
CAM 07
040 22:09:27.321

1
00:01:18,469 --> 00:00:39,660
[Music]

2
00:01:22,149 --> 00:01:20,149
good afternoon from the international

3
00:01:23,990 --> 00:01:22,159
space station flight control room this

4
00:01:25,749 --> 00:01:24,000
is mission control houston bringing you

5
00:01:28,469 --> 00:01:25,759
live coverage today of the launch of

6
00:01:30,390 --> 00:01:28,479
northrop grumman's 13th cargo resupply

7
00:01:31,429 --> 00:01:30,400
mission to the international space

8
00:01:33,429 --> 00:01:31,439
station

9
00:01:36,310 --> 00:01:33,439
you are looking live at the mid-atlantic

10
00:01:38,390 --> 00:01:36,320
regional spaceport at nasa's wallops

11
00:01:40,550 --> 00:01:38,400
flight facility in virginia where an

12
00:01:43,030 --> 00:01:40,560
antares rocket stands ready to launch a

13
00:01:45,429 --> 00:01:43,040

cygnus cargo spacecraft carrying about 8

14
00:01:47,429 --> 00:01:45,439
000 pounds of research crew supplies and

15
00:01:52,550 --> 00:01:47,439
hardware to the international space

16
00:01:56,630 --> 00:01:54,230
back in the international space station

17
00:01:58,230 --> 00:01:56,640
flight control room in houston texas

18
00:02:00,469 --> 00:01:58,240
flight control teams are being led by

19
00:02:02,630 --> 00:02:00,479
flight director zeb scoville

20
00:02:04,630 --> 00:02:02,640
teams here are monitoring systems on the

21
00:02:11,270 --> 00:02:04,640
international space station ensuring all

22
00:02:15,270 --> 00:02:13,270
in the launch control center in wallops

23
00:02:17,750 --> 00:02:15,280
island virginia teams are monitoring

24
00:02:19,910 --> 00:02:17,760
systems on the antares rocket and cygnus

25
00:02:21,510 --> 00:02:19,920
spacecraft to ensure all systems are a

26
00:02:23,110 --> 00:02:21,520
go for launch today

27
00:02:25,110 --> 00:02:23,120
teams are reporting that all systems are

28
00:02:31,110 --> 00:02:25,120
in good shape up to this point for an on

29
00:02:34,790 --> 00:02:32,790
and at northrop grumman's mission

30
00:02:36,630 --> 00:02:34,800
control center in dulles virginia teams

31
00:02:37,910 --> 00:02:36,640
are being led by mission director zach

32
00:02:39,509 --> 00:02:37,920
dwyer

33
00:02:41,190 --> 00:02:39,519
as soon as cygnus separates from the

34
00:02:42,390 --> 00:02:41,200
rocket today controls of the vehicle

35
00:02:50,790 --> 00:02:42,400
will be handed over to flight

36
00:02:55,270 --> 00:02:53,190
this cargo resupply launch comes only

37
00:02:57,030 --> 00:02:55,280
three days after record-setting nasa

38
00:02:59,190 --> 00:02:57,040

astronaut christina cook and two

39
00:03:01,509 --> 00:02:59,200
crewmates soyuz commander alexander

40
00:03:03,750 --> 00:03:01,519
skortsov of rose cosmos and luca

41
00:03:06,070 --> 00:03:03,760
parmitano of the european space agency

42
00:03:08,949 --> 00:03:06,080
returned to earth nasa astronaut

43
00:03:10,710 --> 00:03:08,959
christina cook returned after 328 days

44
00:03:13,110 --> 00:03:10,720
in space setting a record for the

45
00:03:22,309 --> 00:03:13,120
longest single space flight in history

46
00:03:26,470 --> 00:03:24,470
and just more than one week ago northrop

47
00:03:28,630 --> 00:03:26,480
grumman's cygnus cargo vehicle from its

48
00:03:29,670 --> 00:03:28,640
12th resupply mission named the allen

49
00:03:31,509 --> 00:03:29,680
bean

50
00:03:34,470 --> 00:03:31,519
departed the international space station

51
00:03:36,949 --> 00:03:34,480
after its 88-day stay so when the 13th

52
00:03:38,710 --> 00:03:36,959
resupply mission launches today northrop

53
00:03:41,350 --> 00:03:38,720
grumman will perform dual cygnus

54
00:03:44,550 --> 00:03:41,360
capability for a four week period before

55
00:03:46,710 --> 00:03:44,560
its de-orbit burn on february 29th so

56
00:03:48,470 --> 00:03:46,720
it's been a busy start to 2020 for the

57
00:04:02,789 --> 00:03:48,480
space station and much more to come as

58
00:04:06,630 --> 00:04:04,630
the cygnus spacecraft for the space

59
00:04:09,350 --> 00:04:06,640
station resupply mission launching today

60
00:04:11,350 --> 00:04:09,360
is named in honor of u.s air force major

61
00:04:13,589 --> 00:04:11,360
robert lawrence who was the first

62
00:04:16,069 --> 00:04:13,599
african-american astronaut selected by

63
00:04:18,310 --> 00:04:16,079

any program specifically chosen for the

64
00:04:21,509 --> 00:04:18,320
air force's manned orbital laboratory

65
00:04:24,550 --> 00:04:21,519
program in june of 1967.

66
00:04:27,749 --> 00:04:24,560
lawrence died in an f-104

67
00:04:29,990 --> 00:04:27,759
starfighter aircraft accident at edwards

68
00:04:37,270 --> 00:04:30,000
air force base six months later at the

69
00:04:41,110 --> 00:04:38,870
clear skies for launch back at the

70
00:04:42,710 --> 00:04:41,120
mid-atlantic regional spaceport at

71
00:04:45,189 --> 00:04:42,720
nasa's wallops flight facility in

72
00:04:54,390 --> 00:04:45,199
virginia temperatures now about 48

73
00:04:58,070 --> 00:04:56,070
cygnus will arrive to the international

74
00:05:00,629 --> 00:04:58,080
space station after a two-day journey on

75
00:05:02,469 --> 00:05:00,639
tuesday february 11th where it will be

76
00:05:04,150 --> 00:05:02,479
installed to the unity module's

77
00:05:05,909 --> 00:05:04,160
earth-facing port

78
00:05:07,909 --> 00:05:05,919
nasa flight engineer drew morgan will

79
00:05:10,070 --> 00:05:07,919
use the canada arm 2 robotic arm to

80
00:05:12,870 --> 00:05:10,080
grapple the spacecraft backed up by

81
00:05:14,310 --> 00:05:12,880
jessica mir of nasa once the astronauts

82
00:05:15,990 --> 00:05:14,320
have captured the vehicle they'll turn

83
00:05:17,990 --> 00:05:16,000
controls back over to teams here on the

84
00:05:19,749 --> 00:05:18,000
ground in houston where the robotics

85
00:05:21,510 --> 00:05:19,759
officer will use the canadarm2 to

86
00:05:23,830 --> 00:05:21,520
reposition the spacecraft and bring it

87
00:05:26,310 --> 00:05:23,840
in toward the unity module to install it

88
00:05:27,990 --> 00:05:26,320

to the international space station

89
00:05:30,230 --> 00:05:28,000
cygnus will remain attached to the

90
00:05:32,469 --> 00:05:30,240
station until may 11th when it will

91
00:05:34,310 --> 00:05:32,479
depart the orbiting laboratory and

92
00:05:36,710 --> 00:05:34,320
complete some satellite deployments and

93
00:05:38,790 --> 00:05:36,720
additional objectives before disposing

94
00:05:41,029 --> 00:05:38,800
of several tons of trash during a fiery

95
00:05:43,749 --> 00:05:41,039
re-entry into the earth's atmosphere on

96
00:05:45,350 --> 00:05:43,759
may 25th

97
00:05:47,830 --> 00:05:45,360
panel and verify local indicator is

98
00:05:49,909 --> 00:05:47,840
eliminated

99
00:05:51,909 --> 00:05:49,919
it's gso verified launch enabled and

100
00:05:53,990 --> 00:05:51,919
illuminated roger that this time i want

101
00:05:55,749 --> 00:05:54,000
to verify rcc enable of work buttons are

102
00:05:57,909 --> 00:05:55,759
enabled and illuminated going up on

103
00:05:59,430 --> 00:05:57,919
cygnus today is just over eight thousand

104
00:06:01,749 --> 00:05:59,440
pounds of cargo

105
00:06:03,510 --> 00:06:01,759
within that cargo is one thousand six

106
00:06:05,670 --> 00:06:03,520
hundred and sixty nine pounds of crew

107
00:06:07,189 --> 00:06:05,680
supplies two thousand one hundred and

108
00:06:08,710 --> 00:06:07,199
seventy four pounds of science

109
00:06:10,390 --> 00:06:08,720
investigations

110
00:06:11,590 --> 00:06:10,400
two hundred pounds of spacewalk

111
00:06:13,270 --> 00:06:11,600
equipment

112
00:06:15,510 --> 00:06:13,280
three thousand five hundred and thirty

113
00:06:21,990 --> 00:06:15,520

four pounds of vehicle hardware and

114
00:06:26,629 --> 00:06:23,990
i'm joined on console today by chad

115
00:06:28,230 --> 00:06:26,639
davis of northrop grumman human systems

116
00:06:29,670 --> 00:06:28,240
integration and operations manager

117
00:06:31,670 --> 00:06:29,680
thanks for joining us

118
00:06:33,430 --> 00:06:31,680
thanks for having me

119
00:06:35,350 --> 00:06:33,440
i just went over the breakdown of cargo

120
00:06:37,270 --> 00:06:35,360
inside cygnus today can you tell us a

121
00:06:38,950 --> 00:06:37,280
little bit more about the cargo loading

122
00:06:40,629 --> 00:06:38,960
operations and in particular the late

123
00:06:42,070 --> 00:06:40,639
load capability

124
00:06:44,390 --> 00:06:42,080
uh yeah sure

125
00:06:46,710 --> 00:06:44,400
typically we we kick off activities with

126
00:06:49,350 --> 00:06:46,720
the initial load loading up the items

127
00:06:51,350 --> 00:06:49,360
that aren't exactly time critical

128
00:06:52,469 --> 00:06:51,360
and the nice thing with the crs2

129
00:06:55,749 --> 00:06:52,479
contract

130
00:06:58,950 --> 00:06:55,759
is we've enabled the ability for uh l

131
00:07:01,830 --> 00:06:58,960
minus 24 hour final late load option

132
00:07:03,749 --> 00:07:01,840
which gives the crew or gives the the

133
00:07:06,230 --> 00:07:03,759
cargo ops team as well as the customer

134
00:07:07,749 --> 00:07:06,240
nasa the ability to get critical life

135
00:07:09,510 --> 00:07:07,759
science payload

136
00:07:12,390 --> 00:07:09,520
delivered and installed inside the

137
00:07:13,909 --> 00:07:12,400
vehicle just prior to that l minus 24

138
00:07:16,469 --> 00:07:13,919

point to launch and get up to the

139
00:07:18,309 --> 00:07:16,479
station

140
00:07:20,710 --> 00:07:18,319
and today marks the second flight of an

141
00:07:22,390 --> 00:07:20,720
antares 230 plus rocket what are some

142
00:07:25,110 --> 00:07:22,400
differences your team saw between the

143
00:07:27,189 --> 00:07:25,120
rocket we've seen fly before and the 230

144
00:07:29,029 --> 00:07:27,199
plus that we saw on ng-12 and we'll see

145
00:07:30,710 --> 00:07:29,039
again today

146
00:07:32,629 --> 00:07:30,720
uh essentially some of the things with

147
00:07:34,070 --> 00:07:32,639
the 235 are

148
00:07:35,350 --> 00:07:34,080
improvements in its performance

149
00:07:37,749 --> 00:07:35,360
capability

150
00:07:40,309 --> 00:07:37,759
uh i know for instance that uh the

151
00:07:42,950 --> 00:07:40,319
vehicle itself is able to uh to power

152
00:07:44,629 --> 00:07:42,960
through the as it goes through max q it

153
00:07:46,309 --> 00:07:44,639
doesn't need to throttle down as much

154
00:07:48,309 --> 00:07:46,319
which gives the

155
00:07:50,070 --> 00:07:48,319
performance improvement of the overall

156
00:07:51,270 --> 00:07:50,080
vehicle

157
00:07:53,270 --> 00:07:51,280
as well as

158
00:07:55,909 --> 00:07:53,280
the one that ties into actual late load

159
00:07:58,230 --> 00:07:55,919
capability is the pop top we call it on

160
00:08:00,550 --> 00:07:58,240
the fairing that allows us to take out

161
00:08:02,710 --> 00:08:00,560
in that 24-hour period

162
00:08:04,309 --> 00:08:02,720
mobile clean room and

163
00:08:06,309 --> 00:08:04,319

come right up onto the pad when the

164
00:08:08,309 --> 00:08:06,319
vehicle is in the horizontal

165
00:08:10,309 --> 00:08:08,319
and the folks inside the the mobile

166
00:08:12,070 --> 00:08:10,319
clean room will actually pull the the

167
00:08:14,070 --> 00:08:12,080
nose cone for lack of better term that

168
00:08:15,990 --> 00:08:14,080
very small area

169
00:08:18,390 --> 00:08:16,000
off the end of the fairing and gives

170
00:08:20,710 --> 00:08:18,400
them access to the hatch of cygnus and

171
00:08:22,230 --> 00:08:20,720
be able to load that

172
00:08:24,230 --> 00:08:22,240
science critical science like the

173
00:08:26,710 --> 00:08:24,240
biological and things that are on sort

174
00:08:29,430 --> 00:08:26,720
of on a timeline to get up to station so

175
00:08:31,270 --> 00:08:29,440
that they preserve the the integrity of

176
00:08:33,430 --> 00:08:31,280
the actual science or specimens

177
00:08:35,430 --> 00:08:33,440
themselves

178
00:08:37,029 --> 00:08:35,440
and as the human systems integration

179
00:08:38,949 --> 00:08:37,039
operations manager can you just kind of

180
00:08:40,790 --> 00:08:38,959
go over what you're what exactly you do

181
00:08:43,509 --> 00:08:40,800
for northrop grumman

182
00:08:46,070 --> 00:08:43,519
uh yeah sure uh primarily uh the team

183
00:08:48,150 --> 00:08:46,080
that uh that i work with is uh we

184
00:08:50,870 --> 00:08:48,160
perform the operations you saw earlier

185
00:08:51,910 --> 00:08:50,880
the mission control center and uh mcc

186
00:08:54,870 --> 00:08:51,920
dulles

187
00:08:57,590 --> 00:08:54,880
where we fly the cygnus vehicle from so

188
00:08:59,670 --> 00:08:57,600

we essentially have a team very similar

189
00:09:02,150 --> 00:08:59,680
to nasa here we've got a mission

190
00:09:04,870 --> 00:09:02,160
director that is uh

191
00:09:07,110 --> 00:09:04,880
tangential to the uh the flight director

192
00:09:09,590 --> 00:09:07,120
they're in communications uh with each

193
00:09:11,590 --> 00:09:09,600
other once we enter joint operations but

194
00:09:13,269 --> 00:09:11,600
prior to getting to that

195
00:09:15,590 --> 00:09:13,279
the mission directors in charge of the

196
00:09:17,430 --> 00:09:15,600
vehicle and then in the control room you

197
00:09:19,590 --> 00:09:17,440
have all the subsystem folks that are

198
00:09:21,509 --> 00:09:19,600
responsible for the respective systems

199
00:09:23,590 --> 00:09:21,519
gnc propulsion

200
00:09:26,070 --> 00:09:23,600
power and so forth so

201
00:09:28,230 --> 00:09:26,080
they orchestrate and fly the vehicle

202
00:09:30,710 --> 00:09:28,240
from launch to uh till we get into the

203
00:09:32,949 --> 00:09:30,720
rendezvous phase and then begin joint

204
00:09:40,070 --> 00:09:32,959
operations with our nasa counterparts

205
00:09:43,990 --> 00:09:41,829
and when cygnus takes off today it'll be

206
00:09:45,910 --> 00:09:44,000
the start of northrop grumman performing

207
00:09:47,829 --> 00:09:45,920
dual cygnus capability while the allen

208
00:09:50,070 --> 00:09:47,839
bean remains in orbit for four weeks how

209
00:09:52,070 --> 00:09:50,080
do your teams manage two vehicles in

210
00:09:55,030 --> 00:09:52,080
flight at once

211
00:09:58,630 --> 00:09:55,040
yeah well we first experienced our or

212
00:10:00,710 --> 00:09:58,640
initiated that capability back on ng-11

213
00:10:04,389 --> 00:10:00,720

that particular vehicle we flew for

214
00:10:05,750 --> 00:10:04,399
almost 233 days while we had launched

215
00:10:08,389 --> 00:10:05,760
ng12

216
00:10:11,269 --> 00:10:08,399
at the same time and during that process

217
00:10:13,269 --> 00:10:11,279
we developed tools within our

218
00:10:15,350 --> 00:10:13,279
controls that we use to operate the

219
00:10:16,949 --> 00:10:15,360
vehicle so you've got different displays

220
00:10:18,470 --> 00:10:16,959
that are different colors so you know

221
00:10:20,710 --> 00:10:18,480
when you're sending commands it's going

222
00:10:22,949 --> 00:10:20,720
to the right vehicle and so forth and we

223
00:10:25,350 --> 00:10:22,959
come together with a different con-ops

224
00:10:27,590 --> 00:10:25,360
of operations how we wanted to

225
00:10:29,750 --> 00:10:27,600
orchestrate and have a prime team

226
00:10:32,470 --> 00:10:29,760
during dynamic ops when you're doing

227
00:10:34,310 --> 00:10:32,480
burns or rendezvous activities versus

228
00:10:36,470 --> 00:10:34,320
quiescent ops when the vehicle is just

229
00:10:38,949 --> 00:10:36,480
sort of in a free flight state and not

230
00:10:40,710 --> 00:10:38,959
doing any maneuvers and you segregate

231
00:10:42,870 --> 00:10:40,720
those teams so that they can monitor

232
00:10:47,990 --> 00:10:42,880
their respective vehicles

233
00:10:51,910 --> 00:10:50,949
step 357 bring up ct with check channel

234
00:11:12,230 --> 00:10:51,920
on

235
00:11:16,630 --> 00:11:14,470
now just about 29 minutes away from

236
00:11:19,030 --> 00:11:16,640
launch today all systems are still on

237
00:11:22,870 --> 00:11:19,040
track for an on-time launch today at 4

238
00:11:24,389 --> 00:11:22,880

39 p.m central time and that'll be 5 39

239
00:11:25,670 --> 00:11:24,399
p.m eastern

240
00:11:28,069 --> 00:11:25,680
teams have been running through some

241
00:11:30,230 --> 00:11:28,079
pre-launch milestones today which began

242
00:11:31,990 --> 00:11:30,240
just about four hours ago at noon

243
00:11:34,230 --> 00:11:32,000
central time with a poll for the launch

244
00:11:36,630 --> 00:11:34,240
vehicle to be powered on and just about

245
00:11:46,150 --> 00:11:36,640
an hour and 35 minutes before launch

246
00:11:49,190 --> 00:11:47,750
there have also been various checks

247
00:11:51,190 --> 00:11:49,200
between flight controllers here in

248
00:11:53,110 --> 00:11:51,200
houston and dulles virginia to ensure

249
00:11:55,670 --> 00:11:53,120
everything is on track and on time for

250
00:11:57,430 --> 00:11:55,680
launch today some upcoming milestones

251
00:11:59,110 --> 00:11:57,440
about 12 minutes from launch flight

252
00:12:01,430 --> 00:11:59,120
controllers will conduct a poll to

253
00:12:03,190 --> 00:12:01,440
proceed with the final launch countdown

254
00:12:06,069 --> 00:12:03,200
and about five minutes from launch the

255
00:12:07,670 --> 00:12:06,079
vehicle will switch to internal power

256
00:12:09,509 --> 00:12:07,680
then just about three minutes and 30

257
00:12:11,350 --> 00:12:09,519
seconds before launch auto sequence

258
00:12:13,509 --> 00:12:11,360
handoff for terminal countdown will be

259
00:12:15,350 --> 00:12:13,519
initiated and that marks the time the

260
00:12:17,509 --> 00:12:15,360
computers take over for the final

261
00:12:20,790 --> 00:12:17,519
milestones before launch

262
00:12:23,190 --> 00:12:20,800
fps is safe configuration verified check

263
00:12:25,670 --> 00:12:23,200

channel being received and agc's are

264
00:12:27,590 --> 00:12:25,680
nominal garage electric we'll check 360

265
00:12:30,389 --> 00:12:27,600
complete ops one

266
00:12:32,870 --> 00:12:30,399
step 361 transfer ftsa and ftsb to

267
00:12:40,870 --> 00:12:32,880
internal power

268
00:12:48,069 --> 00:12:40,880
fpsa external power off

269
00:12:53,670 --> 00:12:51,269
and fds internal power novel and i copy

270
00:12:55,190 --> 00:12:53,680
all fso send fts receiver arm for two

271
00:12:56,550 --> 00:12:55,200
seconds then remove

272
00:12:57,829 --> 00:12:56,560
continue check channel when function

273
00:13:01,590 --> 00:12:57,839
removed

274
00:13:03,110 --> 00:13:01,600
fso arm on my mark three two

275
00:13:05,509 --> 00:13:03,120
one mark

276
00:13:10,550 --> 00:13:05,519
plus one plus two

277
00:13:16,790 --> 00:13:13,990
lc elect two fts arm indication received

278
00:13:19,430 --> 00:13:16,800
fts currently indicates safe

279
00:13:21,350 --> 00:13:19,440
and episode verify sds arm indication

280
00:13:30,389 --> 00:13:21,360
fps arm indication

281
00:13:49,910 --> 00:13:34,150
lc i like two mts safe and arms and ftlu

282
00:13:49,920 --> 00:13:54,069
and ops 2 lc countdown 1.

283
00:14:01,189 --> 00:13:57,030
go ahead yeah alps 2 step julia 2 you go

284
00:14:03,829 --> 00:14:01,199
to deactivate me 2 vpg

285
00:15:09,590 --> 00:14:03,839
me too vpg deactivated

286
00:15:13,750 --> 00:15:11,990
now just about 25 minutes from launch

287
00:15:30,790 --> 00:15:13,760
and all systems are still performing

288
00:16:18,629 --> 00:15:33,110

and launching we just passed 25 minutes

289
00:16:25,749 --> 00:16:22,150
prop 2lc countdown one

290
00:16:28,069 --> 00:16:25,759
i'll see prop two step 367 place occs in

291
00:16:39,030 --> 00:16:28,079
sac mode pause hss afc

292
00:16:42,790 --> 00:16:40,790
again i'm joined on console today by

293
00:16:44,949 --> 00:16:42,800
chad davis of northrop grumman he's the

294
00:16:46,790 --> 00:16:44,959
human systems integration and operations

295
00:16:48,710 --> 00:16:46,800
manager chad can you tell us what's

296
00:16:50,790 --> 00:16:48,720
going to happen once we see cygnus

297
00:16:53,509 --> 00:16:50,800
liftoff today

298
00:16:56,389 --> 00:16:53,519
uh yeah primarily once we get to uh

299
00:16:58,389 --> 00:16:56,399
t-minus zero uh within the first

300
00:16:59,990 --> 00:16:58,399
immediate couple seconds the

301
00:17:02,389 --> 00:17:00,000
main engines are gonna come up to full

302
00:17:03,430 --> 00:17:02,399
thrust we're gonna see it climbing off

303
00:17:05,029 --> 00:17:03,440
the pad

304
00:17:07,189 --> 00:17:05,039
and then we're going to burn on the the

305
00:17:09,669 --> 00:17:07,199
core first stage for a little over three

306
00:17:12,390 --> 00:17:09,679
minutes uh depleting the

307
00:17:14,150 --> 00:17:12,400
the main first stage accelerating the

308
00:17:16,829 --> 00:17:14,160
vehicle out

309
00:17:19,829 --> 00:17:16,839
and then we'll go ahead and see stage

310
00:17:21,829 --> 00:17:19,839
separation we've got a liquid first

311
00:17:23,829 --> 00:17:21,839
stage and then we've got a solid fueled

312
00:17:25,990 --> 00:17:23,839
second stage our

313
00:17:28,230 --> 00:17:26,000

caster 30xl

314
00:17:30,789 --> 00:17:28,240
at that time we'll go ahead and see the

315
00:17:33,110 --> 00:17:30,799
second stage

316
00:17:35,750 --> 00:17:33,120
ignite but prior to that we'll go ahead

317
00:17:38,070 --> 00:17:35,760
and have fairing separation so those

318
00:17:40,870 --> 00:17:38,080
will come off like a clam shell

319
00:17:42,710 --> 00:17:40,880
exposing the cygnus vehicle

320
00:17:44,630 --> 00:17:42,720
typically the fairing stays on to

321
00:17:46,630 --> 00:17:44,640
protect it against the aerodynamic loads

322
00:17:48,630 --> 00:17:46,640
and lower atmosphere

323
00:17:49,990 --> 00:17:48,640
but once you get up high enough the it's

324
00:17:52,230 --> 00:17:50,000
so

325
00:17:54,230 --> 00:17:52,240
thin the air that there's no impacts on

326
00:17:56,230 --> 00:17:54,240
the actual cygnus vehicle

327
00:17:59,029 --> 00:17:56,240
so we'll see the the inner stage

328
00:18:01,510 --> 00:17:59,039
separate after the the fairings open up

329
00:18:03,270 --> 00:18:01,520
and separate and then the second stage

330
00:18:06,070 --> 00:18:03,280
will fire and it'll burn to its

331
00:18:08,070 --> 00:18:06,080
prescribed duration since it's a solid

332
00:18:10,150 --> 00:18:08,080
once it starts it it'll go until it's

333
00:18:12,230 --> 00:18:10,160
finished and then once we complete the

334
00:18:14,310 --> 00:18:12,240
burn of the second stage

335
00:18:16,230 --> 00:18:14,320
then we'll go ahead and fire the uh the

336
00:18:18,710 --> 00:18:16,240
separation system that will release

337
00:18:20,230 --> 00:18:18,720
cygnus from the uh from the second stage

338
00:18:21,029 --> 00:18:20,240

or the upper stage

339
00:18:25,669 --> 00:18:21,039
uh

340
00:18:28,630 --> 00:18:25,679
his folks will go ahead and kick off the

341
00:18:29,750 --> 00:18:28,640
activities to uh initiate the cygnus

342
00:18:33,350 --> 00:18:29,760
vehicle

343
00:18:35,430 --> 00:18:33,360
pressurizing the propulsion systems uh

344
00:18:37,350 --> 00:18:35,440
you know bringing things online that

345
00:18:38,950 --> 00:18:37,360
were in a dormant state during the

346
00:18:41,029 --> 00:18:38,960
launch phase or

347
00:18:42,470 --> 00:18:41,039
and then they'll go ahead and

348
00:18:44,470 --> 00:18:42,480
one of the primary things we're looking

349
00:18:46,870 --> 00:18:44,480
for is getting the solar rays out and

350
00:18:49,029 --> 00:18:46,880
deployed we're on battery power so you

351
00:18:51,510 --> 00:18:49,039
want to get those out and uh deployed

352
00:18:52,710 --> 00:18:51,520
our ultraflex solar arrays that way we

353
00:18:55,270 --> 00:18:52,720
can start

354
00:18:57,750 --> 00:18:55,280
pulling power from them start recharging

355
00:18:59,909 --> 00:18:57,760
what we used to the batteries uh and

356
00:19:03,510 --> 00:18:59,919
then at that point that the vehicle's in

357
00:19:05,510 --> 00:19:03,520
a decent state so that the team is ready

358
00:19:07,669 --> 00:19:05,520
to for like a better term start flying

359
00:19:09,830 --> 00:19:07,679
the vehicle them again it's its whole

360
00:19:11,990 --> 00:19:09,840
phasing operation as it starts to work

361
00:19:25,669 --> 00:19:12,000
in its way to chase and catch up with

362
00:19:30,150 --> 00:19:27,669
lcos one engine pressure sensor is

363
00:19:35,110 --> 00:19:30,160

recalibrated and ready for flight copy

364
00:19:40,230 --> 00:19:37,510
and also unless press with step 378 you

365
00:19:42,950 --> 00:19:40,240
go to activate arm enable

366
00:19:44,390 --> 00:19:42,960
lcs 1 arm enable rotated arm enable

367
00:19:46,070 --> 00:19:44,400
illuminated

368
00:19:51,190 --> 00:19:46,080
and ops 1 you go to arm stage 1

369
00:19:54,789 --> 00:19:53,669
lc ops one stage one controller odm

370
00:19:57,270 --> 00:19:54,799
armed

371
00:20:00,950 --> 00:19:57,280
roger that ops form

372
00:20:07,350 --> 00:20:00,960
check 378 379 ops 2 step 380 set stage 1

373
00:20:23,510 --> 00:20:11,190
stage one controller ep view red set

374
00:20:23,520 --> 00:20:28,310
system lc countdown one

375
00:20:36,710 --> 00:20:30,390
here go ahead lc yeah system looking for

376
00:20:40,630 --> 00:20:39,029
uh didn't work lc all right copy that

377
00:20:47,270 --> 00:20:40,640
i'll let wait for your report out when

378
00:21:10,390 --> 00:20:49,270
and launching we just passed 20 minutes

379
00:21:10,400 --> 00:21:16,390
elsie tell enchanted

380
00:21:19,590 --> 00:21:17,510
go tell

381
00:21:22,789 --> 00:21:19,600
oh yeah tell us armed

382
00:21:27,830 --> 00:21:25,350
go ahead check step 375 complete

383
00:22:17,909 --> 00:21:27,840
and you can check 374 as well

384
00:22:22,470 --> 00:22:20,310
now just about 18 minutes from launch

385
00:22:26,310 --> 00:22:22,480
today and all systems are still a go for

386
00:22:29,029 --> 00:22:26,320
an on-time launch at 4 39 p.m central

387
00:22:34,630 --> 00:22:32,230
and that's 5 39 p.m eastern time

388
00:22:36,390 --> 00:22:34,640

the expedition 62 crew on board the

389
00:22:37,830 --> 00:22:36,400
international space station is watching

390
00:22:39,270 --> 00:22:37,840
the launch today

391
00:22:41,270 --> 00:22:39,280
waiting for those

392
00:22:43,270 --> 00:22:41,280
waiting for that cargo to arrive and at

393
00:22:44,789 --> 00:22:43,280
the time of launch the international

394
00:22:46,870 --> 00:22:44,799
space station will be flying over the

395
00:23:22,310 --> 00:22:46,880
eastern atlantic ocean west of the

396
00:23:33,750 --> 00:23:24,470
and launch team we're coming up on 17

397
00:23:38,789 --> 00:23:36,950
lc system step 381 complete

398
00:24:57,269 --> 00:23:38,799
copy that system thanks for the report

399
00:25:01,510 --> 00:24:59,430
again mostly sunny skies for launch back

400
00:25:03,430 --> 00:25:01,520
at the mid-atlantic regional spaceport

401
00:25:06,630 --> 00:25:03,440
at nasa's wallops flight facility in

402
00:25:09,830 --> 00:25:06,640
virginia temperatures now about 44

403
00:25:13,510 --> 00:25:11,909
prop lead lc can you give me status on

404
00:25:16,870 --> 00:25:13,520
382

405
00:25:19,029 --> 00:25:16,880
yes lc this is prop lead f1n level is

406
00:25:30,230 --> 00:25:19,039
11.

407
00:25:34,870 --> 00:25:32,710
core one lc countdown one

408
00:25:36,870 --> 00:25:34,880
go ahead lcs core one uh field

409
00:25:39,029 --> 00:25:36,880
adjustment is not required

410
00:25:41,190 --> 00:25:39,039
copy that core one prop two step three

411
00:25:42,789 --> 00:25:41,200
eighty four configure occs for no

412
00:25:45,190 --> 00:25:42,799
adjustment to fuel level

413
00:25:49,510 --> 00:25:45,200

didn't work

414
00:25:53,430 --> 00:25:52,470
cmdlc countdown 1

415
00:25:55,110 --> 00:25:53,440
cmd

416
00:25:57,350 --> 00:25:55,120
you go to transfer signals to internal

417
00:26:01,029 --> 00:25:57,360
power and report when complete

418
00:26:14,310 --> 00:26:03,190
and launching the advise step 387 not

419
00:26:14,320 --> 00:26:24,950
and prop 2 status on 384

420
00:26:33,110 --> 00:26:26,950
occs configured for no adjustment to

421
00:26:37,510 --> 00:26:36,070
and uh i copied that uh option we'll go

422
00:26:39,590 --> 00:26:37,520
ahead and check the prop 2 we'll go

423
00:26:40,789 --> 00:26:39,600
ahead check 384 complete ops 2 lc

424
00:26:43,430 --> 00:26:40,799
countdown 1.

425
00:26:45,830 --> 00:26:43,440
go ahead yeah let's go ahead and perform

426
00:26:47,909 --> 00:26:45,840
step juliet 2 pre-burner low temperature

427
00:26:52,070 --> 00:26:47,919
abatement checklist again

428
00:26:58,549 --> 00:26:52,080
you go for cycle 2 me2 bpg activate

429
00:27:02,870 --> 00:27:00,390
okay launch team we're coming up on our

430
00:27:04,950 --> 00:27:02,880
final poll uh for readiness to proceed

431
00:27:07,669 --> 00:27:04,960
to our final countdown

432
00:27:09,110 --> 00:27:07,679
it is national pizza day and everybody

433
00:27:42,630 --> 00:27:09,120
should be aware that the team has been

434
00:27:46,389 --> 00:27:44,710
and coming up on 12 minutes from launch

435
00:27:48,149 --> 00:27:46,399
when flight controllers will conduct a

436
00:27:49,269 --> 00:27:48,159
poll to proceed with the final launch

437
00:27:53,350 --> 00:27:49,279
countdown

438
00:27:55,750 --> 00:27:53,360

step three eight at this time i want a

439
00:27:57,029 --> 00:27:55,760
poll to proceed with final countdown

440
00:28:03,669 --> 00:27:57,039
gso

441
00:28:06,470 --> 00:28:03,679
td tvs go prop lead

442
00:28:07,350 --> 00:28:06,480
properly just go stage one stage one

443
00:28:09,190 --> 00:28:07,360
let's go

444
00:28:11,590 --> 00:28:09,200
mes

445
00:28:19,269 --> 00:28:11,600
gc

446
00:28:23,909 --> 00:28:20,789
aces go

447
00:28:25,350 --> 00:28:23,919
mars mars is go cmd

448
00:28:28,470 --> 00:28:25,360
cmb is go

449
00:28:30,389 --> 00:28:28,480
ld ld is go ng

450
00:28:32,549 --> 00:28:30,399
in honor of major robert lawrence the

451
00:28:34,310 --> 00:28:32,559
first african-american astronaut who

452
00:28:36,470 --> 00:28:34,320
made the ultimate sacrifice in the name

453
00:28:37,830 --> 00:28:36,480
of the human exploration of space

454
00:28:40,230 --> 00:28:37,840
and who showed that courage and

455
00:28:42,070 --> 00:28:40,240
inspiration know no color northrop

456
00:28:44,230 --> 00:28:42,080
grumman is go

457
00:28:46,149 --> 00:28:44,240
and i cop that ng we'll go ahead and

458
00:28:56,830 --> 00:28:46,159
call go to proceed with final countdown

459
00:29:00,549 --> 00:28:58,950
complete you just heard the poll to

460
00:29:25,909 --> 00:29:00,559
proceed with the final countdown to

461
00:29:31,909 --> 00:29:29,350
ops 2 lc countdown 1 step 389 to go to

462
00:29:34,710 --> 00:29:31,919
start engine evacuation

463
00:29:38,470 --> 00:29:34,720

lc ops 2

464
00:29:38,480 --> 00:29:58,310
roger adopts you

465
00:30:01,990 --> 00:30:00,470
just about 10 minutes and 30 seconds now

466
00:30:03,909 --> 00:30:02,000
from launch and everything is still

467
00:30:07,110 --> 00:30:03,919
proceeding smoothly for an on-time

468
00:30:09,909 --> 00:30:07,120
launch at 4 39 p.m central time

469
00:30:12,470 --> 00:30:09,919
5 39 p.m eastern six sicknesses on

470
00:30:13,510 --> 00:30:12,480
internal power nominal copy that cmt

471
00:30:44,310 --> 00:30:13,520
we'll go ahead and check that step

472
00:30:44,320 --> 00:30:57,029
so

473
00:31:01,830 --> 00:31:00,389
lc mes1 step 390 vacuum verified

474
00:31:22,710 --> 00:31:01,840
copy that mes one we'll go ahead and

475
00:31:27,269 --> 00:31:25,350
and launch email c on countdown we're at

476
00:31:29,430 --> 00:31:27,279
t minus nine minutes and counting ops

477
00:31:33,190 --> 00:31:29,440
one step 392

478
00:31:36,630 --> 00:31:33,200
you go to enable acs vdms

479
00:31:39,590 --> 00:31:36,640
lc ops one acs bdm's internal power on

480
00:31:44,630 --> 00:31:42,389
ats mediums enabled voltage domino odm

481
00:32:10,630 --> 00:31:44,640
commander clear

482
00:32:14,950 --> 00:32:12,549
now just over eight minutes from launch

483
00:32:16,630 --> 00:32:14,960
today once we get to that launch time

484
00:32:18,950 --> 00:32:16,640
the first thing that will occur is the

485
00:32:21,269 --> 00:32:18,960
stage 1 ignition and you'll see liftoff

486
00:32:23,269 --> 00:32:21,279
just a few seconds after that and those

487
00:32:25,269 --> 00:32:23,279
two main engines will burn for about 3

488
00:32:27,669 --> 00:32:25,279

minutes and 28 seconds before cutting

489
00:32:29,590 --> 00:32:27,679
off and stage 1 will separate cygnus

490
00:32:31,430 --> 00:32:29,600
will coast for a bit until fairing

491
00:32:33,190 --> 00:32:31,440
separation when the external cover that

492
00:32:34,950 --> 00:32:33,200
protects the spacecraft during launch

493
00:32:36,630 --> 00:32:34,960
will separate

494
00:32:38,310 --> 00:32:36,640
the interstage adapter that connects the

495
00:32:40,710 --> 00:32:38,320
first stage and second stage will

496
00:32:43,430 --> 00:32:40,720
separate at 4 minutes and 14 seconds

497
00:32:45,430 --> 00:32:43,440
into flight before stage 2 ignition a

498
00:32:47,669 --> 00:32:45,440
solid rocket fuel that will burn for 3

499
00:32:49,750 --> 00:32:47,679
minutes and 43 seconds

500
00:32:51,590 --> 00:32:49,760
once once the second stage burns out

501
00:32:53,990 --> 00:32:51,600
we'll be listening for the call of orbit

502
00:32:55,190 --> 00:32:54,000
insertion at 7 minutes and 4 seconds

503
00:32:56,950 --> 00:32:55,200
after launch

504
00:32:58,950 --> 00:32:56,960
the vehicle will coast for two minutes

505
00:33:01,029 --> 00:32:58,960
before cygnus separation nine minutes

506
00:33:03,669 --> 00:33:01,039
and four seconds after launch with solar

507
00:33:06,149 --> 00:33:03,679
array deploy occurring about two hours

508
00:33:08,710 --> 00:33:06,159
and 50 minutes after launch

509
00:33:10,549 --> 00:33:08,720
the deploy of those two ultraflex solar

510
00:33:12,789 --> 00:33:10,559
arrays currently tucked away on cygnus

511
00:33:14,549 --> 00:33:12,799
takes about 30 minutes then the vehicle

512
00:33:16,310 --> 00:33:14,559
will begin gathering data during its

513
00:33:19,940 --> 00:33:16,320

two-day journey to the international

514
00:34:27,589 --> 00:33:28,120
[Music]

515
00:34:42,200 --> 00:34:29,430
now six minutes until launch and all

516
00:34:42,210 --> 00:34:45,510
[Music]

517
00:34:45,520 --> 00:35:00,790
agency

518
00:35:05,270 --> 00:35:02,950
our launch team we're going to hold at t

519
00:35:07,750 --> 00:35:05,280
minus five minutes tv we're gonna hold

520
00:35:09,910 --> 00:35:07,760
at t minus five minutes

521
00:35:13,910 --> 00:35:09,920
admin we're gonna hold at t minus five

522
00:35:13,920 --> 00:35:33,670
old impending

523
00:35:38,550 --> 00:35:36,230
and northrop grumman just announced on

524
00:35:40,150 --> 00:35:38,560
the loops that they will do a hold at

525
00:35:41,750 --> 00:35:40,160
the five minute mark for unexplained

526
00:36:08,640 --> 00:35:41,760
reasons we'll keep you posted when we

527
00:36:12,790 --> 00:36:10,470
[Music]

528
00:36:16,310 --> 00:36:12,800
go ahead place

529
00:36:18,069 --> 00:36:16,320
octs in auto mode and pause the hp gm2

530
00:36:29,820 --> 00:36:18,079
auto sequence control you need some of

531
00:36:29,830 --> 00:36:38,870
[Music]

532
00:36:50,470 --> 00:36:41,270
50-47

533
00:36:50,480 --> 00:36:59,510
50 47 closed

534
00:37:20,790 --> 00:37:00,950
[Music]

535
00:37:20,800 --> 00:37:35,430
and then

536
00:37:44,950 --> 00:37:37,190
we have just under three minutes

537
00:37:44,960 --> 00:37:48,790
5079 closed

538
00:37:54,790 --> 00:37:52,950

and prop 2 open valve 50 47.

539
00:37:56,470 --> 00:37:54,800
and just under three minutes to make

540
00:37:59,670 --> 00:37:56,480
that launch window the launch window

541
00:38:03,589 --> 00:37:59,680
today is five minutes beginning at 4 39

542
00:38:12,150 --> 00:38:06,390
so northrop grumman will have until 4 44

543
00:38:16,470 --> 00:38:13,430
wilco

544
00:38:18,790 --> 00:38:16,480
and prop 2 resume auto sequence control

545
00:38:20,950 --> 00:38:18,800
of the hp gm2

546
00:38:24,150 --> 00:38:20,960
auto sequence resume

547
00:38:27,190 --> 00:38:24,160
and return occf to auto control mode

548
00:38:30,150 --> 00:38:27,200
occus return to auto control mode

549
00:38:35,190 --> 00:38:30,160
lost team lc countdown 1b advise will be

550
00:38:39,310 --> 00:38:35,200
resuming our countdown at 22 39 29 zulu

551
00:38:41,540 --> 00:38:39,320
we have a new targeted t-zero of

552
00:38:45,670 --> 00:38:41,550
22-40-59 that's

553
00:38:49,510 --> 00:38:47,030
we'll 2-2-4-0-5-9-0 complete all steps

554
00:38:51,190 --> 00:38:49,520
390 through step 398

555
00:38:53,430 --> 00:38:51,200
as we resume the camp down we'll go

556
00:38:55,349 --> 00:38:53,440
ahead and initiate attention priming

557
00:39:14,230 --> 00:38:55,359
and get ready to transfer avionics to

558
00:39:19,030 --> 00:39:16,550
excuse me a targeted t-zero will be two

559
00:39:20,630 --> 00:39:19,040
two four four two nine our new t-zero

560
00:39:21,829 --> 00:39:20,640
will be 22

561
00:39:35,030 --> 00:39:21,839
44

562
00:40:30,230 --> 00:39:36,390
and we're less than one minute from

563
00:40:34,710 --> 00:40:32,470

and last time our countdown of launching

564
00:40:37,430 --> 00:40:34,720
our countdown has resumed

565
00:40:39,510 --> 00:40:37,440
hops 2 step 399 to go to initiate engine

566
00:40:42,470 --> 00:40:39,520
priming

567
00:40:44,309 --> 00:40:42,480
engine prime is started

568
00:40:47,829 --> 00:40:44,319
copy engine priming started ops one

569
00:40:49,670 --> 00:40:47,839
transfer avionics to internal power

570
00:40:51,030 --> 00:40:49,680
and as you just heard the countdown has

571
00:40:55,030 --> 00:40:51,040
resumed

572
00:41:00,550 --> 00:40:55,040
we're looking now for a launch at 4 44

573
00:41:11,510 --> 00:41:03,270
that'll bring cygnus right to the end of

574
00:41:15,670 --> 00:41:12,790
open fps

575
00:41:17,270 --> 00:41:15,680
and verify green indication

576
00:41:21,829 --> 00:41:17,280
with the new countdown we're now four

577
00:41:24,870 --> 00:41:21,839
minutes and 20 seconds away from launch

578
00:41:26,710 --> 00:41:24,880
lc elect two ftlu and fts receiver

579
00:41:29,270 --> 00:41:26,720
invitations are nominal

580
00:41:33,430 --> 00:41:29,280
copy electro we'll check 402 and 403 ops

581
00:41:39,109 --> 00:41:36,390
lts1 all arm command set

582
00:41:41,750 --> 00:41:39,119
copy option check 404 complete that's

583
00:41:43,580 --> 00:41:41,760
your electron sms odms all armed copy

584
00:41:45,910 --> 00:41:43,590
like one check 405

585
00:41:49,030 --> 00:41:45,920
[Music]

586
00:41:51,349 --> 00:41:49,040
td report range status

587
00:41:53,510 --> 00:41:51,359
range is green copy range green check

588
00:41:56,309 --> 00:41:53,520

406

589
00:42:05,190 --> 00:41:56,319
lc mes one priming verified roger that

590
00:42:09,589 --> 00:42:06,710
launch team be advised phase three

591
00:42:28,550 --> 00:42:09,599
dynamic limits will be active at t-minus

592
00:42:28,560 --> 00:42:32,950
three minutes until liftoff

593
00:42:36,950 --> 00:42:35,589
voltages and currents are nominal

594
00:42:39,750 --> 00:42:36,960
elect one

595
00:42:40,630 --> 00:42:39,760
gnc one step 413 verify ready for nav

596
00:42:43,349 --> 00:42:40,640
mode

597
00:42:47,510 --> 00:42:44,069
and ops ratio

598
00:42:49,990 --> 00:42:47,520
step 414 switch to nat

599
00:42:52,710 --> 00:42:50,000
organized through the net

600
00:42:58,720 --> 00:42:52,720
got that opportunity check 414 complete

601
00:42:58,730 --> 00:43:03,030
[Music]

602
00:43:06,790 --> 00:43:04,630
one lost team

603
00:43:15,750 --> 00:43:06,800
uh we have an aboard time to proceed to

604
00:43:32,470 --> 00:43:17,910
and the launch today has been scrubbed

605
00:43:37,109 --> 00:43:35,190
ops one lc countdown one step out with

606
00:43:38,950 --> 00:43:37,119
two disable your local launcher enabled

607
00:43:40,309 --> 00:43:38,960
by launch enable button at the sail safe

608
00:43:44,069 --> 00:43:40,319
cannon

609
00:43:47,910 --> 00:43:44,079
verify local indicators extinguish

610
00:43:50,470 --> 00:43:47,920
the ops one option launch enable removed

611
00:43:52,150 --> 00:43:50,480
and gso step alpha 3 disable your local

612
00:43:55,190 --> 00:43:52,160
launch enable button to sail safe panel

613
00:43:57,349 --> 00:43:55,200

verify local indicators extinguished

614
00:43:59,109 --> 00:43:57,359
lttso

615
00:44:01,190 --> 00:43:59,119
launch naval removal

616
00:44:03,190 --> 00:44:01,200
option uh verified removal of your

617
00:44:05,990 --> 00:44:03,200
master global launch enabled

618
00:44:08,550 --> 00:44:06,000
lt ops one removal of master global

619
00:44:10,550 --> 00:44:08,560
launch enabled verified after that ops

620
00:44:12,230 --> 00:44:10,560
one you can deactivate your arm enabled

621
00:44:14,550 --> 00:44:12,240
uh

622
00:44:19,109 --> 00:44:14,560
healthy ops one arm enable key rotated

623
00:44:23,589 --> 00:44:21,349
and uh mes1

624
00:44:25,510 --> 00:44:23,599
out for six uh

625
00:44:32,230 --> 00:44:25,520
we can uh verify that finding has

626
00:44:36,230 --> 00:44:34,710
i'll see i heard a call from es1

627
00:44:38,390 --> 00:44:36,240
yeah i mean that's when we're at the

628
00:44:39,829 --> 00:44:38,400
step alpha 6 of the afford chasing

629
00:44:42,150 --> 00:44:39,839
operations

630
00:44:43,670 --> 00:44:42,160
uh looking uh for a report on engine

631
00:44:45,750 --> 00:44:43,680
priming status

632
00:44:50,150 --> 00:44:45,760
yeah so the priming was completed but

633
00:44:56,950 --> 00:44:54,550
okay copy that uh so step alpha seven uh

634
00:44:59,430 --> 00:44:56,960
will or will not be required alpha seven

635
00:45:04,550 --> 00:44:59,440
is not required

636
00:45:06,390 --> 00:45:04,560
roger that uh uh roger that yes one

637
00:45:08,230 --> 00:45:06,400
and uh ops one

638
00:45:09,589 --> 00:45:08,240

step alpha eight you go to safety of

639
00:45:11,910 --> 00:45:09,599
west mays

640
00:45:13,990 --> 00:45:11,920
and vehicle and ground odms and verify

641
00:45:29,990 --> 00:45:14,000
audience

642
00:45:33,750 --> 00:45:31,349
ltops one

643
00:45:36,069 --> 00:45:33,760
vehicle safe and arms and vehicle and

644
00:45:40,790 --> 00:45:36,079
ground odm space

645
00:45:50,710 --> 00:45:43,109
electron confirmed space transmission or

646
00:45:54,710 --> 00:45:52,550
and a copy all here elect one ops two

647
00:46:09,510 --> 00:45:54,720
step out to ten reset your ground odm

648
00:46:09,520 --> 00:46:17,360
complete

649
00:46:17,370 --> 00:46:25,990
[Music]

650
00:46:30,309 --> 00:46:28,630
again the launch today has been scrubbed

651
00:46:31,990 --> 00:46:30,319
it was scrubbed less than three minutes

652
00:46:34,230 --> 00:46:32,000
from liftoff for reasons yet to be

653
00:46:36,150 --> 00:46:34,240
determined the vehicle is now being

654
00:46:54,710 --> 00:46:36,160
saved and we're standing by for further

655
00:46:54,720 --> 00:47:06,550
ms session report when completed

656
00:47:10,870 --> 00:47:09,510
and system lc countdown one

657
00:47:13,030 --> 00:47:10,880
yeah system here

658
00:47:14,390 --> 00:47:13,040
yeah system step alpha 17 you can

659
00:47:16,550 --> 00:47:14,400
coordinate your core one and four two

660
00:47:18,230 --> 00:47:16,560
ucs parameter set points

661
00:47:21,750 --> 00:47:18,240
uh with side control after we get

662
00:47:35,190 --> 00:47:21,760
through a step alpha 12 and alpha 13.

663
00:47:41,589 --> 00:47:37,829

and launching by step alpha 18 is not

664
00:47:45,990 --> 00:47:43,670
nlp this is side control

665
00:47:48,630 --> 00:47:46,000
that's a12 is complete and the final

666
00:47:50,390 --> 00:47:48,640
flow rates are 15.87

667
00:47:52,150 --> 00:47:50,400
for the flow rate and the temperature is

668
00:47:53,670 --> 00:47:52,160
62.5

669
00:47:55,430 --> 00:47:53,680
yeah side control sorry you got stepped

670
00:47:57,589 --> 00:47:55,440
on there can i get that again

671
00:47:59,990 --> 00:47:57,599
yes the app day flow rate is one five

672
00:48:03,910 --> 00:48:00,000
eight seven and the assay temperature is

673
00:48:08,790 --> 00:48:07,349
is that six two decimal five copy that

674
00:48:09,910 --> 00:48:08,800
okay roger we'll go ahead and check out

675
00:48:11,589 --> 00:48:09,920
the 12

676
00:48:17,990 --> 00:48:11,599
side control you can disarm tail rapid

677
00:48:18,000 --> 00:48:44,710
and work

678
00:48:49,670 --> 00:48:46,870
and i'll see the side control tell rapid

679
00:48:59,510 --> 00:48:51,349
control we'll check out the third alpha

680
00:49:04,470 --> 00:49:01,829
and system you go for alpha 17 you can

681
00:49:06,790 --> 00:49:04,480
coordinate those core 1 core 2 ecs

682
00:49:10,309 --> 00:49:06,800
parameter set points inside control and

683
00:49:14,790 --> 00:49:10,319
if you could use anomaly 1.

684
00:49:19,910 --> 00:49:18,230
tlm lc countdown one step out to 20 you

685
00:49:22,870 --> 00:49:19,920
can place a dynamic limit checker in the

686
00:49:30,309 --> 00:49:26,630
did i copy that plc set to detecting

687
00:49:32,549 --> 00:49:30,319
ratchet and core 2lt countdown 1

688
00:49:33,670 --> 00:49:32,559

if you could place the e104 national

689
00:49:36,549 --> 00:49:33,680
displays

690
00:49:38,870 --> 00:49:36,559
into a detanking mode

691
00:49:40,150 --> 00:49:38,880
dlc and detanking mode

692
00:49:53,589 --> 00:49:40,160
copy that we'll check out for 20

693
00:49:58,630 --> 00:49:55,430
okay launch team i want to also proceed

694
00:50:01,510 --> 00:49:58,640
to get the transfer of fts to external

695
00:50:03,829 --> 00:50:01,520
power this is step alpha 23

696
00:50:05,829 --> 00:50:03,839
elect two

697
00:50:08,950 --> 00:50:05,839
fso

698
00:50:12,470 --> 00:50:08,960
okay we'll go to

699
00:50:14,069 --> 00:50:12,480
take fts over to external power ops one

700
00:50:15,349 --> 00:50:14,079
step out to 24.

701
00:50:17,430 --> 00:50:15,359
northrop grumman officials have

702
00:50:19,430 --> 00:50:17,440
confirmed the scrub occurred because of

703
00:50:21,829 --> 00:50:19,440
off nominal data from ground support

704
00:50:23,829 --> 00:50:21,839
equipment at the launch pad no date has

705
00:50:26,230 --> 00:50:23,839
been given for another launch attempt as

706
00:50:27,589 --> 00:50:26,240
ground teams investigate the issue today

707
00:50:29,750 --> 00:50:27,599
they'll begin the process of draining

708
00:50:31,829 --> 00:50:29,760
fluid out of antares now and the vehicle

709
00:50:33,349 --> 00:50:31,839
is in a safe configuration as we await

710
00:50:36,150 --> 00:50:33,359
further information from northrop

711
00:50:39,270 --> 00:50:37,990
the internal power command is still

712
00:50:41,109 --> 00:50:39,280
completing

713
00:50:43,190 --> 00:50:41,119

again that scrub came less than three

714
00:50:44,870 --> 00:50:43,200
minutes from liftoff today

715
00:50:46,390 --> 00:50:44,880
tlm did you want to stop and restart the

716
00:50:48,549 --> 00:50:46,400
archiving

717
00:50:57,270 --> 00:50:48,559
uh standby tlm

718
00:50:57,280 --> 00:51:01,430
yeah tlm i think we typically

719
00:51:04,950 --> 00:51:03,109
yeah i'm sorry tlm yeah you go for alpha

720
00:51:06,150 --> 00:51:04,960
21 stop and restart your telemetry

721
00:51:12,069 --> 00:51:06,160
archiving

722
00:51:17,109 --> 00:51:14,470
and ops one sorry about that alpha 25

723
00:51:22,549 --> 00:51:20,230
lc ops one avionics external power on

724
00:51:24,150 --> 00:51:22,559
avionics internal power off waiting for

725
00:51:26,230 --> 00:51:24,160
that command to complete

726
00:51:28,790 --> 00:51:26,240
exactly the athlete okay roger that

727
00:51:32,710 --> 00:51:28,800
option we'll check out alpha 25 complete

728
00:51:34,309 --> 00:51:32,720
uh cmdlc countdown one step alpha 26.

729
00:51:35,670 --> 00:51:34,319
you can proceed with transfer of cygnus

730
00:51:36,710 --> 00:51:35,680
to external power and report when

731
00:51:41,030 --> 00:51:36,720
complete

732
00:51:45,109 --> 00:51:43,349
llc core one on countdown one go ahead

733
00:51:47,829 --> 00:51:45,119
core one

734
00:51:49,349 --> 00:51:47,839
uh fms session has been restarted would

735
00:51:51,910 --> 00:51:49,359
you like the

736
00:51:53,109 --> 00:51:51,920
utc time on that

737
00:51:59,349 --> 00:51:53,119
firm

738
00:52:03,589 --> 00:52:01,030

copy all their quarterback we'll check

739
00:52:05,990 --> 00:52:03,599
out this alpha 15 complete

740
00:52:07,750 --> 00:52:06,000
and a tlm step out for 16 you can enable

741
00:52:09,430 --> 00:52:07,760
to use noise data stream

742
00:52:10,710 --> 00:52:09,440
and turn on these noise embedded stream

743
00:52:13,109 --> 00:52:10,720
output to the ms data recording

744
00:52:16,790 --> 00:52:13,119
workstation

745
00:52:16,800 --> 00:52:22,309
and we'll check out the 16 complete

746
00:52:22,319 --> 00:52:27,829
go ahead system

747
00:52:32,549 --> 00:52:30,069
roger that we'll check alpha 17 and

748
00:52:34,470 --> 00:52:32,559
alpha 19.

749
00:52:36,870 --> 00:52:34,480
and uh site control

750
00:52:39,750 --> 00:52:36,880
uh step alpha 22

751
00:52:41,750 --> 00:52:39,760
can you verify uh 5258

752
00:52:42,870 --> 00:52:41,760
uh is at zero percent and if not we

753
00:52:44,309 --> 00:52:42,880
needed to

754
00:53:10,150 --> 00:52:44,319
set it to that point

755
00:53:28,470 --> 00:53:13,190
lt 5258 is closed

756
00:53:33,990 --> 00:53:31,990
and tlmlc step alpha 28 you can figure a

757
00:53:41,589 --> 00:53:34,000
decom source to close loop

758
00:53:45,109 --> 00:53:43,270
and dcom configured for closed-loop

759
00:53:47,430 --> 00:53:45,119
telemetry and receiving nominal

760
00:53:51,430 --> 00:53:47,440
telemetry in the mcc

761
00:53:52,950 --> 00:53:51,440
roger tlm we'll check 28 and alpha 29

762
00:53:54,870 --> 00:53:52,960
and elect one can you verify you're

763
00:54:08,069 --> 00:53:54,880

getting nominal closed loop in the

764
00:54:11,910 --> 00:54:09,910
again the launch was scrubbed today less

765
00:54:14,150 --> 00:54:11,920
than three minutes from liftoff the

766
00:54:16,069 --> 00:54:14,160
scrub occurred because of off nominal

767
00:54:18,150 --> 00:54:16,079
data from ground support equipment at

768
00:54:19,990 --> 00:54:18,160
the launch pad no date has been given

769
00:54:22,630 --> 00:54:20,000
for another launch attempt as ground

770
00:54:24,549 --> 00:54:22,640
controllers investigate the issue

771
00:54:26,150 --> 00:54:24,559
they'll begin the process of draining

772
00:54:28,150 --> 00:54:26,160
they have already begun the process of

773
00:54:30,230 --> 00:54:28,160
draining fluid out of antares the

774
00:54:31,670 --> 00:54:30,240
vehicle is in a safe configuration and

775
00:54:33,510 --> 00:54:31,680
norfolk government officials are

776
00:54:34,470 --> 00:54:33,520
assessing a date for the next launch

777
00:54:36,470 --> 00:54:34,480
attempt

778
00:54:37,990 --> 00:54:36,480
close the fts envy loop and verify

779
00:54:41,430 --> 00:54:38,000
indication

780
00:54:42,950 --> 00:54:41,440
lc obsolete fps envy loop closed in red

781
00:54:44,870 --> 00:54:42,960
roger that announcement you can remove

782
00:54:49,109 --> 00:54:44,880
fts power

783
00:54:51,510 --> 00:54:49,119
lc ops 1 ftsa external power off stsb

784
00:54:53,990 --> 00:54:51,520
external power off

785
00:54:55,109 --> 00:54:54,000
copy all ops one elect1 report fts power

786
00:54:57,349 --> 00:54:55,119
status

787
00:54:59,750 --> 00:54:57,359
fps power's off

788
00:55:02,470 --> 00:54:59,760

copy that elect one fso you can secure

789
00:55:32,309 --> 00:55:02,480
the ct site and verify rf silence

790
00:55:42,150 --> 00:55:38,309
uh

791
00:55:44,230 --> 00:55:42,160
put out 36 and work you can remove

792
00:55:45,829 --> 00:55:44,240
external power from transmitters and smi

793
00:55:49,190 --> 00:55:45,839
busses

794
00:55:51,109 --> 00:55:49,200
lc ops one stage 1 telemetry transmitter

795
00:55:53,510 --> 00:55:51,119
external power off

796
00:55:54,549 --> 00:55:53,520
motor cone transmitter external power

797
00:55:57,109 --> 00:55:54,559
off

798
00:55:59,270 --> 00:55:57,119
avionics telemetry transmitter external

799
00:56:01,430 --> 00:55:59,280
power off

800
00:56:03,910 --> 00:56:01,440
smi power a

801
00:56:06,950 --> 00:56:03,920
external power off

802
00:56:08,309 --> 00:56:06,960
and b off as well

803
00:56:09,750 --> 00:56:08,319
copy all off so i'm going to check out

804
00:56:12,549 --> 00:56:09,760
for 36

805
00:56:13,910 --> 00:56:12,559
lb fso ct psyche down our silence

806
00:56:15,829 --> 00:56:13,920
verified

807
00:56:17,190 --> 00:56:15,839
roger fso we'll check out for 35

808
00:56:19,270 --> 00:56:17,200
complete

809
00:56:20,470 --> 00:56:19,280
lc prop lead on countdown one go ahead

810
00:56:22,789 --> 00:56:20,480
lee

811
00:56:25,589 --> 00:56:22,799
we have started d tanking a

812
00:56:27,109 --> 00:56:25,599
copy uh start of the tanking 80 have a

813
00:56:29,349 --> 00:56:27,119

uh

814
00:56:31,750 --> 00:56:29,359
alpha 46.

815
00:56:35,190 --> 00:56:31,760
yeah do you have a zoo time on that

816
00:56:38,789 --> 00:56:37,109
again the launch was scrubbed today less

817
00:56:40,950 --> 00:56:38,799
than three minutes from liftoff because

818
00:56:43,109 --> 00:56:40,960
of off nominal data from ground support

819
00:56:45,190 --> 00:56:43,119
equipment at the launch pad teams are

820
00:56:46,710 --> 00:56:45,200
now draining fluid out of the antares

821
00:56:48,390 --> 00:56:46,720
rocket and the vehicles in a safe

822
00:56:51,030 --> 00:56:48,400
configuration as we await further

823
00:56:53,109 --> 00:56:51,040
information from northrop grumman teams

824
00:56:55,670 --> 00:56:53,119
cc ban interrogation and turn off tm

825
00:56:56,950 --> 00:56:55,680
recorders roger interrogation cease to

826
00:57:16,630 --> 00:56:56,960
recorders off

827
00:57:19,990 --> 00:57:18,870
lc prop lead countdown one

828
00:57:22,230 --> 00:57:20,000
go ahead lee

829
00:57:24,069 --> 00:57:22,240
d tanking started at

830
00:57:25,430 --> 00:57:24,079
20 20

831
00:57:27,109 --> 00:57:25,440
0040

832
00:57:28,549 --> 00:57:27,119
22

833
00:57:35,430 --> 00:57:28,559
54

834
00:57:41,430 --> 00:57:39,270
and probably going back to step alpha 39

835
00:57:43,430 --> 00:57:41,440
i just want to verify did you place ocs

836
00:57:46,630 --> 00:57:43,440
in the sack mode and stop the

837
00:58:23,910 --> 00:57:46,640
charging on the engine models

838
00:58:57,910 --> 00:58:25,750

lc prop lead engine bottle charging

839
00:59:01,670 --> 00:58:59,750
again we're standing by now as northrop

840
00:59:03,589 --> 00:59:01,680
grumman officials assess a date for the

841
00:59:05,190 --> 00:59:03,599
next launch attempt the lunch was

842
00:59:07,430 --> 00:59:05,200
scrubbed today less than three minutes

843
00:59:09,109 --> 00:59:07,440
from liftoff because of off nominal data

844
00:59:28,309 --> 00:59:09,119
from ground support equipment at the

845
00:59:34,390 --> 00:59:29,349
uh

846
00:59:36,470 --> 00:59:34,400
stuff a40 vtd's unexpected state zero

847
00:59:38,870 --> 00:59:36,480
okay copy that we'll check out for 40

848
00:59:41,750 --> 00:59:38,880
complete

849
00:59:42,870 --> 00:59:41,760
and lead while i have you on countdown

850
00:59:44,069 --> 00:59:42,880
one

851
00:59:45,910 --> 00:59:44,079
uh

852
00:59:49,190 --> 00:59:45,920
as far as proceeding with desk

853
00:59:51,190 --> 00:59:49,200
manager management sequencer

854
00:59:54,230 --> 00:59:51,200
when do you need to kick that off

855
00:59:57,190 --> 00:59:54,240
uh alpha 42 will not be required the

856
00:59:59,190 --> 00:59:57,200
desktop management sequencer will start

857
01:00:00,789 --> 00:59:59,200
after de-tanking d

858
01:00:03,190 --> 01:00:00,799
later in the procedure

859
01:00:06,950 --> 01:00:03,200
okay copy that so we'll say alpha 42 not

860
01:00:10,230 --> 01:00:06,960
required then uh and i can also assume

861
01:00:12,390 --> 01:00:10,240
that alpha 43 is not required

862
01:00:13,190 --> 01:00:12,400
or let's see return are we in auto mode

863
01:00:16,150 --> 01:00:13,200

now

864
01:00:17,430 --> 01:00:16,160
we have returned to auto mode alpha 43

865
01:00:22,710 --> 01:00:17,440
complete

866
01:00:31,910 --> 01:00:25,109
and properly have you configured the

867
01:00:35,190 --> 01:00:33,750
i'll

868
01:00:42,309 --> 01:00:35,200
actually stand by on that it's not

869
01:00:47,109 --> 01:00:45,270
okay launch team this is uh lc on uh

870
01:00:50,390 --> 01:00:47,119
countdown one

871
01:00:52,069 --> 01:00:50,400
uh we're going to go ahead and direct um

872
01:00:54,710 --> 01:00:52,079
following members

873
01:00:56,710 --> 01:00:54,720
uh over to anomaly one and we want to go

874
01:00:59,109 --> 01:00:56,720
ahead and perform the

875
01:01:01,349 --> 01:00:59,119
main engine bottle bending and fiv

876
01:01:03,750 --> 01:01:01,359
opening checklist at this time

877
01:01:05,270 --> 01:01:03,760
i'm going to need prop lead

878
01:01:06,710 --> 01:01:05,280
ops 1

879
01:01:07,990 --> 01:01:06,720
ops 2

880
01:02:46,789 --> 01:01:08,000
elec 1

881
01:02:51,990 --> 01:02:49,510
lc this is cmd at step 826 sickness is

882
01:03:53,270 --> 01:02:52,000
on external power and nominal okay cmd

883
01:03:57,670 --> 01:03:55,270
this is mission control houston the

884
01:03:59,270 --> 01:03:57,680
launch of northrop grumman's 13th cargo

885
01:04:01,270 --> 01:03:59,280
resupply mission to the international

886
01:04:02,870 --> 01:04:01,280
space station was scrubbed today less

887
01:04:05,349 --> 01:04:02,880
than three minutes from liftoff because

888
01:04:07,750 --> 01:04:05,359

of off nominal data from ground support

889
01:04:09,029 --> 01:04:07,760
equipment at the launch pad

890
01:04:10,630 --> 01:04:09,039
the vehicle is now in a safe

891
01:04:12,230 --> 01:04:10,640
configuration and northrop grumman

892
01:04:13,670 --> 01:04:12,240
officials are assessing a date for the

893
01:06:10,950 --> 01:04:13,680
next launch attempt

894
01:06:15,349 --> 01:06:13,670
and launch tmlc on countdown one we're

895
01:06:19,029 --> 01:06:15,359
continuing through our board safing

896
01:06:21,670 --> 01:06:19,039
procedure we're currently in detanking a

897
01:06:23,829 --> 01:06:21,680
on our on our cores right now we're also

898
01:08:23,030 --> 01:06:23,839
in the process of venting our engine

899
01:08:23,040 --> 01:08:37,110
persons

900
01:08:41,110 --> 01:08:39,510
drew uh good evening want to let you

901
01:08:43,669 --> 01:08:41,120
know the launch is scrubbed due to a

902
01:08:45,990 --> 01:08:43,679
regulator issue on the pad we're looking

903
01:08:48,309 --> 01:08:46,000
at a turnaround for 24 hours but the

904
01:08:50,550 --> 01:08:48,319
weather is questionable tomorrow so

905
01:08:54,550 --> 01:08:50,560
we'll get more words to you in the

906
01:08:58,229 --> 01:08:56,149
okay copy thanks for that we were

907
01:08:59,990 --> 01:08:58,239
watching it on bme tv and then we lost

908
01:09:02,149 --> 01:09:00,000
ku right at the end of the launch window

909
01:09:03,749 --> 01:09:02,159
so we figured that

910
01:09:06,550 --> 01:09:03,759
it was looking that way but thanks for

911
01:09:10,789 --> 01:09:06,560
letting us know

912
01:09:10,799 --> 01:09:18,070
thanks good night

913
01:09:21,430 --> 01:09:19,590

and that was drew morgan on board the

914
01:09:23,189 --> 01:09:21,440
international space station confirming

915
01:09:26,309 --> 01:09:23,199
that he heard everything the flight

916
01:09:28,309 --> 01:09:26,319
director was saying and

917
01:09:29,910 --> 01:09:28,319
again the launch was scrubbed today less

918
01:09:31,910 --> 01:09:29,920
than three minutes before liftoff

919
01:09:34,149 --> 01:09:31,920
because of off nominal data from ground

920
01:09:35,749 --> 01:09:34,159
support equipment at the launch pad

921
01:09:37,669 --> 01:09:35,759
norfolk roman officials are assessing

922
01:09:39,189 --> 01:09:37,679
the cause and when the next launch

923
01:09:41,269 --> 01:09:39,199
attempt will be made

924
01:10:16,149 --> 01:09:41,279
you can check for further updates on

925
01:10:19,590 --> 01:10:17,830
and that'll wrap up our coverage for

926
01:10:21,030 --> 01:10:19,600
today but we hope you'll join us back on

927
01:10:22,950 --> 01:10:21,040
air when sick

928
01:10:25,270 --> 01:10:22,960
when cygnus um

929
01:10:26,870 --> 01:10:25,280
does its second launch attempt which you

930
01:10:45,110 --> 01:10:26,880
can find that information of when that

931
01:10:49,830 --> 01:10:47,750
and nasa's attention turns to tonight's

932
01:10:52,630 --> 01:10:49,840
scheduled launch of the solar orbiter

933
01:10:55,030 --> 01:10:52,640
probe atop an atlas v rocket from launch

934
01:10:57,110 --> 01:10:55,040
complex 41 at cape canaveral air force

935
01:10:59,030 --> 01:10:57,120
station in florida

936
01:11:04,630 --> 01:10:59,040
to observe this

937
01:11:08,550 --> 01:11:06,149
and it will observe the sun with high

938
01:11:18,070 --> 01:11:08,560

resolution telescopes and provide the

939
01:11:24,470 --> 01:11:19,750
the first ever images of the sun's

940
01:11:29,830 --> 01:11:25,990
the solar orbiter spacecraft is

941
01:11:35,030 --> 01:11:31,830
is scheduled to lift off at 10 03 pm

942
01:11:36,550 --> 01:11:35,040
central time 1103 pm eastern time and