,839
expeditions 32 and 33 for a 124 day

720
00:43:04,950 --> 00:43:02,079
visit to the international space station

721
00:43:07,349 --> 00:43:04,960
in 2014 he also served as commander of

722
00:43:09,270 --> 00:43:07,359
the 18th nasa extreme environment

723
00:43:11,349 --> 00:43:09,280
mission operation an underwater

724
00:43:13,270 --> 00:43:11,359
expedition at the national oceanic and

725
00:43:15,910 --> 00:43:13,280
atmospheric administration's aquarius

726
00:43:18,550 --> 00:43:15,920
habitat off of florida's key largo coast

727
00:43:20,150 --> 00:43:18,560
coast he now serves as the commander for

728
00:43:22,230 --> 00:43:20,160
the international space station for

729
00:43:27,190 --> 00:43:22,240
expedition 65 and as a mission

730
00:43:32,150 --> 00:43:29,430
crew 2 is mission specialist thomas

731
00:43:35,510 --> 00:43:32,160
pesquet's second trip to space born in

732
00:43:38,309 --> 00:43:35,520
ruan france pesquet was selected by esa

733
00:43:40,470 --> 00:43:38,319
as an astronaut in 2009

734
00:43:44,150 --> 00:43:40,480
he has a degree in spacecraft design and

735
00:43:47,109 --> 00:43:44,160
control and more than 2300 flight hours

736
00:43:49,510 --> 00:43:47,119
as a command commercial airline pilot

737
00:43:51,750 --> 00:43:49,520
pasquay first flew to space on the soyuz

738
00:43:53,109 --> 00:43:51,760

as a flight engineer for expeditions 50

739
00:43:55,349 --> 00:43:53,119
and 51.

740
00:43:57,270 --> 00:43:55,359
in that time he worked on more than 50

741
00:43:59,589 --> 00:43:57,280
experiments and performed two space

742
00:44:02,790 --> 00:43:59,599
walks to maintain the space station

743
00:44:05,190 --> 00:44:02,800
he has logged 197 days in space

744
00:44:07,430 --> 00:44:05,200
pesquet is the first european to fly in

745
00:44:09,190 --> 00:44:07,440
a crew dragon and the first european to

746
00:44:10,150 --> 00:44:09,200
launch from america in more than a

747
00:44:12,230 --> 00:44:10,160
decade

748
00:44:15,109 --> 00:44:12,240
he's currently a flight engineer for

749
00:44:17,030 --> 00:44:15,119
expedition 65 and will take over the

750
00:44:18,950 --> 00:44:17,040
role of station commander later this

751
00:44:34,790 --> 00:44:18,960
fall before returning to earth with the

752
00:44:38,710 --> 00:44:36,470
now we will be getting some periodic

753
00:44:40,710 --> 00:44:38,720
views uh from the international space

754
00:44:41,750 --> 00:44:40,720
station during today's port relocation

755
00:44:46,790 --> 00:44:41,760
maneuver

756
00:44:48,790 --> 00:44:46,800
the original docking access and passed

757
00:44:51,510 --> 00:44:48,800
the midway point

758
00:44:53,670 --> 00:44:51,520
we're now in the final stretch of the uh

759
00:44:55,349 --> 00:44:53,680
transition from the midway point which

760
00:44:57,589 --> 00:44:55,359
is the halfway marker between the

761
00:44:59,910 --> 00:44:57,599
original docking access and the new one

762
00:45:02,309 --> 00:44:59,920
and dragon you see now is making its way

763
00:45:03,750 --> 00:45:02,319

to the new docking axis on the space

764
00:45:05,750 --> 00:45:03,760
facing side

765
00:45:07,670 --> 00:45:05,760
really pointing right out towards the

766
00:45:10,390 --> 00:45:07,680
space that's where the international

767
00:45:11,670 --> 00:45:10,400
docking adapter 3 is located where the

768
00:45:13,910 --> 00:45:11,680
final stretch

769
00:45:15,910 --> 00:45:13,920
and now starting to get some views

770
00:45:17,829 --> 00:45:15,920
from the international space station of

771
00:45:19,349 --> 00:45:17,839
crew dragon endeavor in the final

772
00:45:35,589 --> 00:45:19,359
stretch of this transition from the

773
00:45:39,510 --> 00:45:37,190
in the final moments here we're getting

774
00:45:41,270 --> 00:45:39,520
some questions using the hashtag ask

775
00:45:43,349 --> 00:45:41,280
nasa please keep sending them in as we

776
00:45:45,829 --> 00:45:43,359
continue our coverage of crew dragons

777
00:45:47,990 --> 00:45:45,839
maneuver to a new port

778
00:45:50,150 --> 00:45:48,000
this first question comes in asking

779
00:45:52,150 --> 00:45:50,160
about how about the views that we're

780
00:45:53,510 --> 00:45:52,160
seeing how come people in space station

781
00:45:55,270 --> 00:45:53,520
mission control room are able to

782
00:45:57,589 --> 00:45:55,280
maintain live views of the international

783
00:45:59,829 --> 00:45:57,599
space station but we can't

784
00:46:01,349 --> 00:45:59,839
the answer is that the folks that you're

785
00:46:02,950 --> 00:46:01,359
seeing here in mission control houston

786
00:46:05,190 --> 00:46:02,960
are looking at the same views that we

787
00:46:06,790 --> 00:46:05,200
are so now we are getting the views from

788
00:46:08,790 --> 00:46:06,800

the outside of the international space

789
00:46:11,190 --> 00:46:08,800
station using some of the external

790
00:46:12,950 --> 00:46:11,200
cameras you see here here's a

791
00:46:14,470 --> 00:46:12,960
a shot from the back of the room we're

792
00:46:16,309 --> 00:46:14,480
now getting these views

793
00:46:18,390 --> 00:46:16,319
now the space to ground communications

794
00:46:20,230 --> 00:46:18,400
the reason we're able to get these views

795
00:46:21,990 --> 00:46:20,240
is due to a communications antenna

796
00:46:23,910 --> 00:46:22,000
that's located on the outside of the

797
00:46:26,150 --> 00:46:23,920
international space station pointing

798
00:46:28,550 --> 00:46:26,160
towards the tracking and data relay

799
00:46:31,270 --> 00:46:28,560
satellites now for a large portion of

800
00:46:33,109 --> 00:46:31,280
today's maneuver some of those uh some

801
00:46:35,349 --> 00:46:33,119
of those shots are going to be mass the

802
00:46:38,069 --> 00:46:35,359
the communication path between the

803
00:46:40,470 --> 00:46:38,079
station which is 250 miles and the

804
00:46:42,710 --> 00:46:40,480
geosynchronous tracking and data relay

805
00:46:45,190 --> 00:46:42,720
satellites which are more than 22 000

806
00:46:46,550 --> 00:46:45,200
miles from earth we mask off those areas

807
00:46:47,910 --> 00:46:46,560
to prevent any damage to the

808
00:46:50,230 --> 00:46:47,920
communication antennas as they're

809
00:46:52,870 --> 00:46:50,240
sending high data rate radio frequency

810
00:46:55,270 --> 00:46:52,880
signals uh where dragon really is in

811
00:46:56,710 --> 00:46:55,280
between that communication path so we

812
00:46:58,630 --> 00:46:56,720
wouldn't want the

813
00:47:00,550 --> 00:46:58,640

high data rate communication signals to

814
00:47:02,870 --> 00:47:00,560
bounce off of the dragon back to the

815
00:47:05,109 --> 00:47:02,880
antenna and uh and

816
00:47:06,870 --> 00:47:05,119
possibly affect some of the auto track

817
00:47:08,550 --> 00:47:06,880
sensors that are on the outside of the

818
00:47:10,230 --> 00:47:08,560
station so the views that you're seeing

819
00:47:11,349 --> 00:47:10,240
are going to be periodic we may lose

820
00:47:13,030 --> 00:47:11,359
them

821
00:47:14,710 --> 00:47:13,040
as we make our way to the new docking

822
00:47:16,870 --> 00:47:14,720
access right now we're in the home

823
00:47:19,670 --> 00:47:16,880
stretch getting some good views uh the

824
00:47:21,430 --> 00:47:19,680
cronus the uh uh mission controller here

825
00:47:23,990 --> 00:47:21,440
in mission control houston is over

826
00:47:26,230 --> 00:47:24,000
exposing the image of the dragon you see

827
00:47:27,510 --> 00:47:26,240
it sort of very brightly coming into our

828
00:47:29,589 --> 00:47:27,520
view now

829
00:47:31,589 --> 00:47:29,599
when the cronus over exposes the image

830
00:47:33,670 --> 00:47:31,599
and increases the aperture of the

831
00:47:36,309 --> 00:47:33,680
station's cameras you can start to see

832
00:47:38,309 --> 00:47:36,319
some of the draco engine engines firing

833
00:47:40,470 --> 00:47:38,319
uh the different plumes you'll see that

834
00:47:43,109 --> 00:47:40,480
coming out of dragon as it makes its

835
00:47:45,030 --> 00:47:43,119
transition that helps to stabilize the

836
00:47:47,190 --> 00:47:45,040
dragon as it makes its way from one

837
00:48:34,470 --> 00:47:47,200
docking axis to the other

838
00:48:37,270 --> 00:48:36,150

if you look carefully at your screen you

839
00:48:38,870 --> 00:48:37,280
can see

840
00:48:43,270 --> 00:48:38,880
the

841
00:48:46,069 --> 00:48:43,280
um

842
00:48:48,390 --> 00:48:46,079
some actuation thrusters there too

843
00:48:51,190 --> 00:48:48,400
aligned for this autonomous

844
00:48:54,470 --> 00:48:51,200
procedure dragon spacex

845
00:48:57,109 --> 00:48:54,480
on the big loop dragon has arrived at

846
00:48:59,589 --> 00:48:57,119
the 60 meter hold point on zenith and

847
00:49:09,670 --> 00:48:59,599
dragon is configured for docking confirm

848
00:49:48,470 --> 00:49:11,589
never copies all crew is ready for a

849
00:49:51,349 --> 00:49:49,670
getting more live views from the

850
00:49:53,510 --> 00:49:51,359
international space station flight

851
00:49:55,670 --> 00:49:53,520
control room you heard confirmation that

852
00:49:58,630 --> 00:49:55,680
dragon has arrived at his new docking

853
00:50:01,190 --> 00:49:58,640
axis holding at 60 meters steady the

854
00:50:03,430 --> 00:50:01,200
approach one maneuver will be executed

855
00:50:05,510 --> 00:50:03,440
here shortly and will move dragon in

856
00:50:08,790 --> 00:50:05,520
from the 60 meter hold point down to

857
00:50:11,030 --> 00:50:08,800
waypoint to a 20 meter hold point uh

858
00:50:18,150 --> 00:50:11,040
from there it'll hold once again and

859
00:50:22,710 --> 00:50:20,470
and in hawthorne will conduct a go no-go

860
00:50:24,630 --> 00:50:22,720
readiness poll and make sure that we are

861
00:50:36,230 --> 00:50:24,640
good to proceed from waypoint due down

862
00:50:41,670 --> 00:50:39,109
and dragon spacex on the big loop ground

863
00:50:43,829 --> 00:50:41,680

is now go to continue approach

864
00:50:52,230 --> 00:50:43,839
and we will be commanding the resume to

865
00:50:52,240 --> 00:50:56,230
we are ready for the resume

866
00:51:01,109 --> 00:50:58,390
and station houston on the big loop

867
00:51:03,349 --> 00:51:01,119
approach resume to waypoint

868
00:51:05,750 --> 00:51:03,359
approach is resuming to wait point two

869
00:51:06,870 --> 00:51:05,760
monitor per step two and one decimal one

870
00:51:08,309 --> 00:51:06,880
zero four

871
00:51:14,309 --> 00:51:08,319
crude dragon approach and retreat

872
00:51:14,319 --> 00:51:31,510
good work thanks

873
00:51:36,390 --> 00:51:33,829
as we mentioned before the

874
00:51:37,990 --> 00:51:36,400
port relocation maneuvers are completely

875
00:51:40,630 --> 00:51:38,000
autonomous

876
00:51:43,430 --> 00:51:40,640
when it comes to the dragon spacecraft

877
00:51:45,430 --> 00:51:43,440
although the all four crew members are

878
00:51:47,829 --> 00:51:45,440
suited up and strapped into their seats

879
00:51:49,829 --> 00:51:47,839
within the crew dragon capsule

880
00:51:51,910 --> 00:51:49,839
they are not commanding the vehicle from

881
00:51:53,349 --> 00:51:51,920
inside that all those commands are being

882
00:51:55,990 --> 00:51:53,359
sent from ground

883
00:51:57,349 --> 00:51:56,000
and the crew inside the capsule is

884
00:52:19,430 --> 00:51:57,359
monitoring

885
00:52:23,670 --> 00:52:21,270
and we heard that confirmation dragon is

886
00:52:26,309 --> 00:52:23,680
moving from the 60 meter hold point uh

887
00:52:28,309 --> 00:52:26,319
now at about 46 meters and closing into

888
00:52:30,870 --> 00:52:28,319

the 20 meter hold

889
00:52:32,710 --> 00:52:30,880
again that way.2 will be a hold command

890
00:52:34,790 --> 00:52:32,720
teams will conduct a readiness review

891
00:52:37,030 --> 00:52:34,800
making sure everything is good before

892
00:52:38,870 --> 00:52:37,040
proceeding in for a docking in the

893
00:52:40,470 --> 00:52:38,880
meantime we're getting live views from

894
00:52:43,270 --> 00:52:40,480
the international space station we've

895
00:52:46,390 --> 00:52:43,280
described the masking that's required as

896
00:52:48,069 --> 00:52:46,400
dragon now is really in between the uh

897
00:52:50,309 --> 00:52:48,079
space to ground antenna and the tracking

898
00:52:53,030 --> 00:52:50,319
and data relay satellites so our views

899
00:52:54,470 --> 00:52:53,040
uh of the docking maneuver will be uh

900
00:52:56,390 --> 00:52:54,480
pretty sparse uh throughout the

901
00:52:58,950 --> 00:52:56,400
remainder of today's coverage we may get

902
00:53:01,750 --> 00:52:58,960
a little sneak peek of dragon actually

903
00:53:03,750 --> 00:53:01,760
making uh contact with the new

904
00:53:06,470 --> 00:53:03,760
international docking adapter

905
00:53:07,990 --> 00:53:06,480
now 34 meters and closing in the

906
00:53:09,829 --> 00:53:08,000
meantime keep sending in your questions

907
00:53:11,990 --> 00:53:09,839
using the hashtag ask nasa we'll try to

908
00:53:14,069 --> 00:53:12,000
answer as many as we can

909
00:53:16,150 --> 00:53:14,079
as we continue our coverage today uh

910
00:53:18,069 --> 00:53:16,160
this next one is about why we are

911
00:53:19,990 --> 00:53:18,079
conducting the maneuver uh why cannot

912
00:53:21,910 --> 00:53:20,000
boeing starliner not dock in place where

913
00:53:24,069 --> 00:53:21,920

endeavour was originally located so why

914
00:53:26,710 --> 00:53:24,079
is this maneuver required well boeing's

915
00:53:28,150 --> 00:53:26,720
cst 100 starliner flight software has

916
00:53:30,230 --> 00:53:28,160
been certified for docking to the

917
00:53:32,230 --> 00:53:30,240
forward port on harmony for its flight

918
00:53:34,470 --> 00:53:32,240
test to the international space station

919
00:53:36,069 --> 00:53:34,480
the forward port offers a less complex

920
00:53:37,670 --> 00:53:36,079
approach and presents better lighting

921
00:53:39,589 --> 00:53:37,680
conditions without the earthen view of

922
00:53:41,190 --> 00:53:39,599
navigation and tracking sensors

923
00:53:43,270 --> 00:53:41,200
utilizing that forward port on these

924
00:53:47,109 --> 00:53:43,280
initial test flights puts the safety of

925
00:53:50,950 --> 00:53:49,190
starliner will be able to dock to both

926
00:53:52,630 --> 00:53:50,960
ports and have the ability to perform

927
00:53:54,790 --> 00:53:52,640
port relocation maneuvers by the

928
00:53:56,309 --> 00:53:54,800
starliner one mission this is similar to

929
00:53:58,150 --> 00:53:56,319
the approach taken during the first

930
00:54:00,470 --> 00:53:58,160
knockings of crew dragon during its

931
00:54:01,990 --> 00:54:00,480
first test flights to the station

932
00:54:04,150 --> 00:54:02,000
hey megan just for your awareness we are

933
00:54:07,349 --> 00:54:04,160
waiting on ground station on the big

934
00:54:12,390 --> 00:54:07,359
loop uh procedure review complete and uh

935
00:54:14,710 --> 00:54:12,400
the iss crew is ready for docking copy

936
00:54:22,710 --> 00:54:14,720
and we will be anticipating holding at

937
00:55:07,670 --> 00:54:24,710
for copies we will expect to hold at

938
00:55:10,390 --> 00:55:08,950

as you're getting live views of the

939
00:55:12,309 --> 00:55:10,400
international space station flight

940
00:55:14,789 --> 00:55:12,319
control room we have confirmation that

941
00:55:16,950 --> 00:55:14,799
the crew dragon is holding at waypoint 2

942
00:55:18,870 --> 00:55:16,960
just 20 meters away from the

943
00:55:21,510 --> 00:55:18,880
international space station this is the

944
00:55:23,670 --> 00:55:21,520
final hold point before it makes its way

945
00:55:26,470 --> 00:55:23,680
uh from this final hole point 20 meters

946
00:55:30,870 --> 00:55:26,480
away to contact and capture with its new

947
00:55:36,710 --> 00:55:34,069
as we wait here and the teams assess uh

948
00:55:38,309 --> 00:55:36,720
the go readiness uh for proceeding in

949
00:55:39,829 --> 00:55:38,319
with a docking we already heard that go

950
00:55:42,870 --> 00:55:39,839
from the crew keep sending in your

951
00:55:45,190 --> 00:55:42,880
questions using the hashtag ask nasa

952
00:55:47,829 --> 00:55:45,200
uh this next one comes from alex uh

953
00:55:50,630 --> 00:55:47,839
who's asking why does the crew dragon

954
00:55:53,589 --> 00:55:50,640
crew need to be on board uh during it

955
00:55:56,150 --> 00:55:53,599
the dock itself a good question why not

956
00:55:59,190 --> 00:55:56,160
just let the dragon autonomously move

957
00:56:01,190 --> 00:55:59,200
from one port to the other

958
00:56:03,750 --> 00:56:01,200
the idea is that in the event of a

959
00:56:05,829 --> 00:56:03,760
contingency if anything were to happen

960
00:56:07,589 --> 00:56:05,839
during the port relocation maneuver say

961
00:56:09,190 --> 00:56:07,599
it couldn't undock or if there was

962
00:56:11,910 --> 00:56:09,200
anything that were to happen to the crew

963
00:56:14,870 --> 00:56:11,920

dragon itself that the four members of

964
00:56:17,670 --> 00:56:14,880
the crew have the available seats in the

965
00:56:19,990 --> 00:56:17,680
uh we'll call it an escape pod that gets

966
00:56:21,349 --> 00:56:20,000
them down to earth at all times on board

967
00:56:23,109 --> 00:56:21,359
the international space station there

968
00:56:25,190 --> 00:56:23,119
needs to be enough seats

969
00:56:27,910 --> 00:56:25,200
in the visiting vehicles to provide

970
00:56:29,430 --> 00:56:27,920
transportation a safe uh transportation

971
00:56:31,349 --> 00:56:29,440
from the international space station

972
00:56:32,789 --> 00:56:31,359
back down to earth so if anything were

973
00:56:34,549 --> 00:56:32,799
to happen for the two for the crew

974
00:58:31,190 --> 00:56:34,559
dragon all four would have enough seats

975
00:58:35,270 --> 00:58:33,109
so although unfortunately we don't have

976
00:58:36,870 --> 00:58:35,280
video of crew dragon

977
00:58:39,829 --> 00:58:36,880
all four crew members like we mentioned

978
00:58:41,670 --> 00:58:39,839
before are suited up and buckled into

979
00:58:44,470 --> 00:58:41,680
their seats inside the crew dragon

980
00:58:45,990 --> 00:58:44,480
capsule during this port relocation

981
00:58:48,950 --> 00:58:46,000
maneuver

982
00:58:51,589 --> 00:58:48,960
they are now in the final half of this

983
00:58:53,670 --> 00:58:51,599
maneuver we're going to be

984
00:58:55,589 --> 00:58:53,680
the final step will be the final

985
00:58:56,710 --> 00:58:55,599
approach which will take about four

986
00:58:59,109 --> 00:58:56,720
minutes

987
00:59:02,150 --> 00:58:59,119
we'll hear a call out for chop which

988
00:59:03,990 --> 00:59:02,160

stands for crew hands-off point and this

989
00:59:06,230 --> 00:59:04,000
occurs when the spacecraft is about two

990
00:59:07,750 --> 00:59:06,240
meters away from the docking port and

991
00:59:10,150 --> 00:59:07,760
means that any aborts need to be

992
00:59:10,870 --> 00:59:10,160
initiated by dragon's flight computer

993
00:59:13,030 --> 00:59:10,880
and

994
00:59:16,549 --> 00:59:13,040
after after that point rather than by

995
00:59:20,309 --> 00:59:18,549
and that call will happen at about the 2

996
00:59:22,069 --> 00:59:20,319
meter point it will just be a matter of

997
00:59:23,670 --> 00:59:22,079
seconds really from 2 meters until it

998
00:59:26,069 --> 00:59:23,680
makes contact and capture with the

999
00:59:29,030 --> 00:59:26,079
international space station that initial

1000
00:59:31,510 --> 00:59:29,040
capture time will report out as a soft

1001
00:59:34,789 --> 00:59:31,520
capture the soft capture ring itself

1002
00:59:37,510 --> 00:59:34,799
will retract pulling the dragon in

1003
00:59:39,430 --> 00:59:37,520
to begin a hard mating sequence with the

1004
00:59:41,670 --> 00:59:39,440
international docking adapter

1005
00:59:43,109 --> 00:59:41,680
that aligns the hooks very nicely and

1006
00:59:44,870 --> 00:59:43,119
they'll engage just like we saw at the

1007
00:59:45,829 --> 00:59:44,880
beginning of today's coverage all 12

1008
00:59:47,910 --> 00:59:45,839
hooks

1009
00:59:49,990 --> 00:59:47,920
releasing six at a time we'll see the

1010
00:59:52,470 --> 00:59:50,000
opposite during the docking sequence uh

1011
00:59:54,870 --> 00:59:52,480
these 12 hooks will engage

1012
00:59:56,789 --> 00:59:54,880
to hard mate the crew dragon to the

1013
01:00:12,789 --> 00:59:56,799

international docking adapter six at a

1014
01:00:17,670 --> 01:00:15,109
dragon spacex on the big loop

1015
01:00:19,750 --> 01:00:17,680
ground is go for final approach and will

1016
01:00:21,670 --> 01:00:19,760
be commanding resume shortly

1017
01:00:30,069 --> 01:00:21,680
please confirm readiness for final

1018
01:00:34,069 --> 01:00:32,309
let's go for final approach fighters are

1019
01:00:39,910 --> 01:00:34,079
down can you confirm the backing light

1020
01:00:46,069 --> 01:00:43,430
spacex copies crew is go we can confirm

1021
01:00:48,390 --> 01:00:46,079
that the docking light is on

1022
01:00:50,309 --> 01:00:48,400
additionally additionally

1023
01:00:51,910 --> 01:00:50,319
as a reminder once dragon is inside the

1024
01:01:04,950 --> 01:00:51,920
crew hands off point retreat and

1025
01:01:10,950 --> 01:01:07,910
and station houston on the big loop

1026
01:01:13,190 --> 01:01:10,960
monitor per step three and four and one

1027
01:01:19,510 --> 01:01:13,200
decimal one zero four crude dragon

1028
01:01:19,520 --> 01:01:40,549
and work thanks

1029
01:01:43,589 --> 01:01:41,750
and we're getting views from the

1030
01:01:45,109 --> 01:01:43,599
external cameras of the international

1031
01:01:46,789 --> 01:01:45,119
space station you can see the forward

1032
01:01:48,069 --> 01:01:46,799
end of the dragon right there that soft

1033
01:01:51,670 --> 01:01:48,079
capture ring

1034
01:01:58,950 --> 01:01:54,710
and the uh sequence for moving in from

1035
01:02:01,589 --> 01:01:58,960
waypoint 2 to docking has begun

1036
01:02:03,190 --> 01:02:01,599
we're now inside 20 meters from the

1037
01:02:05,829 --> 01:02:03,200
international space station this

1038
01:02:07,589 --> 01:02:05,839

sequence as we move in uh we'll take

1039
01:02:10,150 --> 01:02:07,599
about four minutes until we get a

1040
01:02:11,750 --> 01:02:10,160
contact and capture of the dragon

1041
01:02:13,990 --> 01:02:11,760
bringing our four crew members inside

1042
01:02:15,990 --> 01:02:14,000
dragon back inside the international

1043
01:02:17,510 --> 01:02:16,000
space station some of the calls you

1044
01:02:19,109 --> 01:02:17,520
heard

1045
01:02:21,270 --> 01:02:19,119
during this approach

1046
01:02:23,270 --> 01:02:21,280
we of course have mark van hi inside the

1047
01:02:24,870 --> 01:02:23,280
international space station monitoring

1048
01:02:27,190 --> 01:02:24,880
the approach

1049
01:02:29,910 --> 01:02:27,200
of course with the four crew members of

1050
01:02:32,150 --> 01:02:29,920
the dragon itself inside uh watching the

1051
01:02:34,390 --> 01:02:32,160
sequences here the big loop you're

1052
01:02:36,630 --> 01:02:34,400
hearing is a communications channel of

1053
01:02:38,870 --> 01:02:36,640
the space to ground communications as

1054
01:02:40,789 --> 01:02:38,880
well as drag in the ground so all the

1055
01:02:43,349 --> 01:02:40,799
all the communications you're hearing is

1056
01:02:44,870 --> 01:02:43,359
being heard by uh the ground teams here

1057
01:02:46,630 --> 01:02:44,880
in mission control houston as well as

1058
01:02:49,029 --> 01:02:46,640
mission control in hawthorne and of

1059
01:02:56,470 --> 01:02:49,039
course the crew inside dragon as well as

1060
01:02:56,480 --> 01:03:03,190
we're now 15 meters in closing

1061
01:03:07,029 --> 01:03:05,910
love to see this view of the crew dragon

1062
01:03:09,589 --> 01:03:07,039
approaching

1063
01:03:11,190 --> 01:03:09,599

the space station autonomously

1064
01:03:13,510 --> 01:03:11,200
driving itself

1065
01:03:16,390 --> 01:03:13,520
if you recall from the previous version

1066
01:03:17,589 --> 01:03:16,400
of uh crew excuse me in the previous

1067
01:03:19,829 --> 01:03:17,599
version of

1068
01:03:22,549 --> 01:03:19,839
dragon the cargo capsules

1069
01:03:25,349 --> 01:03:22,559
we they pref they docked to the station

1070
01:03:27,589 --> 01:03:25,359
actually not by docking but by birthing

1071
01:03:29,750 --> 01:03:27,599
uh which essentially required the

1072
01:03:31,510 --> 01:03:29,760
robotic canada arm to grapple the

1073
01:03:32,789 --> 01:03:31,520
spacecraft and bring it to the station

1074
01:03:35,190 --> 01:03:32,799
manually

1075
01:03:36,069 --> 01:03:35,200
so to see crew dragon this upgraded

1076
01:03:37,190 --> 01:03:36,079
version

1077
01:03:39,750 --> 01:03:37,200
flying

1078
01:03:42,069 --> 01:03:39,760
on its own without any assistance

1079
01:03:43,270 --> 01:03:42,079
and able to dock autonomously with the

1080
01:03:44,390 --> 01:03:43,280
space station

1081
01:03:46,069 --> 01:03:44,400
is a

1082
01:03:58,950 --> 01:03:46,079
an awesome capability that's just so

1083
01:03:58,960 --> 01:04:06,630
copy 10 meters

1084
01:04:10,150 --> 01:04:08,309
at 10 meters away from this vantage

1085
01:04:12,789 --> 01:04:10,160
point you see the earth there in the

1086
01:04:56,390 --> 01:04:12,799
lower left corner we're now flying 262

1087
01:04:56,400 --> 01:04:59,910
great shot of the forward

1088
01:04:59,920 --> 01:05:04,950

five meters

1089
01:05:08,390 --> 01:05:06,549
great shot of the forward end of crew

1090
01:05:10,390 --> 01:05:08,400
dragon there

1091
01:05:12,470 --> 01:05:10,400
located near the top are the forward

1092
01:05:15,109 --> 01:05:12,480
draco thrusters which of course are not

1093
01:05:17,910 --> 01:05:15,119
being utilized for today's maneuvers

1094
01:05:31,029 --> 01:05:17,920
all the maneuvers are managed with the

1095
01:05:38,150 --> 01:05:32,950
crew hands off point three meters in

1096
01:05:38,160 --> 01:06:17,029
copy hands off

1097
01:06:17,039 --> 01:06:33,349
capsule confirmed

1098
01:06:37,670 --> 01:06:34,710
and with that we have a confirmed

1099
01:06:41,109 --> 01:06:37,680
contact and soft capture dragon and

1100
01:06:44,710 --> 01:06:41,119
station were uh flying 262 miles over

1101
01:06:58,870 --> 01:06:44,720
western china that talking time 6 35 a.m

1102
01:06:58,880 --> 01:07:17,990
soft capture ring retraction in progress

1103
01:07:21,510 --> 01:07:20,309
upcoming the teams will command crew

1104
01:07:22,470 --> 01:07:21,520
dragon to

1105
01:07:23,430 --> 01:07:22,480
begin

1106
01:07:26,309 --> 01:07:23,440
uh

1107
01:07:28,630 --> 01:07:26,319
the hard capture by um commanding the

1108
01:07:31,910 --> 01:07:28,640
hooks again they will operate in two

1109
01:07:33,510 --> 01:07:31,920
sets of six so a total of 12 hooks

1110
01:07:36,230 --> 01:07:33,520
will hook in

1111
01:08:22,309 --> 01:07:36,240
and close and we'll have confirmation of

1112
01:08:25,829 --> 01:08:24,229
from a live view of the international

1113
01:08:28,309 --> 01:08:25,839

space station flight control room you

1114
01:08:30,149 --> 01:08:28,319
can see we're losing some of those uh

1115
01:08:32,550 --> 01:08:30,159
live views from from uh the

1116
01:08:36,550 --> 01:08:32,560
international space station uh but that

1117
01:08:38,550 --> 01:08:36,560
mask has been turned off uh to uh uh

1118
01:08:40,149 --> 01:08:38,560
make sure we protect some of the

1119
01:08:42,229 --> 01:08:40,159
communications equipment the space to

1120
01:08:43,749 --> 01:08:42,239
ground antennas and auto track sensors

1121
01:08:45,189 --> 01:08:43,759
aboard the station

1122
01:08:47,189 --> 01:08:45,199
so we should be regaining some views

1123
01:08:49,510 --> 01:08:47,199
shortly

1124
01:08:52,470 --> 01:08:49,520
in the meantime we did have confirmed

1125
01:08:59,829 --> 01:08:52,480
contact and capture at 6 35

1126
01:09:06,709 --> 01:09:03,269
and that was after an on time undocking

1127
01:09:27,030 --> 01:09:06,719
from the original docking port at 5 45

1128
01:09:31,829 --> 01:09:29,510
there on your screen a shot of both the

1129
01:09:34,550 --> 01:09:31,839
pressurized and unpressurized sections

1130
01:09:36,630 --> 01:09:34,560
of crew dragon the pressurized section

1131
01:09:38,309 --> 01:09:36,640
being the conical portion at the top

1132
01:09:40,309 --> 01:09:38,319
that's where the crew is currently

1133
01:09:43,430 --> 01:09:40,319
sitting in their seats

1134
01:09:44,789 --> 01:09:43,440
uh and the bottom half is the trunk

1135
01:09:46,870 --> 01:09:44,799
where and that's where we place

1136
01:09:48,789 --> 01:09:46,880
unpressurized cargo

1137
01:09:51,430 --> 01:09:48,799
such as the international docking

1138
01:09:52,870 --> 01:09:51,440

adapter upon transportation from earth

1139
01:09:54,310 --> 01:09:52,880
to the international space station

1140
01:09:57,830 --> 01:09:54,320
that's where those were

1141
01:09:59,350 --> 01:09:57,840
placed for transportation to station uh

1142
01:10:01,270 --> 01:09:59,360
where they were then removed and

1143
01:10:02,630 --> 01:10:01,280
installed

1144
01:10:05,430 --> 01:10:02,640
they're now

1145
01:10:08,950 --> 01:10:05,440
homes

1146
01:10:11,830 --> 01:10:08,960
the trunk will be jettisoned um whenever

1147
01:10:14,070 --> 01:10:11,840
it's time for crew dragon to return home

1148
01:10:16,630 --> 01:10:14,080
and allow the heat shield at the bottom

1149
01:10:19,110 --> 01:10:16,640
of the pressurized section to be exposed

1150
01:10:25,110 --> 01:10:19,120
and allow the crew dragon to

1151
01:10:29,189 --> 01:10:26,790
dragon spacex ranger traction is

1152
01:10:35,650 --> 01:10:29,199
complete docking sequence is holding for

1153
01:10:35,660 --> 01:11:06,310
[Music]

1154
01:11:11,510 --> 01:11:08,390
with that side view of crew dragon we

1155
01:11:13,990 --> 01:11:11,520
have a great shot of the service section

1156
01:11:15,990 --> 01:11:14,000
draco thrusters that i mentioned earlier

1157
01:11:17,430 --> 01:11:16,000
uh they're the the

1158
01:11:20,950 --> 01:11:17,440
portholes there on the side of crew

1159
01:11:23,430 --> 01:11:20,960
dragon uh that is where the thrust comes

1160
01:11:25,110 --> 01:11:23,440
out from the draco thrusters and those

1161
01:11:27,669 --> 01:11:25,120
are the service section thrusters that

1162
01:11:49,110 --> 01:11:27,679
we utilized for today's port relocation

1163
01:11:52,870 --> 01:11:51,430

station are never

1164
01:11:54,950 --> 01:11:52,880
on the big loop

1165
01:12:00,470 --> 01:11:54,960
mcs is configured proceeding with hook

1166
01:12:00,480 --> 01:12:10,709
mission copies

1167
01:12:15,030 --> 01:12:12,870
with the soft capture ring retracted

1168
01:12:16,390 --> 01:12:15,040
before the hard mate sequence can begin

1169
01:12:18,950 --> 01:12:16,400
again there are 12 hooks that are going

1170
01:12:21,350 --> 01:12:18,960
to secure crew dragon endeavor to the

1171
01:12:22,709 --> 01:12:21,360
international docking adapter uh teams

1172
01:12:24,390 --> 01:12:22,719
here in mission control houston

1173
01:12:28,390 --> 01:12:24,400
configured the international space

1174
01:12:29,990 --> 01:12:28,400
station to be on control moment gyro

1175
01:12:31,590 --> 01:12:30,000
attitude control

1176
01:12:34,390 --> 01:12:31,600
now that it switched over to control

1177
01:12:36,950 --> 01:12:34,400
moment gyros they can begin the hard

1178
01:12:39,189 --> 01:12:36,960
docking sequence uh with the driving of

1179
01:12:42,070 --> 01:12:39,199
the uh first set of hooks they're gonna

1180
01:12:45,030 --> 01:12:42,080
drive six at a time uh uh to make 12

1181
01:12:47,350 --> 01:12:45,040
hooks total securing the dragon endeavor

1182
01:12:49,189 --> 01:12:47,360
to the international docking adapter and

1183
01:14:17,030 --> 01:12:49,199
with that we have confirmation that the

1184
01:14:21,830 --> 01:14:19,510
as the first set of hooks continue to

1185
01:14:24,229 --> 01:14:21,840
drive there are again two sets of hooks

1186
01:14:25,669 --> 01:14:24,239
six each to hard mate the crew dragon

1187
01:14:28,229 --> 01:14:25,679
endeavor to the international space

1188
01:14:29,990 --> 01:14:28,239

station a recap of today's activities

1189
01:14:32,630 --> 01:14:30,000
early this morning the crew woke up at

1190
01:14:35,030 --> 01:14:32,640
about one o'clock am central time

1191
01:14:36,470 --> 01:14:35,040
getting ready for their day eating some

1192
01:14:38,790 --> 01:14:36,480
food brushing their teeth and getting

1193
01:14:40,790 --> 01:14:38,800
suited up to get ready to go inside

1194
01:14:43,270 --> 01:14:40,800
dragon and begin today's port relocation

1195
01:14:45,030 --> 01:14:43,280
maneuver

1196
01:14:46,870 --> 01:14:45,040
after they ingressed the dragon and

1197
01:14:47,830 --> 01:14:46,880
closed the hatches both on the dragon

1198
01:14:50,070 --> 01:14:47,840
side and

1199
01:14:52,630 --> 01:14:50,080
international space station uh nasa

1200
01:14:54,950 --> 01:14:52,640
astronaut mark van gaai closed the hatch

1201
01:14:57,590 --> 01:14:54,960
on the station side the apas hatch after

1202
01:14:59,110 --> 01:14:57,600
uh fixing a docking target uh the crew

1203
01:15:01,590 --> 01:14:59,120
was suited up performed leak checks in

1204
01:15:04,070 --> 01:15:01,600
their spacex spacesuits and got ready

1205
01:15:05,830 --> 01:15:04,080
for an undocking uh of the original

1206
01:15:08,550 --> 01:15:05,840
docking ports where crew dragon

1207
01:15:09,590 --> 01:15:08,560
endeavour was uh just uh about an hour

1208
01:15:13,590 --> 01:15:09,600
ago

1209
01:15:16,310 --> 01:15:13,600
crew members inside shane kimbrough

1210
01:15:19,669 --> 01:15:16,320
megan mcarthur uh tomah pesquet and aki

1211
01:15:20,630 --> 01:15:19,679
hoshide undocked at 5 45 a.m central

1212
01:15:22,550 --> 01:15:20,640
time

1213
01:15:24,950 --> 01:15:22,560

about an hour ago and made the

1214
01:15:26,950 --> 01:15:24,960
transition to the new docking port uh

1215
01:15:28,630 --> 01:15:26,960
making contact and capture with the

1216
01:15:32,310 --> 01:15:28,640
board that you're seeing here the zenith

1217
01:15:35,270 --> 01:15:32,320
or space facing port at 5 35 a.m central

1218
01:15:37,750 --> 01:15:35,280
time completing the 50 minute maneuver

1219
01:15:39,910 --> 01:15:37,760
from the original docking port to its

1220
01:15:41,350 --> 01:15:39,920
new home making room on the forward

1221
01:15:43,510 --> 01:15:41,360
harmony part

1222
01:15:46,870 --> 01:15:43,520
for the

1223
01:15:47,590 --> 01:15:46,880
boeing cst 100 starliner to dock here

1224
01:15:50,470 --> 01:15:47,600
in

1225
01:15:52,709 --> 01:15:50,480
next week july 30th is when it's set to

1226
01:15:54,709 --> 01:15:52,719
launch making contact and capture with

1227
01:16:09,110 --> 01:15:54,719
the international space station set 24

1228
01:16:13,830 --> 01:16:11,270
at this point in time the first set of

1229
01:16:16,790 --> 01:16:13,840
hooks have closed and the second set are

1230
01:16:20,790 --> 01:16:16,800
driving again there are 12 in total and

1231
01:16:22,950 --> 01:16:20,800
they operate in two sets of six

1232
01:16:23,830 --> 01:16:22,960
and we're waiting for confirmation of

1233
01:16:51,189 --> 01:16:23,840
the

1234
01:16:55,870 --> 01:16:51,199
capture is complete you are going to

1235
01:16:55,880 --> 01:17:19,030
visors up

1236
01:17:22,870 --> 01:17:20,390
and with that we have confirmation that

1237
01:17:25,990 --> 01:17:22,880
the second set of hooks has uh finished

1238
01:17:27,350 --> 01:17:26,000

driving so all 12 hooks now securing the

1239
01:17:29,030 --> 01:17:27,360
crew dragon endeavor to the

1240
01:17:31,910 --> 01:17:29,040
international space station teams here

1241
01:17:33,990 --> 01:17:31,920
will now undergo a series of steps to

1242
01:17:35,669 --> 01:17:34,000
pressurize the vestibule in between the

1243
01:17:36,790 --> 01:17:35,679
dragon hatch and the station hatch just

1244
01:17:38,550 --> 01:17:36,800
like we saw

1245
01:17:40,630 --> 01:17:38,560
earlier during today's coverage with the

1246
01:17:43,189 --> 01:17:40,640
depressurization of the original docking

1247
01:17:45,030 --> 01:17:43,199
port we'll see everything in reverse to

1248
01:17:46,470 --> 01:17:45,040
allow the pressurization to equalize

1249
01:17:48,149 --> 01:17:46,480
making sure everything is good before

1250
01:17:50,310 --> 01:17:48,159
opening up the hatch and letting our

1251
01:17:51,270 --> 01:17:50,320
four crew members inside dragon back

1252
01:17:58,950 --> 01:17:51,280
inside

1253
01:18:02,310 --> 01:18:00,790
so now that uh the crew two nasa

1254
01:18:04,229 --> 01:18:02,320
astronauts shane kimbrough and megan

1255
01:18:06,630 --> 01:18:04,239
macarthur european space agency

1256
01:18:08,790 --> 01:18:06,640
astronaut thomas and japan aerospace

1257
01:18:10,229 --> 01:18:08,800
exploration agency astronaut aki hoshide

1258
01:18:12,149 --> 01:18:10,239
have re-docked with the international

1259
01:18:13,750 --> 01:18:12,159
space station we're going to wrap our

1260
01:18:16,470 --> 01:18:13,760
live coverage of

1261
01:18:18,470 --> 01:18:16,480
dragon's second port relocation maneuver

1262
01:18:20,229 --> 01:18:18,480
the crew will take some time now to get

1263
01:18:22,310 --> 01:18:20,239

out of their suits and begin the process

1264
01:18:23,990 --> 01:18:22,320
of opening up the hatches in about two

1265
01:18:25,990 --> 01:18:24,000
hours as mentioned earlier the

1266
01:18:28,390 --> 01:18:26,000
relocation has freed up harmony's

1267
01:18:29,990 --> 01:18:28,400
forward port for the docking of another

1268
01:18:33,270 --> 01:18:30,000
commercial spacecraft built to carry

1269
01:18:35,110 --> 01:18:33,280
humans boeing's cst-100 starliner this

1270
01:18:37,110 --> 01:18:35,120
will be boeing's second test flight of

1271
01:18:38,470 --> 01:18:37,120
starliner without crew as they seek to

1272
01:18:40,709 --> 01:18:38,480
put the spacecraft through all the

1273
01:18:43,110 --> 01:18:40,719
phases of a mission before flying people

1274
01:18:45,669 --> 01:18:43,120
uh inside of it for the first time it's

1275
01:18:47,669 --> 01:18:45,679
set to launch from florida's space coast

1276
01:18:49,990 --> 01:18:47,679
on july 30th and arrive at the space

1277
01:18:51,270 --> 01:18:50,000
station about 24 hours later on july

1278
01:18:53,510 --> 01:18:51,280
31st

1279
01:18:55,510 --> 01:18:53,520
once starliner arrives and docks will

1280
01:18:57,110 --> 01:18:55,520
have another historic first with two

1281
01:18:59,110 --> 01:18:57,120
commercial spacecraft built to fly

1282
01:19:01,510 --> 01:18:59,120
humans docked to the space station at

1283
01:19:04,149 --> 01:19:01,520
the same time

1284
01:19:07,110 --> 01:19:04,159
meanwhile crew 2 will remain on station

1285
01:19:09,350 --> 01:19:07,120
until this fall crew 2 nasa astronauts

1286
01:19:12,470 --> 01:19:09,360
shane kimbrough and megan macarthur

1287
01:19:15,030 --> 01:19:12,480
jaxa astronaut aki hoshide and issa

1288
01:19:17,110 --> 01:19:15,040

astronaut tomah pesquet are targeting

1289
01:19:19,430 --> 01:19:17,120
early to mid-november for a return to

1290
01:19:21,590 --> 01:19:19,440
earth inside crew

1291
01:19:24,149 --> 01:19:21,600
excuse me inside crew dragon endeavor

1292
01:19:27,830 --> 01:19:24,159
off the coast of florida but before they

1293
01:19:29,990 --> 01:19:27,840
go nasa's spacex crew 3 mission will

1294
01:19:32,950 --> 01:19:30,000
launch and arrive with nasa astronauts

1295
01:19:35,830 --> 01:19:32,960
raja chari tom marshburn and caleb

1296
01:19:37,430 --> 01:19:35,840
barron as well as issa astronaut

1297
01:19:39,750 --> 01:19:37,440
matthias maher

1298
01:19:41,590 --> 01:19:39,760
so we'll have another full house with

1299
01:19:45,110 --> 01:19:41,600
two dragon crews docked to the space

1300
01:19:48,950 --> 01:19:47,270
dragon spacex on the big loop docking

1301
01:19:50,709 --> 01:19:48,960
sequence is complete

1302
01:19:52,870 --> 01:19:50,719
ground will be enabling hardline power

1303
01:19:54,870 --> 01:19:52,880
and calm connection shortly

1304
01:19:57,910 --> 01:19:54,880
you are go to dock your suits per

1305
01:19:59,430 --> 01:19:57,920
procedure for decimal 0 1 2

1306
01:20:07,510 --> 01:19:59,440
will be

1307
01:20:11,350 --> 01:20:09,510
docking system complete we are guilded

1308
01:20:13,030 --> 01:20:11,360
off suits our good thanks to you and

1309
01:20:14,310 --> 01:20:13,040
your team and all the folks in houston

1310
01:20:21,510 --> 01:20:14,320
who got us here

1311
01:20:25,030 --> 01:20:23,350
so again with those words from the crew

1312
01:20:26,470 --> 01:20:25,040
and from here mission control houston

1313
01:20:28,070 --> 01:20:26,480

and the teams of course over mission

1314
01:20:30,229 --> 01:20:28,080
control hawthorne that'll wrap up our

1315
01:20:32,629 --> 01:20:30,239
coverage uh for today's port relocation

1316
01:20:35,030 --> 01:20:32,639
maneuver crew dragon endeavor now uh

1317
01:20:36,390 --> 01:20:35,040
hard mated to its new docking port on

1318
01:20:38,310 --> 01:20:36,400
the space facing side of the

1319
01:20:40,390 --> 01:20:38,320
international space station that's it

1320
01:20:42,629 --> 01:20:40,400
for the action for us during this

1321
01:20:44,470 --> 01:20:42,639
operation but there's more to come

1322
01:20:47,270 --> 01:20:44,480
later today we'll provide coverage of

1323
01:20:49,189 --> 01:20:47,280
the launch of the russian multi-purpose

1324
01:20:51,270 --> 01:20:49,199
logistics module

1325
01:20:53,510 --> 01:20:51,280
that coverage is set to begin at 10 30

1326
01:20:55,430 --> 01:20:53,520
a.m central time so stick with us and

1327
01:20:58,550 --> 01:20:55,440
we'll provide that launch coverage up

1328
01:20:59,669 --> 01:20:58,560
until it launches at 10 58 a.m central

1329
01:21:01,830 --> 01:20:59,679
time

1330
01:21:03,990 --> 01:21:01,840
that's not it for this week we of course

1331
01:21:06,550 --> 01:21:04,000
have another operation coming on friday

1332
01:21:09,669 --> 01:21:06,560
we'll have the undocking of progress 77

1333
01:21:11,669 --> 01:21:09,679
a russian uh cargo vehicle uh it'll be

1334
01:21:14,790 --> 01:21:11,679
bringing the piers docking compartment

1335
01:21:18,070 --> 01:21:14,800
with it we'll set our coverage for 8 45

1336
01:21:22,470 --> 01:21:18,080
a.m eastern time on friday july 23rd for

1337
01:21:24,310 --> 01:21:22,480
an undocking at 9 15 a.m central time

1338
01:21:25,270 --> 01:21:24,320

lots of actions to come well thanks

1339
01:21:27,270 --> 01:21:25,280
again for

1340
01:21:29,350 --> 01:21:27,280
one more time for tuning in for today's

1341
01:21:31,750 --> 01:21:29,360
coverage we'll hope you join us uh of

1342
01:21:33,990 --> 01:21:31,760
course for the upcoming coverage of some

1343
01:21:36,550 --> 01:21:34,000
of the russian operations and of course

1344
01:21:37,669 --> 01:21:36,560
for the launch of oft2 orbital flight

1345
01:21:40,070 --> 01:21:37,679
test 2

1346
01:21:41,590 --> 01:21:40,080
of the boeing starliner later this month

1347
01:21:43,430 --> 01:21:41,600
and again this fall for a lot of

1348
01:21:45,270 --> 01:21:43,440
upcoming operations including cargo

1349
01:21:48,390 --> 01:21:45,280
missions we have the northrop grumman 16

1350
01:21:50,070 --> 01:21:48,400
mission and the uh spacex crs 23 cargo

1351
01:21:51,990 --> 01:21:50,080
mission and of course our crew

1352
01:21:54,550 --> 01:21:52,000
operations for crew 2 and crew 3

1353
01:22:07,560 --> 01:21:54,560
activities in the fall until then so