1
00:00:22,450 --> 00:00:19,670
[Music]

2
00:00:44,630 --> 00:00:22,460
so

3
00:01:10,149 --> 00:00:56,870
[Music]

4
00:01:14,469 --> 00:01:12,310
good morning it's monday april 5th i'm

5
00:01:16,149 --> 00:01:14,479
nasa's leah cheshire you're looking at a

6
00:01:18,149 --> 00:01:16,159
live view of the dragon resilience

7
00:01:19,590 --> 00:01:18,159
spacecraft as we await its departure

8
00:01:21,670 --> 00:01:19,600
from one docking port on the

9
00:01:24,630 --> 00:01:21,680
international space station to another

10
00:01:26,469 --> 00:01:24,640
in what we refer to as a port relocation

11
00:01:29,429 --> 00:01:26,479
dragon will be moving from international

12
00:01:31,990 --> 00:01:29,439
docking adapter 2 or ida 2 on the

13
00:01:34,469 --> 00:01:32,000

forward harmony port to ida 3 on the

14
00:01:36,069 --> 00:01:34,479
zenith or space facing harmony port in

15
00:01:37,910 --> 00:01:36,079
order to prepare for the arrival of a

16
00:01:40,950 --> 00:01:37,920
new crew and the upcoming delivery of

17
00:01:42,550 --> 00:01:40,960
new solar arrays this summer we expect

18
00:01:44,230 --> 00:01:42,560
dragon to push away from the space

19
00:01:46,950 --> 00:01:44,240
station with nasa astronauts mike

20
00:01:51,270 --> 00:01:46,960
hopkins victor glover and shannon walker

21
00:01:55,590 --> 00:01:51,280
and japan aerospace exploration agency

22
00:01:57,590 --> 00:01:55,600
astronaut suicina gucci

23
00:01:58,870 --> 00:01:57,600
megan for the lighting and the uh mpeg

24
00:02:00,950 --> 00:01:58,880
streamer for whatever camera you guys

25
00:02:02,469 --> 00:02:00,960
are streaming and then also visually

26
00:02:04,230 --> 00:02:02,479
because it's dark

27
00:02:06,830 --> 00:02:04,240
it's going to be close to impossible to

28
00:02:09,669 --> 00:02:06,840
verify visual separation i can do this

29
00:02:12,070 --> 00:02:09,679
by usually interpolating where the lit

30
00:02:14,470 --> 00:02:12,080
windows are and once those start moving

31
00:02:15,510 --> 00:02:14,480
but i don't have actual uh visual on the

32
00:02:17,270 --> 00:02:15,520
camera and you guys probably don't

33
00:02:29,990 --> 00:02:17,280
either to the docking

34
00:02:33,750 --> 00:02:32,150
we do anticipate that during separation

35
00:02:37,589 --> 00:02:33,760
it will be daylight so your visual

36
00:02:37,599 --> 00:02:42,630
all right thank you good to know

37
00:02:45,670 --> 00:02:44,150
teams on the ground communicating with

38
00:02:47,190 --> 00:02:45,680

kate rubins aboard the international

39
00:02:49,750 --> 00:02:47,200
space station who will be monitoring

40
00:02:51,750 --> 00:02:49,760
today's undocking from the station side

41
00:02:53,750 --> 00:02:51,760
but these four uh astronauts mike

42
00:02:55,990 --> 00:02:53,760
hopkins victor glover and shannon walker

43
00:02:58,869 --> 00:02:56,000
and japan aerospace exploration agency

44
00:03:02,470 --> 00:02:58,879
astronaut suici are on board the crew

45
00:03:05,509 --> 00:03:02,480
dragon and will depart at 5 30 a.m

46
00:03:07,430 --> 00:03:05,519
central time 10 30 gmt

47
00:03:08,550 --> 00:03:07,440
joining me from spacex and hawthorne

48
00:03:11,750 --> 00:03:08,560
this morning to walk you through

49
00:03:14,229 --> 00:03:11,760
everything is andy tran hey andy

50
00:03:17,350 --> 00:03:14,239
hey leah and good morning to everyone

51
00:03:19,110 --> 00:03:17,360
i'm andy tran here from spacex it is an

52
00:03:22,390 --> 00:03:19,120
exciting morning uh this will be the

53
00:03:24,630 --> 00:03:22,400
first port relocation of a crew dragon

54
00:03:26,949 --> 00:03:24,640
spacecraft at this point the crew is

55
00:03:29,030 --> 00:03:26,959
suited both the dragon and a pass

56
00:03:30,949 --> 00:03:29,040
hatches have been closed and the

57
00:03:33,589 --> 00:03:30,959
vestibule leak checks are almost

58
00:03:35,190 --> 00:03:33,599
complete there are uh four seats

59
00:03:37,110 --> 00:03:35,200
configured right now inside of dragon

60
00:03:39,990 --> 00:03:37,120
and are numbered one to four from right

61
00:03:42,710 --> 00:03:40,000
to left when looking at the seats mike

62
00:03:44,149 --> 00:03:42,720
is in seat number two or the commander

63
00:03:46,550 --> 00:03:44,159

seat he is the person closest to the

64
00:03:48,550 --> 00:03:46,560
camera on screen right now and victor is

65
00:03:51,430 --> 00:03:48,560
beside him in seat number three which

66
00:03:53,750 --> 00:03:51,440
for crew dragon is the pilot seat soichi

67
00:03:55,589 --> 00:03:53,760
is in seat number one and shannon is in

68
00:03:57,509 --> 00:03:55,599
seat four

69
00:04:00,229 --> 00:03:57,519
we are waiting for a go no go for

70
00:04:03,509 --> 00:04:00,239
departure which we are expecting at 5 15

71
00:04:05,429 --> 00:04:03,519
a.m central time or 10 15 gmt

72
00:04:06,710 --> 00:04:05,439
once dragon pushes away from the station

73
00:04:09,350 --> 00:04:06,720
the full maneuver will last

74
00:04:11,589 --> 00:04:09,360
approximately 45 minutes and while

75
00:04:13,990 --> 00:04:11,599
dragon is just moving parking spots the

76
00:04:16,310 --> 00:04:14,000
crew and vehicle have undergone all the

77
00:04:17,590 --> 00:04:16,320
same checkouts and preparations as if

78
00:04:19,909 --> 00:04:17,600
they were getting ready to return to

79
00:04:21,990 --> 00:04:19,919
earth that way in the unlikely event

80
00:04:23,590 --> 00:04:22,000
that we see an off nominal scenario the

81
00:04:27,670 --> 00:04:23,600
crew and vehicle are prepared to

82
00:04:29,590 --> 00:04:27,680
de-orbit and return safely home

83
00:04:31,350 --> 00:04:29,600
before we go into greater detail on

84
00:04:33,350 --> 00:04:31,360
what's involved in the port relocation

85
00:04:35,189 --> 00:04:33,360
process everything has moved very

86
00:04:36,870 --> 00:04:35,199
smoothly this morning so let's recap

87
00:04:40,310 --> 00:04:36,880
what's already happened

88
00:04:41,909 --> 00:04:40,320

the crew woke up at 1 central time 6 gmt

89
00:04:43,670 --> 00:04:41,919
and you're seeing right now a live view

90
00:04:46,390 --> 00:04:43,680
inside spacex mission control in

91
00:04:48,629 --> 00:04:46,400
hawthorne california we're in a current

92
00:04:49,510 --> 00:04:48,639
satellite handover with our tdrs our

93
00:04:51,830 --> 00:04:49,520
tracking

94
00:04:53,510 --> 00:04:51,840
data and relay satellite systems these

95
00:04:55,189 --> 00:04:53,520
are tracked and monitored and we expect

96
00:04:57,430 --> 00:04:55,199
to regain communications with the

97
00:04:58,950 --> 00:04:57,440
station and crew dragon shortly

98
00:05:01,590 --> 00:04:58,960
but more about what the crew members

99
00:05:05,430 --> 00:05:01,600
have been up to so far this morning at 2

100
00:05:07,909 --> 00:05:05,440
55 central 7 55 gmt crew members shannon

101
00:05:10,070 --> 00:05:07,919
walker and suicinoguchi suited up before

102
00:05:11,670 --> 00:05:10,080
boarding crew dragon while victor glover

103
00:05:13,909 --> 00:05:11,680
and mike hopkins waited until they

104
00:05:15,909 --> 00:05:13,919
finished closing dragon's hatch before

105
00:05:17,830 --> 00:05:15,919
donning their suits

106
00:05:20,550 --> 00:05:17,840
at 3 10 the four astronauts boarded

107
00:05:24,230 --> 00:05:20,560
dragon for the port relocation maneuver

108
00:05:26,950 --> 00:05:24,240
and at 326 central 826 gmt the crew

109
00:05:28,790 --> 00:05:26,960
closed dragon's hatch hopkins and glover

110
00:05:30,469 --> 00:05:28,800
then put on those spacex spacesuits

111
00:05:31,510 --> 00:05:30,479
which will be worn throughout today's

112
00:05:33,189 --> 00:05:31,520
maneuver

113
00:05:34,950 --> 00:05:33,199

once they finished suiting up all four

114
00:05:36,390 --> 00:05:34,960
crew members performed leak checks on

115
00:05:38,230 --> 00:05:36,400
their suits

116
00:05:40,310 --> 00:05:38,240
once dragon's hatch was closed kate

117
00:05:42,550 --> 00:05:40,320
rubens affixed a docking target to the

118
00:05:44,310 --> 00:05:42,560
outside of the a pass hatch and then

119
00:05:46,230 --> 00:05:44,320
closed it creating a space between

120
00:05:47,430 --> 00:05:46,240
dragon and station known as the

121
00:05:48,950 --> 00:05:47,440
vestibule

122
00:05:51,189 --> 00:05:48,960
kate then made her way out of the

123
00:05:53,270 --> 00:05:51,199
pressurized mating adapter leaving the

124
00:05:55,749 --> 00:05:53,280
forward hatch on node 2 open but

125
00:05:57,430 --> 00:05:55,759
ensuring the zenith hatch is closed

126
00:06:00,070 --> 00:05:57,440
she'll monitor the relocate maneuver

127
00:06:01,909 --> 00:06:00,080
from the cupola

128
00:06:03,830 --> 00:06:01,919
once all hatches were closed a ground

129
00:06:05,749 --> 00:06:03,840
command was sent to open valves on the

130
00:06:10,309 --> 00:06:05,759
dragon to begin depressurizing the

131
00:06:12,070 --> 00:06:10,319
vestibule at 357 central 857 gmt

132
00:06:14,150 --> 00:06:12,080
this essentially vents the air from

133
00:06:16,790 --> 00:06:14,160
inside and brings it down close to a

134
00:06:18,870 --> 00:06:16,800
vacuum they paused at approximately 5

135
00:06:20,629 --> 00:06:18,880
psi for a few minutes to allow

136
00:06:22,870 --> 00:06:20,639
temperatures inside the vestibule to

137
00:06:26,390 --> 00:06:22,880
stabilize before continuing with that

138
00:06:30,550 --> 00:06:28,390

and that brings us up to speed with the

139
00:06:32,950 --> 00:06:30,560
events of the day from this point

140
00:06:36,629 --> 00:06:32,960
forward here is what to expect

141
00:06:38,390 --> 00:06:36,639
at 5 15 central time or 10 15 gmt teams

142
00:06:40,710 --> 00:06:38,400
in mission control houston and mission

143
00:06:43,270 --> 00:06:40,720
control at spacex in hawthorne do a

144
00:06:45,350 --> 00:06:43,280
joint go no go for undocking

145
00:06:47,110 --> 00:06:45,360
about 10 minutes later a undocking

146
00:06:49,029 --> 00:06:47,120
command will be sent followed by a few

147
00:06:50,790 --> 00:06:49,039
minutes for the two umbilicals that

148
00:06:53,270 --> 00:06:50,800
connects power and data between the two

149
00:06:57,990 --> 00:06:53,280
spacecraft to detach and for 12 hooks

150
00:07:02,309 --> 00:07:00,230
at 5 30 central time after the hooks

151
00:07:04,390 --> 00:07:02,319
have retracted dragon will fire its

152
00:07:06,469 --> 00:07:04,400
thrusters in two short bursts to break

153
00:07:08,230 --> 00:07:06,479
the stiction between it and the docking

154
00:07:09,189 --> 00:07:08,240
port and physically separate from the

155
00:07:11,110 --> 00:07:09,199
station

156
00:07:13,430 --> 00:07:11,120
dragon will begin to slowly back off

157
00:07:16,150 --> 00:07:13,440
from the station and activate its lidar

158
00:07:18,230 --> 00:07:16,160
and that happens in that blue section

159
00:07:20,870 --> 00:07:18,240
that you see on screen right now lidar

160
00:07:23,029 --> 00:07:20,880
stands for light detection and ranging

161
00:07:25,510 --> 00:07:23,039
and uh it helps to begin tracking the

162
00:07:27,110 --> 00:07:25,520
space station once it acquires a solid

163
00:07:29,029 --> 00:07:27,120

signal the ground will command dragon to

164
00:07:30,710 --> 00:07:29,039
hold approximately 60 meters away from

165
00:07:32,870 --> 00:07:30,720
the station and once everything looks

166
00:07:35,430 --> 00:07:32,880
good dragon will begin to move from in

167
00:07:37,749 --> 00:07:35,440
front of the station to above it and

168
00:07:39,589 --> 00:07:37,759
that is the relocation maneuver or

169
00:07:41,350 --> 00:07:39,599
transition maneuver in the orange

170
00:07:42,710 --> 00:07:41,360
portion of the graphic that you see on

171
00:07:45,430 --> 00:07:42,720
screen

172
00:07:47,270 --> 00:07:45,440
at about 5 38 central time dragon begins

173
00:07:49,110 --> 00:07:47,280
its maneuver towards the zenith port of

174
00:07:51,430 --> 00:07:49,120
harmony and international docking

175
00:07:53,189 --> 00:07:51,440
adapter number three we expect dragon to

176
00:07:55,350 --> 00:07:53,199
take about 15 minutes to make the trip

177
00:07:57,189 --> 00:07:55,360
above the station with a check in

178
00:07:59,749 --> 00:07:57,199
halfway at what you hear called the

179
00:08:02,309 --> 00:07:59,759
midpoint it will stop and hold once it's

180
00:08:04,390 --> 00:08:02,319
60 meters above the node 2 zenith port

181
00:08:06,869 --> 00:08:04,400
and prepare for final approach in that

182
00:08:08,950 --> 00:08:06,879
purple section

183
00:08:10,390 --> 00:08:08,960
and once we reach that area flight

184
00:08:12,230 --> 00:08:10,400
controllers and hawthorne will once

185
00:08:14,550 --> 00:08:12,240
again command dragon to begin its

186
00:08:17,029 --> 00:08:14,560
approach flying in until it reaches a

187
00:08:18,550 --> 00:08:17,039
waypoint 2 which is just 20 meters away

188
00:08:20,390 --> 00:08:18,560

from the station

189
00:08:22,390 --> 00:08:20,400
once dragon reaches 20 meters it will

190
00:08:24,469 --> 00:08:22,400
hold one final time for teams on the

191
00:08:26,790 --> 00:08:24,479
ground and the astronauts aboard dragon

192
00:08:28,550 --> 00:08:26,800
to do a final check before docking if

193
00:08:30,869 --> 00:08:28,560
everything continues to go on schedule

194
00:08:34,389 --> 00:08:30,879
today we expect to see that around 607

195
00:08:36,709 --> 00:08:34,399
central 1107 gmt there aren't any strict

196
00:08:38,870 --> 00:08:36,719
requirements to complete docking during

197
00:08:40,870 --> 00:08:38,880
a day or night pass but there's always

198
00:08:42,310 --> 00:08:40,880
the chance this hold could continue

199
00:08:44,790 --> 00:08:42,320
until the lighting conditions on the

200
00:08:47,269 --> 00:08:44,800
docking port are ideal and once ready

201
00:08:49,269 --> 00:08:47,279
dragon will begin that final approach

202
00:08:51,670 --> 00:08:49,279
dragon will make initial contact with

203
00:08:54,070 --> 00:08:51,680
ida 3 and its soft capture system will

204
00:08:56,230 --> 00:08:54,080
retract to bring the dragon spacecraft

205
00:08:58,230 --> 00:08:56,240
in closer for hard capture that's

206
00:09:00,630 --> 00:08:58,240
accomplished by deploying 12 hooks to

207
00:09:02,310 --> 00:09:00,640
firmly hold dragon in place and takes

208
00:09:04,230 --> 00:09:02,320
about 15 minutes

209
00:09:07,509 --> 00:09:04,240
after that we will wrap up our coverage

210
00:09:11,590 --> 00:09:09,910
after all docking events are successful

211
00:09:13,990 --> 00:09:11,600
flight controllers will configure dragon

212
00:09:16,710 --> 00:09:14,000
for docked operations connecting power

213
00:09:17,829 --> 00:09:16,720

and data to the spacecraft once more the

214
00:09:19,910 --> 00:09:17,839
crew will be able to get out of their

215
00:09:21,990 --> 00:09:19,920
spacesuits and set them up to dry and

216
00:09:24,230 --> 00:09:22,000
begin operations to get the hatches back

217
00:09:27,110 --> 00:09:24,240
open this includes pressurizing the

218
00:09:29,190 --> 00:09:27,120
vestibule and a new round of leak checks

219
00:09:31,110 --> 00:09:29,200
depending on the exact timing they have

220
00:09:33,670 --> 00:09:31,120
the option to have lunch inside dragon

221
00:09:35,670 --> 00:09:33,680
or wait until back aboard the station we

222
00:09:38,310 --> 00:09:35,680
expect it to take about two hours before

223
00:09:43,030 --> 00:09:38,320
the hatches open around 8 30 central

224
00:09:48,230 --> 00:09:46,470
today marks the 140th day on station for

225
00:09:51,110 --> 00:09:48,240
this crew who lifted off from kennedy

226
00:09:52,230 --> 00:09:51,120
space center on november 15th at 7 49 pm

227
00:09:54,389 --> 00:09:52,240
eastern

228
00:09:56,389 --> 00:09:54,399
following a 27 and a half hour trip to

229
00:09:59,590 --> 00:09:56,399
the station dragon's hatch was opened

230
00:10:01,350 --> 00:09:59,600
around 4 a.m eastern on november 16th

231
00:10:03,509 --> 00:10:01,360
so far the crew members have dedicated

232
00:10:05,269 --> 00:10:03,519
hundreds of hours to scientific research

233
00:10:07,350 --> 00:10:05,279
in the orbiting laboratory and have

234
00:10:08,870 --> 00:10:07,360
completed five spacewalks finishing

235
00:10:10,790 --> 00:10:08,880
battery upgrades connecting the

236
00:10:12,550 --> 00:10:10,800
bartolomeo science platform and

237
00:10:14,069 --> 00:10:12,560
preparing the station for new solar

238
00:10:17,030 --> 00:10:14,079

arrays that will launch later this year

239
00:10:19,269 --> 00:10:17,040
on the spacex cargo dragon spacecraft

240
00:10:21,670 --> 00:10:19,279
this is the first of six certified crew

241
00:10:23,670 --> 00:10:21,680
missions nasa and spacex planned as a

242
00:10:26,069 --> 00:10:23,680
part of the agency's commercial crew

243
00:10:28,069 --> 00:10:26,079
program

244
00:10:30,069 --> 00:10:28,079
as mentioned earlier the relocation will

245
00:10:32,069 --> 00:10:30,079
free up harmony's forward port for

246
00:10:34,310 --> 00:10:32,079
another docking for docking of another

247
00:10:36,069 --> 00:10:34,320
crew dragon vehicle set to carry four

248
00:10:38,550 --> 00:10:36,079
crew members to the station on nasa's

249
00:10:41,590 --> 00:10:38,560
spacex crew 2 mission

250
00:10:44,470 --> 00:10:41,600
nasa nasa astronauts shane kimbrough and

251
00:10:47,190 --> 00:10:44,480
megan macarthur jackson astronauts

252
00:10:49,670 --> 00:10:47,200
aki hoshide and european space agency

253
00:10:51,269 --> 00:10:49,680
astronaut tom tomap

254
00:10:53,750 --> 00:10:51,279
are scheduled to launch the station

255
00:10:55,590 --> 00:10:53,760
thursday april 22nd which just also

256
00:10:57,829 --> 00:10:55,600
happens to be earth day they would

257
00:11:00,470 --> 00:10:57,839
arrive and dock to the station about one

258
00:11:02,389 --> 00:11:00,480
day after liftoff

259
00:11:04,230 --> 00:11:02,399
when the crew won astronauts depart the

260
00:11:06,790 --> 00:11:04,240
station for return to earth which is

261
00:11:08,470 --> 00:11:06,800
currently targeted for april 28 the

262
00:11:10,870 --> 00:11:08,480
space-facing port of harmony will be

263
00:11:13,190 --> 00:11:10,880

vacant a dragon cargo spacecraft

264
00:11:15,829 --> 00:11:13,200
carrying several tons of supplies and

265
00:11:17,509 --> 00:11:15,839
the first set of new solar arrays for

266
00:11:18,870 --> 00:11:17,519
the space station is scheduled to launch

267
00:11:20,870 --> 00:11:18,880
this summer and requires the

268
00:11:23,269 --> 00:11:20,880
space-facing port position to enable

269
00:11:28,310 --> 00:11:23,279
robotic extraction of the arrays from

270
00:11:32,310 --> 00:11:29,829
for those just joining us we are

271
00:11:34,470 --> 00:11:32,320
currently waiting the go no go call for

272
00:11:36,470 --> 00:11:34,480
departure of the dragon brazilian

273
00:11:38,389 --> 00:11:36,480
spacecraft to push itself away from the

274
00:11:40,630 --> 00:11:38,399
international space station we are

275
00:11:41,590 --> 00:11:40,640
expecting spacex and nasa to make that

276
00:11:44,949 --> 00:11:41,600
call

277
00:11:47,110 --> 00:11:44,959
around 5 15 a.m central time on screen

278
00:11:48,949 --> 00:11:47,120
right now is that dragon brazilian

279
00:11:50,790 --> 00:11:48,959
spacecraft connected to international

280
00:11:52,790 --> 00:11:50,800
docking adapter 2.

281
00:11:54,870 --> 00:11:52,800
once dragon undocks it will undergo an

282
00:11:57,910 --> 00:11:54,880
approximately 45-minute maneuver from

283
00:11:59,910 --> 00:11:57,920
one port to another and while dragon is

284
00:12:01,990 --> 00:11:59,920
a fully autonomous vehicle and can

285
00:12:03,750 --> 00:12:02,000
perform this port relocation maneuver on

286
00:12:05,350 --> 00:12:03,760
its own today our crew will be

287
00:12:07,190 --> 00:12:05,360
initiating a couple of commands along

288
00:12:08,829 --> 00:12:07,200

the way on those displays

289
00:12:11,190 --> 00:12:08,839
that were previously on

290
00:12:13,430 --> 00:12:11,200
screen there are no technical reasons

291
00:12:15,350 --> 00:12:13,440
why the crew has to command anything but

292
00:12:18,150 --> 00:12:15,360
the crew wants to basically test drive

293
00:12:19,750 --> 00:12:18,160
the vehicle today so to speak the plan

294
00:12:21,670 --> 00:12:19,760
for future flights is that ground will

295
00:12:23,509 --> 00:12:21,680
send all the commands and crew will just

296
00:12:25,750 --> 00:12:23,519
be monitoring dragon's progress along

297
00:12:27,910 --> 00:12:25,760
the way so for the maneuver today you'll

298
00:12:30,389 --> 00:12:27,920
hear a couple of calls from

299
00:12:32,230 --> 00:12:30,399
the core in hawthorne to the crew giving

300
00:12:33,829 --> 00:12:32,240
them a go to send several commands

301
00:12:42,790 --> 00:12:33,839
permitting dragon to move through

302
00:12:47,269 --> 00:12:45,110
again we are about three minutes away

303
00:12:51,110 --> 00:12:47,279
from the expected call from

304
00:12:54,949 --> 00:12:51,120
spacex and nasa for departure of dragon

305
00:12:57,990 --> 00:12:57,190
and good news here in houston the team

306
00:12:59,269 --> 00:12:58,000
in

307
00:13:01,590 --> 00:12:59,279
mission control houston for the

308
00:13:02,949 --> 00:13:01,600
international space station is go on the

309
00:13:05,670 --> 00:13:02,959
big loop

310
00:13:07,829 --> 00:13:05,680
final reconfigurations for undock are

311
00:13:09,910 --> 00:13:07,839
complete and nominal the ground is go

312
00:13:12,470 --> 00:13:09,920
for undocking

313
00:13:14,710 --> 00:13:12,480

at the targeted undock sequence start

314
00:13:17,350 --> 00:13:14,720
time of 1025

315
00:13:20,949 --> 00:13:17,360
utc please confirm your advisors are

316
00:13:34,389 --> 00:13:20,959
down and you are ready for undock and

317
00:13:47,350 --> 00:13:37,829
and spacex run dragon copy go for

318
00:13:51,829 --> 00:13:49,509
station heats down two for kate perform

319
00:13:56,790 --> 00:13:51,839
steps two through end in one decimal six

320
00:14:01,509 --> 00:13:59,269
happy steps two through n in one decimal

321
00:14:04,230 --> 00:14:01,519
six zero two dragon departure monitoring

322
00:14:08,230 --> 00:14:04,240
iss crew is ready for dragon undocking

323
00:14:08,240 --> 00:14:22,949
tap y'all

324
00:14:26,790 --> 00:14:24,629
that's good news from the ground side

325
00:14:28,629 --> 00:14:26,800
here today both spacex and mission

326
00:14:30,710 --> 00:14:28,639
control houston teams reporting that

327
00:14:32,150 --> 00:14:30,720
they are go for today's undock and that

328
00:14:34,389 --> 00:14:32,160
everything looks good with the systems

329
00:14:36,949 --> 00:14:34,399
aboard crew dragon and the international

330
00:14:38,629 --> 00:14:36,959
space station for a successful maneuver

331
00:14:41,189 --> 00:14:38,639
things continue to move along right on

332
00:15:12,790 --> 00:14:41,199
time and we expect to see that departure

333
00:15:17,750 --> 00:15:15,430
preparation for this port relocation has

334
00:15:19,430 --> 00:15:17,760
taken place for weeks but yesterday

335
00:15:21,350 --> 00:15:19,440
teams checked out dragon systems

336
00:15:23,509 --> 00:15:21,360
preparing for today's departure

337
00:15:26,949 --> 00:15:23,519
including the common communications for

338
00:15:44,230 --> 00:15:26,959

visiting vehicle systems or c2v2 a data

339
00:15:48,470 --> 00:15:46,710
at around 5 20 a.m central time we are

340
00:15:50,710 --> 00:15:48,480
expecting the call for vestibule

341
00:15:53,990 --> 00:15:50,720
depressed to be completed just a few

342
00:15:55,590 --> 00:15:54,000
minutes from now

343
00:15:57,670 --> 00:15:55,600
and spacex performed a checkout of

344
00:15:59,590 --> 00:15:57,680
dragon's propulsion systems and guidance

345
00:16:02,150 --> 00:15:59,600
navigation control as well as checked

346
00:16:04,710 --> 00:16:02,160
out the crew dragon's seat actuators in

347
00:16:07,509 --> 00:16:04,720
the afternoon the spacex team tested the

348
00:16:10,150 --> 00:16:07,519
tracking data and relay systems relay

349
00:16:12,550 --> 00:16:10,160
satellite system or tdrs on the

350
00:16:15,670 --> 00:16:12,560
spacecraft that allows space to ground

351
00:16:20,230 --> 00:16:17,590
a little more about the preparations

352
00:16:22,150 --> 00:16:20,240
prior to today yesterday shannon walker

353
00:16:24,150 --> 00:16:22,160
also spent some time removing computers

354
00:16:26,470 --> 00:16:24,160
from dragon that have been stored in the

355
00:16:28,550 --> 00:16:26,480
spacecraft but are used on the station

356
00:16:30,310 --> 00:16:28,560
suicinaguchi continued that work this

357
00:16:32,550 --> 00:16:30,320
morning and prior to boarding crew

358
00:16:34,629 --> 00:16:32,560
dragon glover and walker worked to

359
00:16:36,710 --> 00:16:34,639
remove any emergency hardware inside

360
00:16:38,150 --> 00:16:36,720
crew dragon transferring that to the

361
00:16:39,829 --> 00:16:38,160
station side

362
00:16:42,069 --> 00:16:39,839
mike hawkins of course packed away the

363
00:16:43,030 --> 00:16:42,079

sleep station where he has been been

364
00:16:45,749 --> 00:16:43,040
staying

365
00:16:57,269 --> 00:16:45,759
inside crew dragon during its journey to

366
00:17:00,870 --> 00:16:59,509
as you can see it is daylight outside

367
00:17:02,389 --> 00:17:00,880
the space station

368
00:17:04,630 --> 00:17:02,399
it moves at approximately seventeen

369
00:17:06,630 --> 00:17:04,640
thousand five 500 miles around the earth

370
00:17:08,390 --> 00:17:06,640
meaning it sees a sunrise or sunset

371
00:17:10,470 --> 00:17:08,400
every 45 minutes

372
00:17:12,710 --> 00:17:10,480
and as we heard the capcom discussing

373
00:17:15,990 --> 00:17:12,720
with kate rubins they expect the

374
00:17:17,909 --> 00:17:16,000
undocking to occur in daylight so we

375
00:17:30,390 --> 00:17:17,919
should get some good views here of crew

376
00:17:35,270 --> 00:17:32,789
if it is just joining us we are

377
00:17:38,070 --> 00:17:35,280
um just beginning the mission so to

378
00:17:41,430 --> 00:17:38,080
speak of the crew dragon relocation from

379
00:17:42,230 --> 00:17:41,440
international docking adapter 2

380
00:17:43,990 --> 00:17:42,240
to

381
00:17:45,590 --> 00:17:44,000
the space facing port international

382
00:17:48,310 --> 00:17:45,600
docking adapter

383
00:17:50,230 --> 00:17:48,320
three to make room for

384
00:17:52,789 --> 00:17:50,240
the next crew vehicle

385
00:17:55,350 --> 00:17:52,799
that will be launched we're targeting

386
00:17:57,990 --> 00:17:55,360
april 22nd

387
00:18:00,549 --> 00:17:58,000
and we just a few minutes ago we got the

388
00:18:02,230 --> 00:18:00,559

confirmation for a go of undocking and

389
00:18:10,870 --> 00:18:02,240
as we mentioned we're expecting that to

390
00:18:14,310 --> 00:18:12,710
april is quite a busy month aboard the

391
00:18:16,789 --> 00:18:14,320
international space station coming up

392
00:18:19,669 --> 00:18:16,799
this friday we have the next launch to

393
00:18:21,830 --> 00:18:19,679
the station that's soyuz ms-18 with one

394
00:18:24,310 --> 00:18:21,840
nasa astronaut mark vande high and two

395
00:18:26,230 --> 00:18:24,320
roscosmos cosmonauts oleg novitskiy and

396
00:18:27,669 --> 00:18:26,240
piotr de bruv heading toward the

397
00:18:30,150 --> 00:18:27,679
international space station and once

398
00:18:31,510 --> 00:18:30,160
they arrive we will have 10 crew members

399
00:18:33,029 --> 00:18:31,520
on the station

400
00:18:35,430 --> 00:18:33,039
that won't be for too long though

401
00:18:38,310 --> 00:18:35,440
because on april 16th kate rubins sergey

402
00:18:41,190 --> 00:18:38,320
ryjikov and sergey kuzkov will depart

403
00:18:43,830 --> 00:18:41,200
aboard their soyuz ms-17

404
00:18:45,669 --> 00:18:43,840
however on april 22nd crew 2 will launch

405
00:18:48,789 --> 00:18:45,679
that's megan macarthur shane kimbrough

406
00:18:49,909 --> 00:18:48,799
to map and akihiko hoshide

407
00:18:52,390 --> 00:18:49,919
and then

408
00:18:54,870 --> 00:18:52,400
on april 28th crew one the crew that we

409
00:18:56,710 --> 00:18:54,880
are watching today on board crew dragon

410
00:18:58,870 --> 00:18:56,720
will depart the space station but this

411
00:19:00,950 --> 00:18:58,880
time for earth that's mike hopkins

412
00:19:03,669 --> 00:19:00,960
victor glover shannon walker and soichi

413
00:19:05,750 --> 00:19:03,679

naguchi however today is just a field

414
00:19:07,750 --> 00:19:05,760
trip outside the orbiting laboratory

415
00:19:11,190 --> 00:19:07,760
moving from one parking spot to another

416
00:19:12,950 --> 00:19:11,200
to allow for crew 1 crew 2 to arrive on

417
00:19:15,110 --> 00:19:12,960
april 22nd

418
00:19:17,029 --> 00:19:15,120
as well as that crew cargo dragon to

419
00:19:32,789 --> 00:19:17,039
arrive later this year with the solar

420
00:19:36,549 --> 00:19:34,630
and on screen right now is a view of the

421
00:19:37,990 --> 00:19:36,559
crew inside of dragon

422
00:19:39,590 --> 00:19:38,000
and

423
00:19:42,070 --> 00:19:39,600
the displays

424
00:19:47,190 --> 00:19:42,080
again they'll be sending a few commands

425
00:19:53,110 --> 00:19:48,710
and there's dragon attached to

426
00:19:59,750 --> 00:19:55,669
a little bit about the

427
00:20:04,950 --> 00:20:02,710
dragon one uh to dock needed required

428
00:20:06,310 --> 00:20:04,960
birthing and birthing is where the

429
00:20:08,789 --> 00:20:06,320
international space station will sort of

430
00:20:10,950 --> 00:20:08,799
send out a robotic arm and grab

431
00:20:13,350 --> 00:20:10,960
the previous success the previous

432
00:20:15,430 --> 00:20:13,360
edition of dragon connected with the iss

433
00:20:18,070 --> 00:20:15,440
dragon 2 the vehicle you see on screen

434
00:20:19,669 --> 00:20:18,080
can do autonomous docking all on its own

435
00:20:21,350 --> 00:20:19,679
and will not require

436
00:20:28,630 --> 00:20:21,360
birthing or that robotic arm from the

437
00:20:32,549 --> 00:20:30,549
the technology we have now with this

438
00:20:35,190 --> 00:20:32,559

autonomous docking aboard crew dragon

439
00:20:37,350 --> 00:20:35,200
has been implemented in the new version

440
00:20:38,870 --> 00:20:37,360
of cargo dragon which we mentioned will

441
00:20:48,549 --> 00:20:38,880
be arriving later this year with those

442
00:20:53,830 --> 00:20:50,070
the international space station is

443
00:20:57,190 --> 00:20:53,840
currently flying 268 statute miles over

444
00:21:28,230 --> 00:20:57,200
the south atlantic ocean to the east of

445
00:21:34,470 --> 00:21:31,750
we're about five minutes away from

446
00:21:36,789 --> 00:21:34,480
uh dragon's hooks to start opening up

447
00:21:39,029 --> 00:21:36,799
and i'm sort of the initiation sequence

448
00:21:40,710 --> 00:21:39,039
of undocking from dragon

449
00:21:42,549 --> 00:21:40,720
from the international space station we

450
00:21:44,470 --> 00:21:42,559
are expecting a call out for vestibule

451
00:21:50,950 --> 00:21:44,480
to press complete here

452
00:21:55,510 --> 00:21:52,950
we've been discussing that undocking we

453
00:21:57,190 --> 00:21:55,520
expect to see that around 5 30 but the

454
00:21:59,990 --> 00:21:57,200
command being sent a few minutes early

455
00:22:01,110 --> 00:22:00,000
because it takes a few minutes for those

456
00:22:03,510 --> 00:22:01,120
hooks to

457
00:22:05,510 --> 00:22:03,520
unlatch from the international space

458
00:22:07,350 --> 00:22:05,520
station

459
00:22:10,230 --> 00:22:07,360
as well as the retraction of the

460
00:22:31,669 --> 00:22:10,240
umbilical which provides power and data

461
00:22:35,909 --> 00:22:33,830
the entire maneuver today from undocking

462
00:22:37,909 --> 00:22:35,919
to re-docking on the newport we're

463
00:22:39,510 --> 00:22:37,919

expecting to take approximately 45

464
00:22:41,110 --> 00:22:39,520
minutes

465
00:22:42,470 --> 00:22:41,120
again this is to make room for the new

466
00:22:43,830 --> 00:22:42,480
dragon that is

467
00:23:21,270 --> 00:22:43,840
being launched

468
00:23:24,789 --> 00:23:23,029
undocking and crew dragon looks a little

469
00:23:27,110 --> 00:23:24,799
bit different than undocking in a soyuz

470
00:23:28,950 --> 00:23:27,120
spacecraft there are no springs that

471
00:23:31,350 --> 00:23:28,960
push the vehicle away from the space

472
00:23:33,990 --> 00:23:31,360
station so instead we'll see the vehicle

473
00:23:36,149 --> 00:23:34,000
fire two short burns from those service

474
00:23:38,390 --> 00:23:36,159
section draco thrusters and that will

475
00:24:02,470 --> 00:23:38,400
break any stiction between crew dragon

476
00:24:06,630 --> 00:24:04,710
you can see the nose cone open on crew

477
00:24:08,870 --> 00:24:06,640
dragon right now there are also some

478
00:24:10,230 --> 00:24:08,880
forward bulkhead thrusters that live

479
00:24:12,070 --> 00:24:10,240
underneath the nose cone but of course

480
00:24:15,510 --> 00:24:12,080
we won't be using those today these

481
00:24:16,870 --> 00:24:15,520
service section dracos are used for

482
00:24:18,549 --> 00:24:16,880
maneuvers when we are around the

483
00:24:20,630 --> 00:24:18,559
international space station

484
00:24:46,310 --> 00:24:20,640
and need to be very careful of dragon's

485
00:24:50,149 --> 00:24:48,149
we're about a minute away from the

486
00:24:51,350 --> 00:24:50,159
expected command to open up dragon's

487
00:24:53,190 --> 00:24:51,360
hooks

488
00:24:57,029 --> 00:24:53,200

at approximately

489
00:24:58,310 --> 00:24:57,039
5 25 a.m central time

490
00:25:00,870 --> 00:24:58,320
during the stage we'll have the

491
00:25:03,110 --> 00:25:00,880
umbilicals retract away those are what

492
00:25:03,909 --> 00:25:03,120
send power and dragon

493
00:25:08,470 --> 00:25:03,919
to

494
00:25:10,950 --> 00:25:08,480
for the hooks we have

495
00:25:39,909 --> 00:25:10,960
12 hooks in total they're made up of two

496
00:25:44,070 --> 00:25:42,149
this view over the shoulders of mike

497
00:25:48,070 --> 00:25:44,080
hopkins and victor glover as they look

498
00:25:51,350 --> 00:25:49,830
as we've mentioned this is an autonomous

499
00:25:52,950 --> 00:25:51,360
vehicle and so

500
00:25:55,510 --> 00:25:52,960
there will be a few commands set by the

501
00:25:57,669 --> 00:25:55,520
crew today but kate rubins is monitoring

502
00:26:01,789 --> 00:25:57,679
from the space station

503
00:26:01,799 --> 00:26:16,950
commanded copy

504
00:26:21,750 --> 00:26:19,909
and right on time at 5 25 a.m central we

505
00:26:23,669 --> 00:26:21,760
have confirmation that the undock

506
00:26:26,470 --> 00:26:23,679
sequence has begun that command being

507
00:26:35,029 --> 00:26:26,480
sent to crew dragon to begin opening up

508
00:26:39,350 --> 00:26:36,710
and just prior to this the best field

509
00:26:41,669 --> 00:26:39,360
press did complete we didn't hear a call

510
00:26:43,750 --> 00:26:41,679
out but the best studio is the space

511
00:26:49,669 --> 00:26:43,760
between dragon and station hatches that

512
00:26:57,990 --> 00:26:51,190
here's the call that the umbilicals are

513
00:27:01,269 --> 00:26:59,750

the vestibule is the space between

514
00:27:03,029 --> 00:27:01,279
dragon

515
00:27:05,350 --> 00:27:03,039
and station hatches that will be exposed

516
00:27:07,590 --> 00:27:05,360
to the vacuum space following undocking

517
00:27:09,909 --> 00:27:07,600
ground ground controllers command dragon

518
00:27:12,310 --> 00:27:09,919
to begin to depress opening a valve on

519
00:27:14,390 --> 00:27:12,320
the dragon side to slowly remove the air

520
00:27:16,789 --> 00:27:14,400
from the vestibule once completed the

521
00:27:18,470 --> 00:27:16,799
teams then execute leak checks on dragon

522
00:27:20,470 --> 00:27:18,480
and station to ensure both sides are

523
00:27:22,630 --> 00:27:20,480
airtight prior to the undocking command

524
00:27:25,430 --> 00:27:22,640
that was just sent and we reverse this

525
00:27:27,110 --> 00:27:25,440
process once dragon is docked taking air

526
00:27:58,149 --> 00:27:27,120
from the station and pressurizing the

527
00:28:02,870 --> 00:28:00,070
things continuing smoothly for crew

528
00:28:05,990 --> 00:28:02,880
dragon we heard that the umbilical had

529
00:28:08,389 --> 00:28:06,000
successfully retracted and now the hooks

530
00:28:10,710 --> 00:28:08,399
are opening there are two sets of six

531
00:28:13,990 --> 00:28:10,720
meaning 12 hooks in total and we are

532
00:28:15,990 --> 00:28:14,000
watching those hooks retract

533
00:28:39,430 --> 00:28:16,000
hearing nominal calls here on the ground

534
00:28:43,190 --> 00:28:41,830
and on screen is the dragon resilient

535
00:28:46,149 --> 00:28:43,200
spacecraft

536
00:28:47,750 --> 00:28:46,159
dragon is uh comprised of two parts the

537
00:28:52,230 --> 00:28:47,760
right hand side the con

538
00:28:52,240 --> 00:28:57,269

continuing to hear good news

539
00:29:02,230 --> 00:28:59,110
the first set of hooks

540
00:29:04,149 --> 00:29:02,240
has opened up nominally uh the conical

541
00:29:05,909 --> 00:29:04,159
section the right hand side of dragon

542
00:29:08,950 --> 00:29:05,919
that is where the crew is at that is the

543
00:29:11,110 --> 00:29:08,960
capsule portion of the dragon vehicle on

544
00:29:13,830 --> 00:29:11,120
the left hand side the the left half is

545
00:29:15,830 --> 00:29:13,840
the um

546
00:29:17,830 --> 00:29:15,840
the trunk section you'll notice that the

547
00:29:19,830 --> 00:29:17,840
the top half is black

548
00:29:21,190 --> 00:29:19,840
those are solar panels built into the

549
00:29:22,630 --> 00:29:21,200
trunk if you've been following the

550
00:29:24,310 --> 00:29:22,640
dragon program

551
00:29:26,230 --> 00:29:24,320
you'll know that the dragon one

552
00:29:28,630 --> 00:29:26,240
configuration had solar arrays that

553
00:29:30,789 --> 00:29:28,640
would deploy post liftoff

554
00:29:36,549 --> 00:29:30,799
but this was one of the upgrades to the

555
00:29:41,669 --> 00:29:38,549
in that trunk portion there can be

556
00:29:43,430 --> 00:29:41,679
unpressurized cargo delivered to station

557
00:29:45,510 --> 00:29:43,440
and as we mentioned the spacecraft

558
00:29:47,350 --> 00:29:45,520
itself on the right crew dragon is the

559
00:29:49,590 --> 00:29:47,360
only piece that returns to earth that

560
00:29:51,029 --> 00:29:49,600
trunk is jettisoned prior to the

561
00:29:52,230 --> 00:29:51,039
astronauts re-entering earth's

562
00:29:54,389 --> 00:29:52,240
atmosphere

563
00:29:56,710 --> 00:29:54,399

and that burns up harmlessly over the

564
00:30:23,190 --> 00:29:56,720
ocean however crew dragon itself

565
00:30:27,909 --> 00:30:25,350
second set of hooks continues to open

566
00:30:29,830 --> 00:30:27,919
and we will be watching for physical

567
00:30:31,110 --> 00:30:29,840
movement and physical separation of the

568
00:30:52,870 --> 00:30:31,120
crew dragon vehicle from the

569
00:30:59,990 --> 00:30:55,510
dragon spacex on the big loop all hooks

570
00:31:04,950 --> 00:31:02,070
and you can see on screen dragon

571
00:31:07,669 --> 00:31:04,960
resilience spacecraft has undocked from

572
00:31:12,310 --> 00:31:07,679
the international space station at uh 3

573
00:31:12,320 --> 00:31:21,110
and what have you to see at 3 30.

574
00:31:24,789 --> 00:31:23,029
dragon spacecraft has undocked from the

575
00:31:28,149 --> 00:31:24,799
international space station at

576
00:31:30,230 --> 00:31:28,159
approximately 3 30 central time

577
00:31:36,710 --> 00:31:30,240
just off the coast of

578
00:31:41,269 --> 00:31:39,269
so we had a couple of undocking burns uh

579
00:31:43,269 --> 00:31:41,279
the first burn lasted

580
00:31:55,110 --> 00:31:43,279
on the big loop relocate burn zero

581
00:31:59,350 --> 00:31:57,029
we had a couple of burns the first

582
00:32:02,389 --> 00:31:59,360
undocking burn was about

583
00:32:08,070 --> 00:32:02,399
a second and a half and the second burn

584
00:32:08,080 --> 00:32:18,789
spacex on the big loop we see the same

585
00:32:23,909 --> 00:32:20,789
and you heard the call out um just a few

586
00:32:27,029 --> 00:32:23,919
seconds ago for the relocation burn zero

587
00:32:29,430 --> 00:32:27,039
that lasted about 21 seconds

588
00:32:32,630 --> 00:32:29,440

again we did get confirmation

589
00:32:35,190 --> 00:32:32,640
of undocking at 5 30 a.m central time 10

590
00:32:38,630 --> 00:32:35,200
30 gmt while the station and dragon were

591
00:32:40,070 --> 00:32:38,640
flying 263 statute miles over the

592
00:32:46,310 --> 00:32:40,080
atlantic ocean

593
00:32:50,710 --> 00:32:48,789
everything i can use

594
00:32:52,549 --> 00:32:50,720
sorry to go ahead

595
00:32:54,830 --> 00:32:52,559
thanks everything continuing well for

596
00:32:59,909 --> 00:32:54,840
dragon on its

597
00:32:59,919 --> 00:33:03,190
iso testers enabled

598
00:33:03,200 --> 00:33:07,590
copy and conquer

599
00:33:11,430 --> 00:33:09,430
and now about two minutes into this

600
00:33:14,389 --> 00:33:11,440
relocation which we expect to last about

601
00:33:15,830 --> 00:33:14,399
45 minutes crew dragon continues to back

602
00:33:23,990 --> 00:33:15,840
away from its former home on

603
00:33:28,070 --> 00:33:26,230
as it backs up backs up it is working to

604
00:33:30,470 --> 00:33:28,080
acquire lidar tracking which will be

605
00:33:32,230 --> 00:33:30,480
used by dragon to autonomously

606
00:33:38,230 --> 00:33:32,240
autonomously execute the relocation

607
00:33:43,029 --> 00:33:41,029
there's a view from dragon looking

608
00:33:45,029 --> 00:33:43,039
and trying to acquire lidar from the

609
00:33:46,470 --> 00:33:45,039
international space station

610
00:33:49,830 --> 00:33:46,480
we're expecting to go straight back

611
00:34:15,030 --> 00:33:52,230
dragon spacex on the big loop we are

612
00:34:19,190 --> 00:34:17,349
now if we do go past 60 meter mark it

613
00:34:22,069 --> 00:34:19,200

will approach back to that distance

614
00:34:24,710 --> 00:34:22,079
before the relocation maneuver

615
00:34:27,030 --> 00:34:24,720
that will bring dragon above the station

616
00:34:55,829 --> 00:34:27,040
to the new docking access right above

617
00:35:01,990 --> 00:34:59,349
as andy mentioned it has now made it to

618
00:35:03,589 --> 00:35:02,000
83 meters and will move back into 60

619
00:35:05,670 --> 00:35:03,599
meters before

620
00:35:12,870 --> 00:35:05,680
maneuvering to bring dragon above the

621
00:35:17,589 --> 00:35:15,589
dragon spacex on the big loop ground has

622
00:35:20,790 --> 00:35:17,599
confirmed good relative navigation

623
00:35:22,710 --> 00:35:20,800
performance you are go to command go to

624
00:35:27,430 --> 00:35:22,720
relocate and your go to raise your

625
00:35:27,440 --> 00:35:37,829
copies go for go to relocate in work

626
00:35:41,510 --> 00:35:39,670
just heard the crew operations and

627
00:35:44,550 --> 00:35:41,520
resources engineer

628
00:35:45,990 --> 00:35:44,560
grouse refers to them as core talking to

629
00:35:48,310 --> 00:35:46,000
the astronauts

630
00:35:50,310 --> 00:35:48,320
allowing them to

631
00:35:56,230 --> 00:35:50,320
begin relocation

632
00:36:00,790 --> 00:35:58,790
crew dragon continues to hold at that 83

633
00:36:02,630 --> 00:36:00,800
meter mark but will begin moving soon

634
00:36:04,390 --> 00:36:02,640
however all of this is taking place

635
00:36:06,470 --> 00:36:04,400
today

636
00:36:09,589 --> 00:36:06,480
inside the keep out sphere that's the

637
00:36:11,030 --> 00:36:09,599
200 meter invisible line around station

638
00:36:13,430 --> 00:36:11,040

that's one of the ways we monitor

639
00:36:30,069 --> 00:36:13,440
vehicles as they arrive and depart at

640
00:36:33,349 --> 00:36:31,670
dragon you can see

641
00:36:34,870 --> 00:36:33,359
if you look closely it's getting closer

642
00:36:36,069 --> 00:36:34,880
to the international space station we

643
00:36:38,630 --> 00:36:36,079
are targeting

644
00:36:41,430 --> 00:36:38,640
moving back from 83 meters

645
00:36:43,750 --> 00:36:41,440
to meters before we begin to

646
00:37:05,430 --> 00:36:43,760
make that transition upwards to the new

647
00:37:09,990 --> 00:37:07,109
as you can see crew dragon is still in

648
00:37:12,150 --> 00:37:10,000
line with that forward-facing port

649
00:37:14,230 --> 00:37:12,160
and when it relocates it will be above

650
00:37:25,670 --> 00:37:14,240
the international space station and dock

651
00:37:31,030 --> 00:37:28,630
crew dragon continuing to move in slowly

652
00:37:59,349 --> 00:37:31,040
just under 75 meters now away from the

653
00:38:03,990 --> 00:38:01,910
right at the center of dragon there is a

654
00:38:06,710 --> 00:38:04,000
center line camera and that is what

655
00:38:07,670 --> 00:38:06,720
dragon is using to line up with

656
00:38:09,109 --> 00:38:07,680
the

657
00:38:10,870 --> 00:38:09,119
port of

658
00:38:26,870 --> 00:38:10,880
the international

659
00:38:31,670 --> 00:38:29,589
we are 68 meters away

660
00:38:33,910 --> 00:38:31,680
again targeting that 60 meter mark

661
00:38:36,069 --> 00:38:33,920
before we start to transition upward to

662
00:38:43,910 --> 00:38:36,079
the new

663
00:38:47,510 --> 00:38:45,910

we just got a view of the earth below

664
00:38:49,829 --> 00:38:47,520
crew dragon and the international space

665
00:39:16,390 --> 00:38:49,839
station they were flying 262 statute

666
00:39:20,870 --> 00:39:18,630
for those just joining uh

667
00:39:23,510 --> 00:39:20,880
crew dragon undocked about eight minutes

668
00:39:26,550 --> 00:39:23,520
ago at 5 30 central time

669
00:39:30,230 --> 00:39:26,560
this is the first port relocation of a

670
00:39:34,870 --> 00:39:31,750
and right now we're waiting

671
00:39:36,150 --> 00:39:34,880
to get inside that 60 meter range

672
00:39:39,109 --> 00:39:36,160
from the international space station

673
00:39:40,390 --> 00:39:39,119
before we get begin to transition upward

674
00:39:43,190 --> 00:39:40,400
and it looks like we're getting very

675
00:39:44,790 --> 00:39:43,200
close just about 61 meters away from the

676
00:40:34,790 --> 00:39:44,800
station so we should expect to hear that

677
00:40:38,470 --> 00:40:37,190
crew dragon is at that 60 meter mark

678
00:40:40,550 --> 00:40:38,480
teams on the ground checking to make

679
00:41:24,390 --> 00:40:40,560
sure we are go for that translational

680
00:41:29,910 --> 00:41:27,510
dragon spacex on the big loop you are go

681
00:41:32,309 --> 00:41:29,920
to command relocate transfer to begin

682
00:41:34,630 --> 00:41:32,319
the access translation

683
00:41:40,950 --> 00:41:34,640
reminder that soft capture ring deploy

684
00:41:40,960 --> 00:41:49,510
copies go to revocate transfer and work

685
00:41:53,910 --> 00:41:51,829
station houston on two for kate monitor

686
00:41:55,910 --> 00:41:53,920
per block delta step three in one

687
00:41:58,790 --> 00:41:55,920
decimal six zero two dragon departure

688
00:42:34,069 --> 00:42:01,270

happy one decimal six zero two black

689
00:42:37,670 --> 00:42:36,069
as you can see crew dragon has begun

690
00:42:42,550 --> 00:42:37,680
that transfer maneuver and will be

691
00:42:46,150 --> 00:42:44,390
they'll get another go there to continue

692
00:42:48,870 --> 00:42:46,160
the maneuver before moving

693
00:42:51,190 --> 00:42:48,880
directly above the ida 3 or

694
00:42:52,950 --> 00:42:51,200
international docking adapter 3 on the

695
00:43:05,750 --> 00:42:52,960
zenith or space facing port on the

696
00:43:10,069 --> 00:43:07,670
we are expecting this

697
00:43:11,670 --> 00:43:10,079
relocation maneuver

698
00:43:14,150 --> 00:43:11,680
from one axis to the other to take

699
00:43:16,790 --> 00:43:14,160
approximately 15 minutes

700
00:43:21,510 --> 00:43:16,800
with reaching the midpoint

701
00:43:26,390 --> 00:43:23,910
this is crew one and the first ever port

702
00:43:28,069 --> 00:43:26,400
location of a crew dragon there have

703
00:43:30,069 --> 00:43:28,079
been a lot of firsts on this mission and

704
00:43:32,150 --> 00:43:30,079
just a look at who is on board the

705
00:43:34,230 --> 00:43:32,160
spacecraft today starting with crew

706
00:43:35,990 --> 00:43:34,240
dragon commander mike hopkins he was

707
00:43:37,990 --> 00:43:36,000
born in lebanon missouri but grew up

708
00:43:40,630 --> 00:43:38,000
outside richland selected as an

709
00:43:43,270 --> 00:43:40,640
astronaut by nasa in 2009 and is a

710
00:43:45,750 --> 00:43:43,280
colonel in the u.s space force he holds

711
00:43:47,430 --> 00:43:45,760
degrees in aerospace engineering

712
00:43:49,750 --> 00:43:47,440
hawkins previously flew on the russian

713
00:43:52,230 --> 00:43:49,760

soyuz as a member of the expedition 37

714
00:43:56,390 --> 00:43:52,240
and 38 crew and his military experience

715
00:43:57,589 --> 00:43:56,400
includes testing c-17 and c-130 aircraft

716
00:43:59,510 --> 00:43:57,599
this year he's completed three

717
00:44:01,670 --> 00:43:59,520
spacewalks during the mission to prepare

718
00:44:03,430 --> 00:44:01,680
the station for new solar arrays that

719
00:44:05,750 --> 00:44:03,440
will arrive on a cargo dragon later this

720
00:44:09,109 --> 00:44:05,760
year as well as complete other station

721
00:44:14,230 --> 00:44:11,349
next up as part of the crew is pilot

722
00:44:16,390 --> 00:44:14,240
victor glover he is a native of pomona

723
00:44:20,150 --> 00:44:16,400
california and was selected as an

724
00:44:21,910 --> 00:44:20,160
astronaut by nasa in 2013.

725
00:44:24,230 --> 00:44:21,920
glover is a commander in the united

726
00:44:26,630 --> 00:44:24,240
states navy he holds degrees in general

727
00:44:28,790 --> 00:44:26,640
engineering flight test engineering

728
00:44:31,589 --> 00:44:28,800
systems engineering and military

729
00:44:33,750 --> 00:44:31,599
operational art and science

730
00:44:34,870 --> 00:44:33,760
he has extensive military test flight

731
00:44:38,230 --> 00:44:34,880
experience

732
00:44:42,069 --> 00:44:38,240
was a test pilot for the f 18 hornet the

733
00:44:44,710 --> 00:44:42,079
super hornet and the ea-18g growler

734
00:44:47,990 --> 00:44:44,720
he has accumulated 3 000 flight hours in

735
00:44:50,390 --> 00:44:48,000
more than 40 aircraft and over 400

736
00:44:52,630 --> 00:44:50,400
carrier arrest landings and 24 combat

737
00:44:54,550 --> 00:44:52,640
missions

738
00:44:56,950 --> 00:44:54,560

the crew one mission has been glover's

739
00:44:59,270 --> 00:44:56,960
first space flight he's also completed

740
00:45:01,430 --> 00:44:59,280
three spacewalks this year surfacing the

741
00:45:03,270 --> 00:45:01,440
station's cooling system installing the

742
00:45:05,670 --> 00:45:03,280
final lithium-ion battery for station

743
00:45:14,790 --> 00:45:05,680
upgrades and preparing the orbiting lab

744
00:45:18,950 --> 00:45:16,309
things still moving smoothly for crew

745
00:45:21,670 --> 00:45:18,960
dragon as it makes its way to the next

746
00:45:23,910 --> 00:45:21,680
axis moving from in front of the ida or

747
00:45:26,550 --> 00:45:23,920
international docking adapter 2

748
00:45:29,670 --> 00:45:26,560
to the zenith port on the harmony module

749
00:45:31,190 --> 00:45:29,680
or ida 3.

750
00:45:33,750 --> 00:45:31,200
you can see that perspective start to

751
00:45:35,510 --> 00:45:33,760
shift just a little bit

752
00:45:37,349 --> 00:45:35,520
also on board crew dragon today is

753
00:45:39,430 --> 00:45:37,359
mission specialist shannon walker from

754
00:45:41,670 --> 00:45:39,440
houston texas she was selected as an

755
00:45:44,309 --> 00:45:41,680
astronaut by nasa in 2004 and is a

756
00:45:45,910 --> 00:45:44,319
doctor of philosophy in space physics

757
00:45:47,349 --> 00:45:45,920
walker previously flew on the russian

758
00:45:52,550 --> 00:45:47,359
soyuz as a flight engineer for

759
00:45:54,550 --> 00:45:52,560
expedition 2425 in space for 163 days

760
00:45:56,630 --> 00:45:54,560
she's also one of only a few dozen

761
00:45:59,190 --> 00:45:56,640
people to be both an astronaut and an

762
00:46:00,870 --> 00:45:59,200
aquanaut having spent 13 days underwater

763
00:46:04,069 --> 00:46:00,880

during nasa's extreme environments

764
00:46:05,670 --> 00:46:04,079
mission operations 15 or nemo 15. and

765
00:46:08,470 --> 00:46:05,680
during that mission she lived inside the

766
00:46:10,390 --> 00:46:08,480
world's only research station beneath

767
00:46:12,390 --> 00:46:10,400
the ocean surface

768
00:46:14,069 --> 00:46:12,400
this view inside mission control houston

769
00:46:16,630 --> 00:46:14,079
where nasa teams are monitoring the

770
00:46:18,390 --> 00:46:16,640
relocation of crew dragon and the

771
00:46:20,309 --> 00:46:18,400
systems aboard the international space

772
00:46:22,870 --> 00:46:20,319
station we're currently in another

773
00:46:24,390 --> 00:46:22,880
satellite handover and we should regain

774
00:46:29,349 --> 00:46:24,400
video and communications with the

775
00:46:32,870 --> 00:46:31,670
on screen right now is mission control

776
00:46:36,870 --> 00:46:32,880
uh at

777
00:46:41,910 --> 00:46:39,430
the last member on board dragon today is

778
00:46:44,790 --> 00:46:41,920
mission specialist suichi noguchi from

779
00:46:47,750 --> 00:46:44,800
yokohama kanagawa japan he was selected

780
00:46:50,470 --> 00:46:47,760
as an astronaut by japan in 1996

781
00:46:52,550 --> 00:46:50,480
has degrees in aeronautical engineering

782
00:46:55,190 --> 00:46:52,560
and is a doctor of philosophy in

783
00:46:58,069 --> 00:46:55,200
advanced interdisciplinary studies

784
00:47:00,470 --> 00:46:58,079
he previously flew on sts-114 on the

785
00:47:02,069 --> 00:47:00,480
space shuttle discovery and on the

786
00:47:05,030 --> 00:47:02,079
russian soyuz as a member of the

787
00:47:07,589 --> 00:47:05,040
expedition 2223 crew

788
00:47:09,990 --> 00:47:07,599

while on sts-114 he became the first

789
00:47:11,349 --> 00:47:10,000
japanese astronaut to perform spacewalks

790
00:47:13,670 --> 00:47:11,359
on the international space station

791
00:47:14,950 --> 00:47:13,680
completing three spacewalks totaling 20

792
00:47:17,589 --> 00:47:14,960
hours

793
00:47:19,670 --> 00:47:17,599
noguchi is only one of three people to

794
00:47:22,549 --> 00:47:19,680
have flown on three different spacecraft

795
00:47:51,270 --> 00:47:22,559
the space shuttle a russian soyuz and

796
00:47:55,829 --> 00:47:53,349
crew dragon continues making its

797
00:47:59,990 --> 00:47:55,839
transition its axis transition from in

798
00:48:03,030 --> 00:48:00,000
front of the idea ii to ida 3 things

799
00:48:13,910 --> 00:48:03,040
moving smoothly and about 57 meters away

800
00:48:18,230 --> 00:48:16,230
both crew dragon and the international

801
00:48:20,549 --> 00:48:18,240
space station are currently still

802
00:48:24,710 --> 00:48:20,559
orbiting over the earth they're

803
00:48:27,829 --> 00:48:26,549
again we are expecting to reach that

804
00:48:29,990 --> 00:48:27,839
midpoint

805
00:48:41,829 --> 00:48:30,000
between the two docking axises here in a

806
00:48:45,510 --> 00:48:43,349
and a reminder today if you're just

807
00:48:47,670 --> 00:48:45,520
joining us of why this port relocation

808
00:48:50,390 --> 00:48:47,680
is happening in just a few weeks we

809
00:48:53,030 --> 00:48:50,400
expect to see crew two the second crew

810
00:48:55,109 --> 00:48:53,040
dragon uh long duration mission log to

811
00:48:56,710 --> 00:48:55,119
the international space station and they

812
00:48:59,270 --> 00:48:56,720
will be docking to the port that was

813
00:49:02,470 --> 00:48:59,280

just vacated by crew one aboard crew

814
00:49:05,030 --> 00:49:02,480
dragon resilience

815
00:49:08,390 --> 00:49:05,040
and after the departure of crew one for

816
00:49:10,630 --> 00:49:08,400
earth later this month we also will see

817
00:49:12,309 --> 00:49:10,640
the arrival of a cargo dragon later this

818
00:49:14,870 --> 00:49:12,319
summer bringing new solar arrays to the

819
00:49:17,109 --> 00:49:14,880
station and that zenith or space-facing

820
00:49:18,950 --> 00:49:17,119
port is the proper position for the

821
00:49:30,950 --> 00:49:18,960
solar arrays to be extracted from

822
00:49:36,150 --> 00:49:32,790
undocking occurred right on time today

823
00:49:38,069 --> 00:49:36,160
at 5 30 a.m central 10 30 gmt

824
00:49:40,309 --> 00:49:38,079
things continue to move smoothly and we

825
00:49:43,109 --> 00:49:40,319
expect to see dragon make contact with

826
00:50:26,470 --> 00:49:43,119
the station once again around 6 15

827
00:50:51,109 --> 00:50:27,990
coming up shortly we will reach the

828
00:50:56,069 --> 00:50:52,870
at the very top of your screen you can

829
00:50:59,829 --> 00:50:56,079
see the new parking spot for crew one

830
00:51:12,470 --> 00:51:02,309
and dragon again continues to

831
00:51:21,990 --> 00:51:14,950
dragon spacex on the big loop midpoint

832
00:51:39,510 --> 00:51:23,430
copies usually the same when we see

833
00:51:43,270 --> 00:51:41,670
and a big milestone you just heard the

834
00:51:44,870 --> 00:51:43,280
call out that we have reached the

835
00:51:46,309 --> 00:51:44,880
midpoint between the two docking

836
00:51:48,630 --> 00:51:46,319
accesses

837
00:51:51,670 --> 00:51:48,640
um a little bit of what's to come dragon

838
00:51:55,750 --> 00:51:51,680

will continue his transition maneuver to

839
00:51:55,760 --> 00:51:59,109
hold for

840
00:52:03,430 --> 00:52:01,349
lidar confirmation and then start making

841
00:52:04,549 --> 00:52:03,440
its way towards waypoint 2 which is

842
00:52:06,630 --> 00:52:04,559
approximately

843
00:52:10,630 --> 00:52:06,640
20 meters away

844
00:52:14,390 --> 00:52:12,710
from there we'll resume docking

845
00:52:16,950 --> 00:52:14,400
and final approach

846
00:52:20,790 --> 00:52:16,960
with a soft capture then eventually a

847
00:52:24,470 --> 00:52:22,549
we're doc we're expecting docking to be

848
00:52:28,309 --> 00:52:24,480
completed

849
00:52:33,910 --> 00:52:30,549
6 30 central time

850
00:52:38,630 --> 00:52:36,069
there is a soft capture ring on crew

851
00:52:39,910 --> 00:52:38,640
dragon and once uh there is contact

852
00:52:41,750 --> 00:52:39,920
between the spacecraft and the

853
00:52:43,990 --> 00:52:41,760
international space station that soft

854
00:52:46,069 --> 00:52:44,000
capture ring will retract until sensors

855
00:52:47,589 --> 00:52:46,079
indicate it's time for hooks to drive

856
00:52:50,230 --> 00:52:47,599
and create the hard capture that we'll

857
00:53:26,630 --> 00:52:50,240
be looking for around 6 30 that firmly

858
00:53:31,030 --> 00:53:28,549
we've mentioned nasa astronaut kate

859
00:53:32,790 --> 00:53:31,040
rubins is monitoring this maneuver from

860
00:53:35,109 --> 00:53:32,800
inside the international space station

861
00:53:36,870 --> 00:53:35,119
sending no commands but watching on from

862
00:53:38,390 --> 00:53:36,880
the cupola

863
00:53:40,150 --> 00:53:38,400

there are currently seven people living

864
00:53:43,190 --> 00:53:40,160
on the international space station kate

865
00:53:45,750 --> 00:53:43,200
rubins as well as our four astronauts we

866
00:53:47,670 --> 00:53:45,760
have on crew dragon today victor glover

867
00:53:50,470 --> 00:53:47,680
mike hopkins shannon walker and

868
00:53:52,549 --> 00:53:50,480
suicinaguchi as well as two rose cosmos

869
00:54:30,309 --> 00:53:52,559
cosmonauts inside the station sergey

870
00:54:34,870 --> 00:54:32,230
again there is a view of both the ports

871
00:54:37,349 --> 00:54:34,880
the the bottom port is international

872
00:54:39,910 --> 00:54:37,359
docking adapter 2 where dragon brazilian

873
00:54:42,470 --> 00:54:39,920
spacecraft just undocked from

874
00:54:46,150 --> 00:54:42,480
international ida ii was launched on

875
00:54:48,150 --> 00:54:46,160
crs-9 in july of 2016 and attached to

876
00:54:50,309 --> 00:54:48,160
the international space station

877
00:54:52,470 --> 00:54:50,319
in august of that year

878
00:54:54,390 --> 00:54:52,480
first docking on ida ii

879
00:54:58,150 --> 00:54:54,400
was done on crew dragon's demo one

880
00:55:01,589 --> 00:54:58,160
mission in march of 2019

881
00:55:04,789 --> 00:55:02,710
blue

882
00:55:07,270 --> 00:55:04,799
crosshair is at that is

883
00:55:09,190 --> 00:55:07,280
international docking adapter 3 that is

884
00:55:10,789 --> 00:55:09,200
target destination for the crew dragon

885
00:55:13,349 --> 00:55:10,799
vehicle today

886
00:55:16,390 --> 00:55:13,359
idea 3 is new it launched in july of

887
00:55:18,950 --> 00:55:16,400
2019 and attached to the international

888
00:55:20,549 --> 00:55:18,960

space station august of the same year

889
00:55:24,630 --> 00:55:20,559
first docking on

890
00:55:31,270 --> 00:55:24,640
ida 3 was done on mission crs 21

891
00:55:35,750 --> 00:55:32,710
the international space station

892
00:55:37,829 --> 00:55:35,760
currently flying 264 statute miles over

893
00:55:40,309 --> 00:55:37,839
kazakhstan as we mentioned there is a

894
00:55:41,109 --> 00:55:40,319
launch coming up this friday and that is

895
00:55:43,349 --> 00:55:41,119
where

896
00:55:45,670 --> 00:55:43,359
the rocket will lift off from

897
00:55:48,390 --> 00:55:45,680
carrying mark vande high of nasa oleg

898
00:56:11,190 --> 00:55:48,400
novitskiy of russia as well as pieter

899
00:56:14,069 --> 00:56:12,950
the next major call we can expect to

900
00:56:14,870 --> 00:56:14,079
hear is

901
00:56:16,870 --> 00:56:14,880
that

902
00:56:19,190 --> 00:56:16,880
crew dragon has arrived at the docking

903
00:56:22,470 --> 00:56:19,200
axis directly above

904
00:56:24,789 --> 00:56:22,480
that ida iii great view from the dragon

905
00:56:27,270 --> 00:56:24,799
itself right now

906
00:56:29,030 --> 00:56:27,280
the vehicle is 56 meters away and we'll

907
00:56:31,430 --> 00:56:29,040
be looking for it to arrive around 60

908
00:56:33,670 --> 00:56:31,440
meters however they do not necessarily

909
00:56:36,950 --> 00:56:33,680
have to complete a hold at that docking

910
00:56:39,670 --> 00:56:36,960
axis they may move very uh quickly

911
00:56:41,430 --> 00:56:39,680
directly to waypoint 2 that 20 meter

912
00:57:01,430 --> 00:56:41,440
mark away from the international space

913
00:57:05,910 --> 00:57:03,670

we also have confirmation that the soft

914
00:57:07,510 --> 00:57:05,920
docking ring is fully deployed we

915
00:57:10,710 --> 00:57:07,520
mentioned that will come in contact with

916
00:57:12,789 --> 00:57:10,720
the international space station and

917
00:57:14,789 --> 00:57:12,799
the sensor and will retract until the

918
00:57:46,789 --> 00:57:14,799
sensors indicate those hooks are ready

919
00:57:51,349 --> 00:57:49,510
and just some phenomenal views

920
00:57:54,950 --> 00:57:51,359
of the transition maneuver and crew

921
00:57:58,630 --> 00:57:56,710
got about

922
00:58:09,349 --> 00:57:58,640
11 minutes left of

923
00:58:12,870 --> 00:58:11,109
the astronauts aboard crew dragon are

924
00:58:15,109 --> 00:58:12,880
remaining in their seats and in their

925
00:58:16,630 --> 00:58:15,119
suits for today's maneuver

926
00:58:18,390 --> 00:58:16,640
after launch and

927
00:58:20,069 --> 00:58:18,400
on the ride home sometimes they have the

928
00:58:22,549 --> 00:58:20,079
opportunity to get out of their seats

929
00:58:24,470 --> 00:58:22,559
and suits however because there is so

930
00:58:26,470 --> 00:58:24,480
much dynamic activity happening in this

931
00:58:28,470 --> 00:58:26,480
relatively short maneuver about 45

932
00:58:57,589 --> 00:58:28,480
minutes the crew members will remain

933
00:59:03,109 --> 00:59:01,030
we are just under two minutes

934
00:59:08,630 --> 00:59:03,119
from being lined up with that new zenith

935
00:59:13,349 --> 00:59:11,430
from there we'll await the go to

936
00:59:22,950 --> 00:59:13,359
approach waypoint 2 again that is 20

937
00:59:27,670 --> 00:59:25,829
there will be a hold conducted at way.2

938
00:59:29,589 --> 00:59:27,680

at 20 meters that'll be for final

939
00:59:31,510 --> 00:59:29,599
alignment and check out of dragon as

940
00:59:33,349 --> 00:59:31,520
well as checking any lighting conditions

941
01:00:30,390 --> 00:59:33,359
and confirming that all teams on the

942
01:00:35,910 --> 01:00:33,349
dragon spacex on the big loop dragon has

943
01:00:38,950 --> 01:00:35,920
arrived at the second 60 meter hold

944
01:00:41,270 --> 01:00:38,960
point dragon is configured for docking

945
01:00:43,270 --> 01:00:41,280
the ground is go for a continued

946
01:00:45,670 --> 01:00:43,280
approach and when you are ready you are

947
01:00:52,549 --> 01:00:45,680
go to command resume to approach to

948
01:00:58,390 --> 01:00:55,349
dragon copies with six meter hold on the

949
01:01:00,870 --> 01:00:58,400
docking axis ground is go for resigning

950
01:01:02,670 --> 01:01:00,880
the approach and we have to go when

951
01:01:14,230 --> 01:01:02,680
we're

952
01:01:18,069 --> 01:01:15,990
station houston on space to ground two

953
01:01:19,750 --> 01:01:18,079
for k sex dragon we've commanded the

954
01:01:20,630 --> 01:01:19,760
present

955
01:01:22,789 --> 01:01:20,640
and

956
01:01:26,630 --> 01:01:22,799
dragon spacex we see it thank you

957
01:01:30,950 --> 01:01:28,950
and kate approaches resuming to waypoint

958
01:01:32,710 --> 01:01:30,960
two monitor per step two and one decimal

959
01:01:38,870 --> 01:01:32,720
one zero four crew dragon approach and

960
01:01:38,880 --> 01:01:53,510
one decimal one zero four

961
01:01:58,470 --> 01:01:55,750
right on the timeline crew dragon moving

962
01:01:59,510 --> 01:01:58,480
in toward waypoint 2 20 meters above ida

963
01:02:08,309 --> 01:01:59,520

3

964
01:02:12,150 --> 01:02:10,309
and it'll take about five minutes to get

965
01:02:13,430 --> 01:02:12,160
to waypoint two

966
01:02:15,109 --> 01:02:13,440
about 20 meters away from the

967
01:02:16,630 --> 01:02:15,119
international space station but for

968
01:02:19,270 --> 01:02:16,640
those that are just joining us a summary

969
01:02:20,870 --> 01:02:19,280
of events so far

970
01:02:22,309 --> 01:02:20,880
the dragon resilient spacecraft

971
01:02:24,150 --> 01:02:22,319
successfully undocked from the

972
01:02:26,710 --> 01:02:24,160
international space station

973
01:02:27,910 --> 01:02:26,720
at uh 5 30 central time

974
01:02:31,510 --> 01:02:27,920
uh

975
01:02:33,349 --> 01:02:31,520
it backed up and got lidar acquisition

976
01:02:35,029 --> 01:02:33,359
and completed its transition maneuver

977
01:02:37,829 --> 01:02:35,039
from the

978
01:02:39,349 --> 01:02:37,839
ida ii docking access to the ida 3

979
01:02:41,670 --> 01:02:39,359
docking access

980
01:02:44,710 --> 01:02:41,680
you just heard the callouts that we are

981
01:02:47,109 --> 01:02:44,720
resuming approach towards waypoint 2.

982
01:02:48,870 --> 01:02:47,119
2 isis crew is ready for

983
01:02:51,270 --> 01:02:48,880
procedure review complete docking ready

984
01:02:55,510 --> 01:02:51,280
from isis

985
01:03:01,349 --> 01:02:58,390
we started at 60 meters away and we are

986
01:03:02,630 --> 01:03:01,359
currently at 40 meters away and once we

987
01:03:04,150 --> 01:03:02,640
reach 20

988
01:03:11,589 --> 01:03:04,160

we will hold

989
01:03:15,910 --> 01:03:14,069
as we heard them relay to teams on the

990
01:03:18,470 --> 01:03:15,920
ground the crew is the one who sent the

991
01:03:20,549 --> 01:03:18,480
command for approach to waypoint 2 today

992
01:03:22,069 --> 01:03:20,559
this can be a fully autonomous procedure

993
01:03:24,150 --> 01:03:22,079
however the crew is getting the chance

994
01:03:32,630 --> 01:03:24,160
to test out some of those features on

995
01:03:38,630 --> 01:03:35,670
dragon spacex on the big loop the

996
01:03:40,470 --> 01:03:38,640
ground is go for approach two

997
01:03:42,549 --> 01:03:40,480
please confirm you are

998
01:03:48,710 --> 01:03:42,559
ready for final approach and your

999
01:03:48,720 --> 01:03:57,990
and copies inward

1000
01:04:03,109 --> 01:04:00,710
dragon spacex from dragon advises our

1001
01:04:07,589 --> 01:04:05,349
copies visors closed we will be

1002
01:04:09,190 --> 01:04:07,599
commanding the approach allow and resume

1003
01:04:11,430 --> 01:04:09,200
shortly

1004
01:04:13,190 --> 01:04:11,440
as a reminder once dragon is inside the

1005
01:04:22,630 --> 01:04:13,200
crew hands off point retreat and

1006
01:04:38,549 --> 01:04:24,549
coming up on that 20 meter mark away

1007
01:04:42,789 --> 01:04:40,390
capcom relaying up information about the

1008
01:04:45,109 --> 01:04:42,799
crew hands-off point station he's down

1009
01:04:48,630 --> 01:04:45,119
two for kate monitor per step three and

1010
01:04:52,710 --> 01:04:48,640
four dragon we are go for approach team

1011
01:05:10,470 --> 01:04:55,190
and with that case you are go to monitor

1012
01:05:16,789 --> 01:05:12,390
crews and teams giving their go for

1013
01:05:20,230 --> 01:05:18,390

as we were discussing that crew hands

1014
01:05:22,470 --> 01:05:20,240
off point or chop you'll hear that call

1015
01:05:24,549 --> 01:05:22,480
about two meters before contact

1016
01:05:25,670 --> 01:05:24,559
meaning if the vehicle needs to abort

1017
01:05:27,109 --> 01:05:25,680
today's

1018
01:05:28,789 --> 01:05:27,119
docking with the international space

1019
01:05:30,549 --> 01:05:28,799
station it can still occur but will not

1020
01:05:45,510 --> 01:05:30,559
be triggered by the crew and should be

1021
01:05:48,950 --> 01:05:47,430
the final approach

1022
01:05:51,750 --> 01:05:48,960
is going to take approximately four

1023
01:05:53,109 --> 01:05:51,760
minutes

1024
01:05:54,710 --> 01:05:53,119
if you look closely you can see the

1025
01:05:57,270 --> 01:05:54,720
draco engines

1026
01:05:59,910 --> 01:05:57,280
on the surface section of dragon

1027
01:06:02,069 --> 01:05:59,920
becoming more and more active making

1028
01:06:07,990 --> 01:06:02,079
minor adjustments as we continue to

1029
01:06:40,309 --> 01:06:10,710
crew dagger now 15 meters away from id

1030
01:06:43,990 --> 01:06:42,069
international space station and crew

1031
01:06:45,910 --> 01:06:44,000
dragon recently crossed the terminator

1032
01:06:48,549 --> 01:06:45,920
line that difference between day and

1033
01:07:25,829 --> 01:06:48,559
night and are currently flying 261

1034
01:07:25,839 --> 01:07:35,029
spacex on the big loop 10 meters

1035
01:07:35,039 --> 01:07:59,990
and happens we show eight meters

1036
01:08:04,870 --> 01:08:01,589
you can see they solve the docking

1037
01:08:08,390 --> 01:08:06,150
again once we

1038
01:08:09,990 --> 01:08:08,400

get around two meters

1039
01:08:13,910 --> 01:08:10,000
you should hear a call for chop which

1040
01:08:18,709 --> 01:08:16,470
means any aborts initiated by dragon

1041
01:08:22,390 --> 01:08:18,719
needs to be initiated by dragon

1042
01:08:24,229 --> 01:08:22,400
after that point rather than by the crew

1043
01:08:54,870 --> 01:08:24,239
now just under five meters away from the

1044
01:08:54,880 --> 01:09:25,590
meters chop

1045
01:09:25,600 --> 01:09:41,189
dragon spacex soft capture confirmed

1046
01:09:46,550 --> 01:09:43,910
soft capture confirmed of crew one

1047
01:09:49,030 --> 01:09:46,560
aboard spacex crew dragon resilience to

1048
01:09:50,789 --> 01:09:49,040
the international docking adapter 3 on

1049
01:09:52,309 --> 01:09:50,799
the space-facing port of the harmony

1050
01:09:55,510 --> 01:09:52,319
module on the international space

1051
01:09:58,709 --> 01:09:55,520
station that coming at 608 a.m central

1052
01:10:01,990 --> 01:09:58,719
time 1108 gmt while station and dragon

1053
01:10:07,830 --> 01:10:02,000
were flying 261 statute miles in

1054
01:10:27,350 --> 01:10:10,229
dragon spacex on the big loop soft

1055
01:10:31,270 --> 01:10:29,430
that soft capture ring will continue

1056
01:10:32,790 --> 01:10:31,280
until sensors indicate those hooks are

1057
01:10:35,350 --> 01:10:32,800
ready to drive and create the hard

1058
01:11:01,350 --> 01:10:35,360
capture and that should take about 15

1059
01:11:06,870 --> 01:11:03,910
and a dragon will remain here

1060
01:11:11,110 --> 01:11:06,880
for a little bit while as leah mentioned

1061
01:11:15,910 --> 01:11:12,950
put the final hooks in place and then

1062
01:11:20,950 --> 01:11:15,920
confirm a hard mate which again is an

1063
01:11:21,990 --> 01:11:20,960

airtight seal around between the

1064
01:11:23,430 --> 01:11:22,000
crew

1065
01:11:31,990 --> 01:11:23,440
vehicle and the international space

1066
01:11:35,030 --> 01:11:33,750
after hard capture is complete we do

1067
01:11:37,270 --> 01:11:35,040
expect

1068
01:11:39,590 --> 01:11:37,280
a couple more leak checks and the hash

1069
01:11:41,910 --> 01:11:39,600
to be opened

1070
01:11:43,110 --> 01:11:41,920
two hours later again we are targeting 8

1071
01:11:53,510 --> 01:11:43,120
30 a.m

1072
01:11:57,750 --> 01:11:55,590
a recap at what we've seen with this

1073
01:12:00,310 --> 01:11:57,760
port relocation the undock sequence was

1074
01:12:03,030 --> 01:12:00,320
commanded at 5 25 a.m central time and

1075
01:12:08,070 --> 01:12:03,040
right on time crew dragon undocked at 5

1076
01:12:12,709 --> 01:12:10,229
crew dragon backed away to about 60

1077
01:12:15,030 --> 01:12:12,719
meters on that uh

1078
01:12:17,510 --> 01:12:15,040
docking undocking axis before making a

1079
01:12:19,750 --> 01:12:17,520
transition maneuver to just above the

1080
01:12:23,270 --> 01:12:19,760
station and the zenith or space facing

1081
01:12:25,270 --> 01:12:23,280
port of ida iii we saw crew dragon move

1082
01:12:27,189 --> 01:12:25,280
into waypoint 2 which is 20 meters away

1083
01:12:29,350 --> 01:12:27,199
from the international space station

1084
01:12:32,149 --> 01:12:29,360
before making its slow and final

1085
01:13:27,430 --> 01:12:32,159
approach to the space station itself

1086
01:13:33,189 --> 01:13:30,149
this vehicle was the first operational

1087
01:13:34,470 --> 01:13:33,199
crude flight of a crew dragon spacecraft

1088
01:13:36,950 --> 01:13:34,480

it launched

1089
01:13:37,910 --> 01:13:36,960
november of 2020 from kennedy space

1090
01:13:40,950 --> 01:13:37,920
center

1091
01:13:43,270 --> 01:13:40,960
off of pad 39a and originally docked to

1092
01:13:45,350 --> 01:13:43,280
international docking adapter 2. on the

1093
01:13:47,750 --> 01:13:45,360
big loop ring retraction is complete

1094
01:13:54,070 --> 01:13:47,760
docking sequence is holding for mcs

1095
01:13:54,080 --> 01:14:03,910
american copies

1096
01:14:06,790 --> 01:14:05,830
things continuing to go well for the

1097
01:14:10,310 --> 01:14:06,800
docking

1098
01:14:19,350 --> 01:14:15,590
this vehicle originally docked to ida 2

1099
01:14:23,350 --> 01:14:21,750
and now it's docked to

1100
01:14:25,990 --> 01:14:23,360
once again to international docking

1101
01:14:27,510 --> 01:14:26,000
adapter 3.

1102
01:14:50,229 --> 01:14:27,520
again this is the first support

1103
01:14:53,910 --> 01:14:51,910
we had confirmation that the soft

1104
01:14:56,310 --> 01:14:53,920
capture ring retracted successfully and

1105
01:14:58,470 --> 01:14:56,320
we got a short look from dragon's

1106
01:15:00,630 --> 01:14:58,480
centerline camera looking in at the

1107
01:15:02,310 --> 01:15:00,640
international space station and that was

1108
01:15:03,990 --> 01:15:02,320
actually a view of the vestibule that

1109
01:15:07,990 --> 01:15:04,000
we've been discussing that space between

1110
01:15:09,270 --> 01:15:08,000
crew dragon and the a pass hatch

1111
01:15:11,910 --> 01:15:09,280
that's the space that will need to be

1112
01:15:14,630 --> 01:15:11,920
pressurized prior to hatches opening

1113
01:15:27,910 --> 01:15:16,229

and there's that vestibule as we were

1114
01:15:36,149 --> 01:15:29,830
station houston on two for kate mcs

1115
01:15:36,159 --> 01:15:46,229
poppies

1116
01:15:50,470 --> 01:15:48,310
those words from the capcom or capsule

1117
01:15:52,070 --> 01:15:50,480
communicator to crew member kate rubins

1118
01:15:54,070 --> 01:15:52,080
who is aboard the international space

1119
01:15:55,510 --> 01:15:54,080
station and was monitoring today's

1120
01:15:57,590 --> 01:15:55,520
relocation

1121
01:16:00,470 --> 01:15:57,600
signifying that the

1122
01:16:05,669 --> 01:16:00,480
hooks are ready to drive and secure

1123
01:16:08,950 --> 01:16:07,350
that first set of hooks has begun

1124
01:17:30,550 --> 01:16:08,960
driving and everything is looking good

1125
01:17:35,189 --> 01:17:32,790
first set of hooks continue to drive and

1126
01:17:36,709 --> 01:17:35,199
create that hard seal between crew

1127
01:17:38,630 --> 01:17:36,719
dragon and the international space

1128
01:17:39,669 --> 01:17:38,640
station as a reminder there are two sets

1129
01:17:42,870 --> 01:17:39,679
of hooks

1130
01:17:45,189 --> 01:17:42,880
six on each and uh everything continuing

1131
01:17:52,229 --> 01:17:45,199
nominally or proceeding well for the

1132
01:17:56,229 --> 01:17:54,310
now after all docking events are

1133
01:17:58,870 --> 01:17:56,239
successful flight controllers will

1134
01:18:00,550 --> 01:17:58,880
configure dragon for docked operations

1135
01:18:03,189 --> 01:18:00,560
reconnecting power and data to the

1136
01:18:05,030 --> 01:18:03,199
spacecraft

1137
01:18:06,630 --> 01:18:05,040
the crew currently inside the capital

1138
01:18:07,750 --> 01:18:06,640

section of

1139
01:18:10,390 --> 01:18:07,760
dragon

1140
01:18:13,590 --> 01:18:10,400
comprised of mike hopkins the mission

1141
01:18:15,910 --> 01:18:13,600
commander victor glover the pilot soichi

1142
01:18:17,270 --> 01:18:15,920
noguchi the mission specialist and

1143
01:18:18,470 --> 01:18:17,280
shannon walker and other mission

1144
01:18:19,350 --> 01:18:18,480
specialists

1145
01:18:20,550 --> 01:18:19,360
they will be able to get out of

1146
01:18:22,229 --> 01:18:20,560
spacesuits

1147
01:18:24,310 --> 01:18:22,239
and begin the operations to get the

1148
01:18:26,709 --> 01:18:24,320
hatches back open this includes

1149
01:18:31,110 --> 01:18:26,719
pressurizing the vestibule and a new

1150
01:18:35,669 --> 01:18:33,270
and we heard a call that those first six

1151
01:18:38,550 --> 01:18:35,679
hooks have closed successfully and the

1152
01:18:41,030 --> 01:18:38,560
second set are now driving to create

1153
01:19:44,310 --> 01:18:41,040
that hard mate that we're looking for

1154
01:19:48,709 --> 01:19:46,390
now ten minutes since crew dragon made

1155
01:19:50,870 --> 01:19:48,719
its new home on the international space

1156
01:19:54,229 --> 01:19:50,880
station at international docking adapter

1157
01:19:56,310 --> 01:19:54,239
3 the space facing or zenith port on the

1158
01:19:58,630 --> 01:19:56,320
harmony module

1159
01:20:01,189 --> 01:19:58,640
we are hearing good reports that the

1160
01:20:18,709 --> 01:20:01,199
second set of hooks continued to drive

1161
01:20:27,430 --> 01:20:20,550
dragon spacex on the big loop hard

1162
01:20:27,440 --> 01:20:54,470
copies we see this thing

1163
01:20:59,430 --> 01:20:56,149

and we just heard the call to the crew

1164
01:21:01,669 --> 01:20:59,440
that the second set of hooks is complete

1165
01:21:02,870 --> 01:21:01,679
and has driven into the international

1166
01:21:05,110 --> 01:21:02,880
space station

1167
01:21:07,830 --> 01:21:05,120
everything by the book this morning and

1168
01:21:09,430 --> 01:21:07,840
on time with crew dragon making contact

1169
01:21:14,550 --> 01:21:09,440
with the international space station's

1170
01:21:17,110 --> 01:21:14,560
ida 3 at 608 am central time

1171
01:21:20,149 --> 01:21:17,120
1108 gmt while station and dragon were

1172
01:21:22,790 --> 01:21:20,159
flying 261 statute miles in altitude

1173
01:21:24,629 --> 01:21:22,800
just to the south of japan

1174
01:21:27,030 --> 01:21:24,639
now the crew won nasa astronauts mike

1175
01:21:29,270 --> 01:21:27,040
hawkins victor glover and shannon walker

1176
01:21:31,510 --> 01:21:29,280
and japan aerospace exploration agency

1177
01:21:33,350 --> 01:21:31,520
astronaut soichiroguchi have re-docked

1178
01:21:35,110 --> 01:21:33,360
with the international space station

1179
01:21:37,430 --> 01:21:35,120
we're going to wrap up our live coverage

1180
01:21:39,750 --> 01:21:37,440
of dragon's first ever port relocation

1181
01:21:41,270 --> 01:21:39,760
maneuver the crew will take time now to

1182
01:21:42,950 --> 01:21:41,280
get out of their suits and begin the

1183
01:21:45,110 --> 01:21:42,960
process of opening up the hatches in

1184
01:21:47,030 --> 01:21:45,120
about two hours

1185
01:21:48,950 --> 01:21:47,040
as a reminder today's operations helped

1186
01:21:51,030 --> 01:21:48,960
set the stage for the arrival of nasa's

1187
01:21:51,990 --> 01:21:51,040
crew 2 astronauts in just a couple of

1188
01:21:53,669 --> 01:21:52,000

weeks

1189
01:21:55,910 --> 01:21:53,679
nasa astronauts shane kimbrough and

1190
01:21:58,229 --> 01:21:55,920
megan macarthur jaxa astronaut aki

1191
01:22:00,550 --> 01:21:58,239
hoshide and issa or european space

1192
01:22:02,229 --> 01:22:00,560
agency astronaut thomas

1193
01:22:04,709 --> 01:22:02,239
are scheduled to launch to the station

1194
01:22:06,870 --> 01:22:04,719
thursday april 22nd which also happens

1195
01:22:09,590 --> 01:22:06,880
to be earth day they will arrive and

1196
01:22:11,669 --> 01:22:09,600
dock to the station about one day later

1197
01:22:13,510 --> 01:22:11,679
ahead of crew 2's arrival however we'll

1198
01:22:15,270 --> 01:22:13,520
be watching two other crews arrive and

1199
01:22:17,669 --> 01:22:15,280
depart the orbiting lab

1200
01:22:19,350 --> 01:22:17,679
on friday april 9th nasa's mark vande

1201
01:22:21,669 --> 01:22:19,360
high and russian cosmonauts oleg

1202
01:22:22,950 --> 01:22:21,679
novitskiy and piotr dubrov will launch

1203
01:22:25,669 --> 01:22:22,960
to the station

1204
01:22:28,629 --> 01:22:25,679
you can watch live starting at 1 45 a.m

1205
01:22:31,110 --> 01:22:28,639
central time 2 45 eastern and just one

1206
01:22:33,270 --> 01:22:31,120
week later soyuz ms-17 will depart the

1207
01:22:35,270 --> 01:22:33,280
station bringing nasa's kate rubins and

1208
01:22:38,790 --> 01:22:35,280
rose cosmos sergey rishikov and sergey

1209
01:22:40,629 --> 01:22:38,800
kuzkov back to earth

1210
01:22:42,390 --> 01:22:40,639
once crew 2 arrives we'll have a

1211
01:22:44,629 --> 01:22:42,400
handover period of several days where

1212
01:22:45,750 --> 01:22:44,639
we'll have 11 crew members aboard the

1213
01:22:47,590 --> 01:22:45,760

station

1214
01:22:49,430 --> 01:22:47,600
crew one is currently targeted to depart

1215
01:22:50,550 --> 01:22:49,440
the station and return to earth on april

1216
01:22:53,030 --> 01:22:50,560
28th

1217
01:22:54,629 --> 01:22:53,040
stay tuned to spacex and nasa social

1218
01:22:57,110 --> 01:22:54,639
media as well as our website for the

1219
01:22:59,669 --> 01:22:57,120
latest updates on the upcoming missions

1220
01:23:02,310 --> 01:22:59,679
on the big loop docking sequence is

1221
01:23:04,390 --> 01:23:02,320
complete ground will be enabling

1222
01:23:06,390 --> 01:23:04,400
hardline power and com connections

1223
01:23:13,990 --> 01:23:06,400
shortly you are go to dock your suits

1224
01:23:18,709 --> 01:23:16,550
and stay tax houston from resilience uh

1225
01:23:20,310 --> 01:23:18,719
congratulations on a successful fort

1226
01:23:21,350 --> 01:23:20,320
relocation i know we got weak checks to

1227
01:23:23,510 --> 01:23:21,360
go but

1228
01:23:25,910 --> 01:23:23,520
great capability that's going to

1229
01:23:27,270 --> 01:23:25,920
really enhance the options up here for

1230
01:23:30,629 --> 01:23:27,280
international space station so

1231
01:23:38,229 --> 01:23:32,470
and dragon spacex thanks for the kind

1232
01:23:42,229 --> 01:23:40,310
and with that thanks again for tuning in

1233
01:23:45,110 --> 01:23:42,239
today and we hope you'll join us for the

1234
01:23:47,189 --> 01:23:45,120
launch of crew 2 and return of crew one

1235
01:24:00,200 --> 01:23:47,199
in just a few weeks have a great morning

1236
01:24:00,210 --> 01:24:06,070
[Music]

1237
01:24:06,080 --> 01:24:10,690
so