



1  
00:00:00,290 --> 00:00:23,590

[Music]

2  
00:00:27,990 --> 00:00:25,990

this is mission control houston good

3  
00:00:30,790 --> 00:00:28,000

morning you are getting a live look at

4  
00:00:33,350 --> 00:00:30,800

pad 0a from the virginia space

5  
00:00:35,190 --> 00:00:33,360

mid-atlantic regional spaceport off the

6  
00:00:36,709 --> 00:00:35,200

coast of wallops island

7  
00:00:40,069 --> 00:00:36,719

in wallops uh

8  
00:00:45,190 --> 00:00:42,470

boys on top of the pad is the antares

9  
00:00:47,670 --> 00:00:45,200

230 plus rocket on top of that is

10  
00:00:50,709 --> 00:00:47,680

northrop grumman's cygnus cargo vehicle

11  
00:00:53,830 --> 00:00:50,719

and 8 000 pounds of research fresh food

12  
00:00:56,229 --> 00:00:53,840

technology demonstrations and supplies

13  
00:00:58,470 --> 00:00:56,239

this is northrop grumman's crs 15

14

00:01:01,110 --> 00:00:58,480

mission and the destination today is the

15

00:01:03,590 --> 00:01:01,120

international space station

16

00:01:06,710 --> 00:01:03,600

lc gnc one orb nav we're currently

17

00:01:09,510 --> 00:01:06,720

inside 36 minutes from liftoff today

18

00:01:14,070 --> 00:01:09,520

time of liftoff is scheduled at 11 36

19

00:01:16,070 --> 00:01:14,080

and 49 seconds am central time 12 36 pm

20

00:01:19,350 --> 00:01:16,080

eastern time counting down

21

00:01:21,830 --> 00:01:19,360

that is the opening of a five minute

22

00:01:25,749 --> 00:01:21,840

launch window for today

23

00:01:28,390 --> 00:01:25,759

today is february 20th 2021 coinciding

24

00:01:30,550 --> 00:01:28,400

with the 59th anniversary of john

25

00:01:34,950 --> 00:01:30,560

glenn's mercury flight he was the first

26

00:01:39,429 --> 00:01:36,870

getting a live look at the rocket you

27

00:01:41,670 --> 00:01:39,439

can start to see some conditioned air

28

00:01:43,510 --> 00:01:41,680

billowing off the sides of the antares

29

00:01:44,870 --> 00:01:43,520

first stage rocket that first stage is

30

00:01:47,990 --> 00:01:44,880

already loaded

31

00:01:49,190 --> 00:01:48,000

with its fuel liquid oxygen and rp1

32

00:01:56,870 --> 00:01:49,200

kerosene

33

00:02:01,109 --> 00:01:58,870

currently favorable weather conditions

34

00:02:02,950 --> 00:02:01,119

today looking at about 32 degrees

35

00:02:04,149 --> 00:02:02,960

fahrenheit zero degrees centigrade and

36

00:02:06,870 --> 00:02:04,159

that we can

37

00:02:10,389 --> 00:02:06,880

expect that same temperature at the t0

38

00:02:11,430 --> 00:02:10,399

mark at 11 36 a.m central 12 36 p.m

39

00:02:14,309 --> 00:02:11,440

eastern

40

00:02:16,070 --> 00:02:14,319

looking at some clatter scattered deck

41

00:02:17,750 --> 00:02:16,080

and cloud ceilings and monitoring some

42

00:02:22,150 --> 00:02:17,760

wind gusts but overall we're looking at

43

00:02:27,270 --> 00:02:22,160

about a 75 favorability uh margin we are

44

00:02:31,270 --> 00:02:29,510

mission control houston and uh the

45

00:02:33,350 --> 00:02:31,280

mission operations center in dulles

46

00:02:36,869 --> 00:02:33,360

virginia have conducted a preliminary

47

00:02:37,670 --> 00:02:36,879

t-minus uh two hour go no go poll and

48

00:02:39,830 --> 00:02:37,680

our

49

00:02:43,030 --> 00:02:39,840

gopher launch they're about to come up

50

00:02:46,070 --> 00:02:43,040

on another uh go poll at uh the t minus

51  
00:02:47,670 --> 00:02:46,080  
30 mark enabled and illuminated

52  
00:02:52,309 --> 00:02:47,680  
rso

53  
00:02:55,030 --> 00:02:52,319  
northrop grumman crs 15 mission is named

54  
00:02:56,550 --> 00:02:55,040  
the ss katherine johnson northrop

55  
00:02:59,190 --> 00:02:56,560  
grumman named the

56  
00:03:01,830 --> 00:02:59,200  
crs 15 after the nasa mathematician a

57  
00:03:04,229 --> 00:03:01,840  
black woman who time and again broke

58  
00:03:06,309 --> 00:03:04,239  
through the barriers of gender and race

59  
00:03:08,309 --> 00:03:06,319  
it is a company tradition to name each

60  
00:03:10,630 --> 00:03:08,319  
cygnus spacecraft after an individual

61  
00:03:12,869 --> 00:03:10,640  
has played a pivotal role in human space

62  
00:03:15,110 --> 00:03:12,879  
flight her hand-written calculations

63  
00:03:17,110 --> 00:03:15,120

were critical to america's success

64

00:03:19,509 --> 00:03:17,120

during our first human space flight

65

00:03:22,309 --> 00:03:19,519

missions again this is february 20th the

66

00:03:24,550 --> 00:03:22,319

59th anniversary of john glenn's flight

67

00:03:26,550 --> 00:03:24,560

and when he again became the first

68

00:03:29,030 --> 00:03:26,560

american to orbit the earth

69

00:03:31,589 --> 00:03:29,040

it is a perfect tie to the ss catherine

70

00:03:33,270 --> 00:03:31,599

johnson while nasa had used the ibm

71

00:03:35,750 --> 00:03:33,280

computers to calculate the complex

72

00:03:37,110 --> 00:03:35,760

orbital trajectory glenn asked to have

73

00:03:39,270 --> 00:03:37,120

catherine johnson verify the

74

00:03:44,149 --> 00:03:39,280

calculations by hand and would not fly

75

00:03:48,309 --> 00:03:46,309

we have teams supporting from all over

76

00:03:51,750 --> 00:03:48,319

the united states for today's launch

77

00:03:53,589 --> 00:03:51,760

counting down to uh 12 36 p.m eastern

78

00:03:55,509 --> 00:03:53,599

over at the wallops flight facility

79

00:03:57,830 --> 00:03:55,519

you're looking at wallops range control

80

00:03:59,750 --> 00:03:57,840

center uh counting down and walking us

81

00:04:05,190 --> 00:03:59,760

through these next steps over the next

82

00:04:09,670 --> 00:04:07,509

on top of the antares rocket we have the

83

00:04:12,229 --> 00:04:09,680

northrop grumman's mission operations

84

00:04:14,869 --> 00:04:12,239

center in dulles virginia monitoring the

85

00:04:16,150 --> 00:04:14,879

cygnus spacecraft on top of that rocket

86

00:04:18,229 --> 00:04:16,160

the teams there are led by mission

87

00:04:20,710 --> 00:04:18,239

director zach dwyer for launch he'll be

88

00:04:23,430 --> 00:04:20,720

handing over to amy allison for solar

89

00:04:26,070 --> 00:04:23,440

array deployment

90

00:04:27,990 --> 00:04:26,080

and of course the destination for cygnus

91

00:04:30,550 --> 00:04:28,000

after its day and a half in orbit will

92

00:04:32,390 --> 00:04:30,560

be the international space station uh

93

00:04:33,909 --> 00:04:32,400

mission control houston standing by and

94

00:04:36,070 --> 00:04:33,919

watching the launch and monitoring the

95

00:04:38,710 --> 00:04:36,080

operations of the international space

96

00:04:41,270 --> 00:04:38,720

station in flight

97

00:04:44,550 --> 00:04:41,280

flight director scott stover is here in

98

00:04:47,350 --> 00:04:44,560

the room and just gave that t-30 go

99

00:04:49,590 --> 00:04:47,360

for launch from mission control houston

100

00:04:51,430 --> 00:04:49,600

visiting vehicle officer working with

101  
00:04:56,469 --> 00:04:51,440  
teams in dulles virginia is jessica

102  
00:05:01,590 --> 00:04:58,790  
now of course the primary job for today

103  
00:05:03,670 --> 00:05:01,600  
is uh watching for the uh launch and

104  
00:05:07,909 --> 00:05:03,680  
making sure everything is go for launch

105  
00:05:10,390 --> 00:05:07,919  
but uh we do have 24 7 hour operations

106  
00:05:12,230 --> 00:05:10,400  
for onboard international space station

107  
00:05:15,430 --> 00:05:12,240  
operations we are in a weekend but the

108  
00:05:18,390 --> 00:05:15,440  
crew on board uh is enjoying uh a day

109  
00:05:19,830 --> 00:05:18,400  
off a day of cleaning and uh and some

110  
00:05:22,150 --> 00:05:19,840  
exercise and of course they'll be

111  
00:05:24,469 --> 00:05:22,160  
watching today's launch from left to

112  
00:05:26,710 --> 00:05:24,479  
right we have the expedition 64 crew

113  
00:05:29,270 --> 00:05:26,720

nasa astronaut kate rubins and nasa

114

00:05:31,990 --> 00:05:29,280

astronaut victor glover japan aerospace

115

00:05:35,830 --> 00:05:32,000

exploration agency suichi naguchi and

116

00:05:37,990 --> 00:05:35,840

then iss commander sergey ryshikov

117

00:05:40,469 --> 00:05:38,000

we also have nasa astronauts mike

118

00:05:43,110 --> 00:05:40,479

hopkins and shannon walker and rounding

119

00:05:51,110 --> 00:05:43,120

out at the very right side isro's cosmos

120

00:05:55,270 --> 00:05:52,950

again we just came to mission control

121

00:05:57,590 --> 00:05:55,280

houston while polling a go for launch at

122

00:06:00,790 --> 00:05:57,600

t minus 30 minutes currently tracking no

123

00:06:03,590 --> 00:06:00,800

issues with the antares rocket either

124

00:06:05,670 --> 00:06:03,600

and mission uh contribution operations

125

00:06:07,110 --> 00:06:05,680

center in dulles virginia is also

126  
00:06:09,670 --> 00:06:07,120  
tracking everything is healthy with the

127  
00:06:15,990 --> 00:06:09,680  
cygnus vehicle on top

128  
00:06:20,469 --> 00:06:18,390  
joining us for today's broadcast from

129  
00:06:22,950 --> 00:06:20,479  
northrop grumman we'll be welcoming uh

130  
00:06:25,110 --> 00:06:22,960  
christina halona and terry systems

131  
00:06:26,469 --> 00:06:25,120  
engineering program manager to walk us

132  
00:06:28,390 --> 00:06:26,479  
through some of the

133  
00:06:31,430 --> 00:06:28,400  
features and milestones for today's

134  
00:06:33,270 --> 00:06:31,440  
launch christina welcome

135  
00:06:35,110 --> 00:06:33,280  
thank you gary i'm happy to be here and

136  
00:06:37,029 --> 00:06:35,120  
welcome all of you watching here in the

137  
00:06:39,270 --> 00:06:37,039  
united states and around the world to

138  
00:06:41,189 --> 00:06:39,280

see a successful anterior launch and

139

00:06:43,510 --> 00:06:41,199

cygnus mission to the international

140

00:06:45,430 --> 00:06:43,520

space station

141

00:06:47,830 --> 00:06:45,440

wonderful we're getting a look at the

142

00:06:49,589 --> 00:06:47,840

pad now looking at the n teres rocket

143

00:06:52,629 --> 00:06:49,599

billing off some conditioned air tell us

144

00:06:55,670 --> 00:06:52,639

about this rocket and teres 230 plus

145

00:06:58,309 --> 00:06:55,680

yeah so gary the teres 230 plus vehicles

146

00:07:00,629 --> 00:06:58,319

an upgrade to our previous antares 230

147

00:07:03,189 --> 00:07:00,639

vehicle which was under the previous

148

00:07:05,430 --> 00:07:03,199

year crs-1 contract

149

00:07:07,430 --> 00:07:05,440

this ng-15 mission marks northrop

150

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

grumman's fourth cargo service under the

151

00:07:13,029 --> 00:07:10,800

crs-2 contract with ng-12 being our very

152

00:07:15,589 --> 00:07:13,039

first antares 230 plus mission which was

153

00:07:19,029 --> 00:07:15,599

flown in november of

154

00:07:21,189 --> 00:07:19,039

the differences between the 230 and 230

155

00:07:21,990 --> 00:07:21,199

plus are the upgrades to the stage one

156

00:07:24,150 --> 00:07:22,000

core

157

00:07:27,029 --> 00:07:24,160

which has lighter composite structures

158

00:07:29,270 --> 00:07:27,039

and an optimized second stage mortar

159

00:07:31,430 --> 00:07:29,280

the upgraded stage one core allows

160

00:07:32,870 --> 00:07:31,440

ontario's engines to perform at full

161

00:07:34,550 --> 00:07:32,880

thrust throughout most of the first

162

00:07:37,430 --> 00:07:34,560

stage profile

163

00:07:40,070 --> 00:07:37,440

the 230 plus vehicle also has a cargo

164

00:07:42,070 --> 00:07:40,080

mass flexibility in which the cygnus

165

00:07:43,670 --> 00:07:42,080

mass can be defined

166

00:07:44,790 --> 00:07:43,680

within with the greater puncture streets

167

00:07:47,029 --> 00:07:44,800

of course

168

00:07:47,990 --> 00:07:47,039

but no later than 24 hours prior to

169

00:07:50,150 --> 00:07:48,000

launch

170

00:07:52,629 --> 00:07:50,160

so speaking of cargo another capability

171

00:07:55,670 --> 00:07:52,639

of the antares 230 plus rocket is that

172

00:07:57,430 --> 00:07:55,680

antares can perform late load operations

173

00:07:59,510 --> 00:07:57,440

by the unique pop-top fairing and

174

00:08:03,270 --> 00:07:59,520

specialized ground equipment

175

00:08:05,510 --> 00:08:03,280

if you look closely at antares

176

00:08:07,510 --> 00:08:05,520

you can see the nose of the rocket

177

00:08:09,580 --> 00:08:07,520

and you'll see be able to see the little

178

00:08:11,029 --> 00:08:09,590

pop-off that we that we have there

179

00:08:13,029 --> 00:08:11,039

[Applause]

180

00:08:14,390 --> 00:08:13,039

and that can be removed for the late

181

00:08:16,309 --> 00:08:14,400

cargo load

182

00:08:17,189 --> 00:08:16,319

um and anterior is having the ability to

183

00:08:19,589 --> 00:08:17,199

do a

184

00:08:21,189 --> 00:08:19,599

late load cargo load 24 hours before

185

00:08:24,070 --> 00:08:21,199

launch now we're able to support

186

00:08:26,309 --> 00:08:24,080

critical research experiments for nasa

187

00:08:27,670 --> 00:08:26,319

um and with all this talk about cargo

188

00:08:29,589 --> 00:08:27,680

the ontario vehicles carrying

189

00:08:30,950 --> 00:08:29,599

approximately 8 200 pounds of cargo to

190

00:08:32,149 --> 00:08:30,960

the space station aboard the sigma

191

00:08:33,750 --> 00:08:32,159

spacecraft

192

00:08:35,909 --> 00:08:33,760

and uh we at norfolk grove are very

193

00:08:38,310 --> 00:08:35,919

proud of our ontario's 230 plus rocket

194

00:08:40,469 --> 00:08:38,320

and are dedicated to providing the best

195

00:08:41,909 --> 00:08:40,479

value for a customer support of our

196

00:08:43,670 --> 00:08:41,919

critical mission of their critical

197

00:08:46,710 --> 00:08:43,680

missions

198

00:08:49,829 --> 00:08:46,720

now christina we're getting some some

199

00:08:51,750 --> 00:08:49,839

footage from earlier when we were

200

00:08:53,670 --> 00:08:51,760

performing that late load capability

201  
00:08:55,670 --> 00:08:53,680  
this is a good view of that pop top

202  
00:08:57,509 --> 00:08:55,680  
fairing uh from what i understand

203  
00:08:59,509 --> 00:08:57,519  
christina this is this is near max

204  
00:09:02,150 --> 00:08:59,519  
capacity where we're over eight thousand

205  
00:09:04,310 --> 00:09:02,160  
pounds inside uh cygnus tell me about

206  
00:09:07,670 --> 00:09:04,320  
how antares is is ready to carry such a

207  
00:09:10,310 --> 00:09:07,680  
mass to the international space station

208  
00:09:13,030 --> 00:09:10,320  
yes gary uh you're correct this is near

209  
00:09:15,990 --> 00:09:13,040  
max capacity at 8 200 pounds for this

210  
00:09:18,389 --> 00:09:16,000  
mission um the cygnus team has been

211  
00:09:20,230 --> 00:09:18,399  
preparing the last few years of an

212  
00:09:23,030 --> 00:09:20,240  
upgraded system to not only add more

213  
00:09:25,350 --> 00:09:23,040

cargo but also add more capability to

214

00:09:26,949 --> 00:09:25,360

the spacecraft itself to support powered

215

00:09:28,310 --> 00:09:26,959

payloads

216

00:09:30,870 --> 00:09:28,320

cygnus has implemented additional

217

00:09:33,350 --> 00:09:30,880

communications and telemetry telemetry

218

00:09:34,949 --> 00:09:33,360

equipment to connect scientists with

219

00:09:36,949 --> 00:09:34,959

their experiments throughout the mission

220

00:09:38,710 --> 00:09:36,959

from liftoff to arrival at the

221

00:09:40,630 --> 00:09:38,720

international space station

222

00:09:42,550 --> 00:09:40,640

all of these enhancement enhancements

223

00:09:45,030 --> 00:09:42,560

point us toward a long-term goal of

224

00:09:47,590 --> 00:09:45,040

growing this capabilities beyond the

225

00:09:49,430 --> 00:09:47,600

space station resupply emissions

226

00:09:51,670 --> 00:09:49,440

we also see cygnus as a strong building

227

00:09:53,509 --> 00:09:51,680

block and valuable commercial partner

228

00:09:55,590 --> 00:09:53,519

for the next generation vehicle that

229

00:09:57,990 --> 00:09:55,600

will go to the moon

230

00:09:59,750 --> 00:09:58,000

and gary you mentioned before cygnus

231

00:10:01,509 --> 00:09:59,760

we're so happy that

232

00:10:03,110 --> 00:10:01,519

we're able to honor

233

00:10:05,750 --> 00:10:03,120

katherine johnson

234

00:10:08,069 --> 00:10:05,760

for this mission and named her

235

00:10:10,230 --> 00:10:08,079

for ng-15 you know as you mentioned

236

00:10:12,550 --> 00:10:10,240

before catherine johnson

237

00:10:14,630 --> 00:10:12,560

was an amazing nasa mathematician and

238

00:10:16,389 --> 00:10:14,640

she broke many barriers including race

239

00:10:19,030 --> 00:10:16,399

and gender while working for nasa and

240

00:10:20,230 --> 00:10:19,040

delivered critical calculations

241

00:10:22,630 --> 00:10:20,240

for a very important mission that

242

00:10:24,710 --> 00:10:22,640

happened on this day

243

00:10:26,310 --> 00:10:24,720

and i also want to mention you know as a

244

00:10:27,990 --> 00:10:26,320

native american and from the navajo

245

00:10:29,750 --> 00:10:28,000

nation catherine johnson was an

246

00:10:31,750 --> 00:10:29,760

inspiration for me and countless others

247

00:10:33,350 --> 00:10:31,760

to pursue degrees in aerospace

248

00:10:34,710 --> 00:10:33,360

and in the aerospace industry so i'm

249

00:10:37,030 --> 00:10:34,720

very honored to be part of the human

250

00:10:39,190 --> 00:10:37,040

exploration program and i also hope to

251  
00:10:40,710 --> 00:10:39,200  
inspire others as catherine johnson has

252  
00:10:44,150 --> 00:10:40,720  
to reach the stars from setting their

253  
00:10:46,310 --> 00:10:44,160  
goals so very happy to be here

254  
00:10:47,829 --> 00:10:46,320  
very good christina hellona thank you

255  
00:10:49,750 --> 00:10:47,839  
for joining us we'll come back to you

256  
00:10:51,509 --> 00:10:49,760  
here shortly to walk us through some of

257  
00:10:53,750 --> 00:10:51,519  
these upcoming milestones we have

258  
00:10:56,389 --> 00:10:53,760  
including counting down to that uh

259  
00:10:58,710 --> 00:10:56,399  
launch mark at 12 36 p.m eastern and of

260  
00:11:00,630 --> 00:10:58,720  
course walking us through ascent we're

261  
00:11:03,509 --> 00:11:00,640  
going to go through some uh of the great

262  
00:11:05,910 --> 00:11:03,519  
cargo on board this is a nice uh graphic

263  
00:11:08,389 --> 00:11:05,920

that shows exactly what's on board

264

00:11:11,829 --> 00:11:08,399

cygnus we're talking over 8 000 pounds

265

00:11:14,150 --> 00:11:11,839

nearing 8 400 pounds of cargo including

266

00:11:16,630 --> 00:11:14,160

pressurized and unpressurized you can

267

00:11:18,790 --> 00:11:16,640

see just more than 2 400 pounds of that

268

00:11:21,030 --> 00:11:18,800

are scientific investigations and there

269

00:11:23,829 --> 00:11:21,040

are quite a number of them

270

00:11:27,190 --> 00:11:23,839

first is the spaceborne computer 2. now

271

00:11:29,110 --> 00:11:27,200

due to a need to prioritize reliability

272

00:11:31,590 --> 00:11:29,120

over performance computing capabilities

273

00:11:33,269 --> 00:11:31,600

in space are reduced compared to

274

00:11:35,110 --> 00:11:33,279

capabilities on the ground this can

275

00:11:37,509 --> 00:11:35,120

create challenges when transmitting data

276

00:11:39,590 --> 00:11:37,519

to and from space although relying on

277

00:11:41,509 --> 00:11:39,600

ground-based computers is possible for

278

00:11:43,350 --> 00:11:41,519

exploration on the moon or to low earth

279

00:11:45,190 --> 00:11:43,360

orbit the solution will be a little bit

280

00:11:47,509 --> 00:11:45,200

more difficult for exploring farther

281

00:11:49,750 --> 00:11:47,519

into the solar system so in 2017 the

282

00:11:51,190 --> 00:11:49,760

space born computer study ran a high

283

00:11:53,190 --> 00:11:51,200

performance commercial off the shelf

284

00:11:55,350 --> 00:11:53,200

computer in space with the goal of

285

00:11:57,030 --> 00:11:55,360

having the system operate seamlessly

286

00:11:58,710 --> 00:11:57,040

seamlessly for a year

287

00:12:01,910 --> 00:11:58,720

it successfully performed more than a

288

00:12:02,870 --> 00:12:01,920

trillion calculations per second for 207

289

00:12:06,150 --> 00:12:02,880

days

290

00:12:08,069 --> 00:12:06,160

without uh requiring a reset the space

291

00:12:10,470 --> 00:12:08,079

board computer 2 will build on the

292

00:12:12,550 --> 00:12:10,480

success of this first study exploring

293

00:12:14,790 --> 00:12:12,560

how off-the-shelf computer systems can

294

00:12:17,430 --> 00:12:14,800

advance exploration by processing data

295

00:12:19,990 --> 00:12:17,440

significantly faster in space with edge

296

00:12:22,389 --> 00:12:20,000

computing and artificial intelligence

297

00:12:24,230 --> 00:12:22,399

this experiment uh plans to demonstrate

298

00:12:26,230 --> 00:12:24,240

that earth-based data processing of

299

00:12:28,949 --> 00:12:26,240

current station science data can instead

300

00:12:30,790 --> 00:12:28,959

be performed on the station eliminating

301  
00:12:32,870 --> 00:12:30,800  
the need for researchers to send the raw

302  
00:12:34,629 --> 00:12:32,880  
data back to earth for analysis could

303  
00:12:37,269 --> 00:12:34,639  
speed scientists time to insight from

304  
00:12:39,829 --> 00:12:37,279  
months to minutes

305  
00:12:41,990 --> 00:12:39,839  
we'll also have some space worms heading

306  
00:12:44,230 --> 00:12:42,000  
to the international space station tiny

307  
00:12:46,230 --> 00:12:44,240  
worms could help us determine the cause

308  
00:12:48,710 --> 00:12:46,240  
of muscle weakening that astronauts can

309  
00:12:50,389 --> 00:12:48,720  
experience in microgravity astronauts

310  
00:12:52,470 --> 00:12:50,399  
work out for more than two hours a day

311  
00:12:54,710 --> 00:12:52,480  
aboard the station to prevent bone and

312  
00:12:56,310 --> 00:12:54,720  
muscle loss caused by living in a

313  
00:12:58,470 --> 00:12:56,320

microgravity environment during long

314

00:13:00,389 --> 00:12:58,480

duration missions thanks to a new device

315

00:13:03,430 --> 00:13:00,399

for measuring the muscle strength of

316

00:13:06,150 --> 00:13:03,440

tiny c elegans worms researchers with

317

00:13:08,629 --> 00:13:06,160

the micro 16 study can test whether

318

00:13:10,550 --> 00:13:08,639

decreased expression of muscle proteins

319

00:13:13,190 --> 00:13:10,560

is associated with this decreased

320

00:13:15,750 --> 00:13:13,200

strengths and then these results may

321

00:13:17,910 --> 00:13:15,760

support new therapies to combat the

322

00:13:19,509 --> 00:13:17,920

effects of age-related muscle loss on

323

00:13:20,550 --> 00:13:19,519

earth

324

00:13:22,790 --> 00:13:20,560

now of course some of these

325

00:13:23,829 --> 00:13:22,800

investigations are scientific and some

326

00:13:26,389 --> 00:13:23,839

of them

327

00:13:28,629 --> 00:13:26,399

are technology demonstrations meant for

328

00:13:31,190 --> 00:13:28,639

exploring farther into the solar system

329

00:13:33,190 --> 00:13:31,200

there's an investigation called a haas

330

00:13:35,430 --> 00:13:33,200

the international space station serves

331

00:13:37,670 --> 00:13:35,440

as a testing ground for technologies we

332

00:13:39,990 --> 00:13:37,680

plan to use on future artemis missions

333

00:13:42,790 --> 00:13:40,000

to the moon now the ahas investigation

334

00:13:44,870 --> 00:13:42,800

from nasa puts to the test uh some tools

335

00:13:47,189 --> 00:13:44,880

planned for use on the crude artemis ii

336

00:13:49,350 --> 00:13:47,199

mission that will orbit the moon built

337

00:13:51,590 --> 00:13:49,360

as a primary radiation detection system

338

00:13:54,069 --> 00:13:51,600

for the orion spacecraft the hybrid

339

00:13:56,310 --> 00:13:54,079

electronic radiator assembler assessor

340

00:13:58,629 --> 00:13:56,320

or hera was modified for operation on

341

00:14:00,550 --> 00:13:58,639

the space station uh verifying that hera

342

00:14:02,470 --> 00:14:00,560

can operate without air for 30 days

343

00:14:04,710 --> 00:14:02,480

validates the system for crude artemis

344

00:14:06,870 --> 00:14:04,720

art mission operations a related

345

00:14:08,790 --> 00:14:06,880

investigation iss hera which you're

346

00:14:11,189 --> 00:14:08,800

seeing now flew in 2019 aboard the

347

00:14:13,430 --> 00:14:11,199

station iss hera provided data and

348

00:14:15,350 --> 00:14:13,440

operational feedback uh in preparation

349

00:14:17,670 --> 00:14:15,360

for the orion spacecraft's upcoming

350

00:14:20,710 --> 00:14:17,680

crude artemis one mission uncrewed

351  
00:14:24,069 --> 00:14:22,069  
there's also another technology

352  
00:14:25,910 --> 00:14:24,079  
technology demonstration to upgrade the

353  
00:14:27,990 --> 00:14:25,920  
environmental control and life support

354  
00:14:29,910 --> 00:14:28,000  
systems this is a system of regenerative

355  
00:14:31,990 --> 00:14:29,920  
life support hardware that provides

356  
00:14:33,750 --> 00:14:32,000  
clean air and water to the space station

357  
00:14:35,990 --> 00:14:33,760  
the system will get an upgrade thanks to

358  
00:14:37,670 --> 00:14:36,000  
the exploration eclipse that's

359  
00:14:38,550 --> 00:14:37,680  
environmental control and life support

360  
00:14:42,389 --> 00:14:38,560  
system

361  
00:14:44,790 --> 00:14:42,399  
this is the brine processor assembly the

362  
00:14:46,949 --> 00:14:44,800  
investigation demonstrates technology to

363  
00:14:48,870 --> 00:14:46,959

recover additional water from the urine

364

00:14:51,269 --> 00:14:48,880

processor assembly using a membrane

365

00:14:53,350 --> 00:14:51,279

distillation process now long duration

366

00:14:55,430 --> 00:14:53,360

crude exploration missions require about

367

00:14:57,030 --> 00:14:55,440

98 percent water recovery and there's

368

00:14:58,310 --> 00:14:57,040

currently no state of the art technology

369

00:15:00,150 --> 00:14:58,320

and brine processing that can help

370

00:15:02,230 --> 00:15:00,160

achieve this goal but this is one step

371

00:15:04,230 --> 00:15:02,240

closer the brine processor assembly

372

00:15:08,230 --> 00:15:04,240

plans to close the gap for the urine

373

00:15:09,829 --> 00:15:08,240

waste system on the space station

374

00:15:11,670 --> 00:15:09,839

now these are all investigations going

375

00:15:13,269 --> 00:15:11,680

to the space station we have another one

376

00:15:14,310 --> 00:15:13,279

that's actually going to be deployed

377

00:15:17,590 --> 00:15:14,320

shortly

378

00:15:19,670 --> 00:15:17,600

after the second stage ignition

379

00:15:23,189 --> 00:15:19,680

nasa in partnership with virginia space

380

00:15:25,430 --> 00:15:23,199

is helping launch 30 finsats built by

381

00:15:27,350 --> 00:15:25,440

elementary to high school and university

382

00:15:29,910 --> 00:15:27,360

students that will deploy from the

383

00:15:32,470 --> 00:15:29,920

second stage of antares once it reaches

384

00:15:34,949 --> 00:15:32,480

low earth orbit these projects not only

385

00:15:37,030 --> 00:15:34,959

deliver scientific data but also help

386

00:15:39,990 --> 00:15:37,040

shape a new generation of scientists and

387

00:15:41,990 --> 00:15:40,000

engineers thinsets will be released from

388

00:15:44,550 --> 00:15:42,000

the second stage shortly after launch

389

00:15:46,150 --> 00:15:44,560

and will transmit data transmit data for

390

00:15:48,629 --> 00:15:46,160

approximately five days before

391

00:15:57,749 --> 00:15:48,639

deorbiting and burning up upon re-entry

392

00:16:02,710 --> 00:16:00,230

again currently tracking uh no issues to

393

00:16:04,790 --> 00:16:02,720

launch antares and cygnus uh looking

394

00:16:07,350 --> 00:16:04,800

good uh at the

395

00:16:09,990 --> 00:16:07,360

mid-atlantic regional spaceport on pad

396

00:16:12,150 --> 00:16:10,000

0a you're looking at a live shot from

397

00:16:14,710 --> 00:16:12,160

virginia

398

00:16:17,110 --> 00:16:14,720

now on board on top of the scientific

399

00:16:19,749 --> 00:16:17,120

investigations our and the technology

400

00:16:20,949 --> 00:16:19,759

demonstration

401  
00:16:23,670 --> 00:16:20,959  
hardware

402  
00:16:25,189 --> 00:16:23,680  
is some fresh food the astronauts aboard

403  
00:16:27,829 --> 00:16:25,199  
the international space station can be

404  
00:16:30,389 --> 00:16:27,839  
expecting some cherry tomatoes some

405  
00:16:33,269 --> 00:16:30,399  
apples and naval oranges they'll also

406  
00:16:44,550 --> 00:16:33,279  
get some cold stowed cheese parmesan and

407  
00:16:50,389 --> 00:16:47,189  
christina hellona we are coming up on 20

408  
00:16:53,590 --> 00:16:50,399  
minutes to launch counting down to the

409  
00:16:56,150 --> 00:16:53,600  
launch window opening at 12 36 pm

410  
00:16:57,910 --> 00:16:56,160  
eastern 12 36 and 49 seconds that's at

411  
00:16:59,430 --> 00:16:57,920  
the opening of the window

412  
00:17:01,430 --> 00:16:59,440  
tell us about some of the milestones

413  
00:17:03,269 --> 00:17:01,440

that antares has gone through up until

414

00:17:05,510 --> 00:17:03,279

this point and will go through

415

00:17:08,470 --> 00:17:05,520

to the t-zero mark

416

00:17:11,270 --> 00:17:08,480

uh sure gary so approximately five hours

417

00:17:14,309 --> 00:17:11,280

ago of course our amazing launch team

418

00:17:16,309 --> 00:17:14,319

arrived in at wallace island in dallas

419

00:17:18,630 --> 00:17:16,319

virginia and chandler arizona in

420

00:17:20,549 --> 00:17:18,640

preparation for launch um the team at

421

00:17:22,309 --> 00:17:20,559

the launch pad will also go through

422

00:17:24,549 --> 00:17:22,319

their went through their checks prior to

423

00:17:26,230 --> 00:17:24,559

evacuating the site and then

424

00:17:28,230 --> 00:17:26,240

shortly after we went through our

425

00:17:30,310 --> 00:17:28,240

pre-power verifications right before we

426

00:17:32,630 --> 00:17:30,320

power up the interior's vehicle

427

00:17:34,310 --> 00:17:32,640

once we power up and carries we run

428

00:17:36,470 --> 00:17:34,320

various tests and checks to ensure all

429

00:17:38,549 --> 00:17:36,480

is working well on the vehicle prior to

430

00:17:40,310 --> 00:17:38,559

doing our propellant loading

431

00:17:42,470 --> 00:17:40,320

the team also gets various weather

432

00:17:44,870 --> 00:17:42,480

updates and range updates to ensure

433

00:17:47,350 --> 00:17:44,880

weather and range is clear for launch as

434

00:17:50,470 --> 00:17:47,360

well um at this point in time see it's

435

00:17:52,070 --> 00:17:50,480

about 10 17 a.m uh we're just finishing

436

00:17:53,669 --> 00:17:52,080

off the tail end of the propellant

437

00:17:55,669 --> 00:17:53,679

loading operations

438

00:17:57,190 --> 00:17:55,679

once this is complete the team will top

439

00:17:58,630 --> 00:17:57,200

off the propellant and we'll do some

440

00:18:01,029 --> 00:17:58,640

field adjustments

441

00:18:02,549 --> 00:18:01,039

then we'll do a final go no go pull it's

442

00:18:04,230 --> 00:18:02,559

completed

443

00:18:06,390 --> 00:18:04,240

and we'll proceed to the final countdown

444

00:18:07,909 --> 00:18:06,400

to launch and then at approximately

445

00:18:09,190 --> 00:18:07,919

three minutes prior to launch you'll

446

00:18:11,270 --> 00:18:09,200

hear

447

00:18:13,029 --> 00:18:11,280

that the auto sequence was initiated

448

00:18:14,789 --> 00:18:13,039

this is where the antares internal

449

00:18:15,830 --> 00:18:14,799

flight computers take over and command

450

00:18:17,669 --> 00:18:15,840

the vehicle

451  
00:18:19,270 --> 00:18:17,679  
the auto sequencer then goes through the

452  
00:18:20,789 --> 00:18:19,280  
final steps they're prepping the vehicle

453  
00:18:25,510 --> 00:18:20,799  
for launch and we'll proceed through the

454  
00:18:29,430 --> 00:18:27,350  
and those milestones all coming up here

455  
00:18:31,350 --> 00:18:29,440  
very shortly christina now take us

456  
00:18:33,990 --> 00:18:31,360  
through ascent from the moment of

457  
00:18:36,150 --> 00:18:34,000  
liftoff what can we expect to see

458  
00:18:38,470 --> 00:18:36,160  
okay so antares will have a stage one

459  
00:18:40,870 --> 00:18:38,480  
ignition not t-minus zero and we'll lift

460  
00:18:43,669 --> 00:18:40,880  
off shortly after the main engines will

461  
00:18:46,070 --> 00:18:43,679  
burn for approximately 200 seconds and

462  
00:18:48,070 --> 00:18:46,080  
then we'll go into mikko and if you hear

463  
00:18:50,230 --> 00:18:48,080

miko it means it stands for main engine

464

00:18:51,830 --> 00:18:50,240

cutoff so once we get to mikko we'll go

465

00:18:54,390 --> 00:18:51,840

into a short post right before we

466

00:18:56,230 --> 00:18:54,400

separate stage one from stage two which

467

00:18:58,630 --> 00:18:56,240

we call the upper stack portion of

468

00:19:00,470 --> 00:18:58,640

antares uh we'll continue to coast a

469

00:19:02,310 --> 00:19:00,480

little bit longer for about 30 seconds

470

00:19:03,669 --> 00:19:02,320

before fairing separation

471

00:19:05,350 --> 00:19:03,679

and then we'll have an internal

472

00:19:07,350 --> 00:19:05,360

separation where the stage two flies out

473

00:19:09,029 --> 00:19:07,360

of the external upper stack

474

00:19:11,270 --> 00:19:09,039

once that stage two is clear of the

475

00:19:12,710 --> 00:19:11,280

upper stack the stage two ignites for

476

00:19:15,029 --> 00:19:12,720

two and a half minute burn that puts

477

00:19:16,710 --> 00:19:15,039

sickness real close to the to the orbit

478

00:19:19,110 --> 00:19:16,720

that they need to be in and then we'll

479

00:19:21,430 --> 00:19:19,120

close to ensure everything is stable

480

00:19:23,990 --> 00:19:21,440

um and then cygnus will be released into

481

00:19:25,830 --> 00:19:24,000

the desired orbit after stimulus is

482

00:19:28,390 --> 00:19:25,840

released we'll go through some comp

483

00:19:29,830 --> 00:19:28,400

checks and then about an hour and a half

484

00:19:32,390 --> 00:19:29,840

to about an hour to an hour and a half

485

00:19:33,990 --> 00:19:32,400

later we'll separate um and cygnus will

486

00:19:36,390 --> 00:19:34,000

release its solar arrays and be on its

487

00:19:37,029 --> 00:19:36,400

way to international space station so in

488

00:19:38,390 --> 00:19:37,039

summary takes approximately

489

00:19:42,549 --> 00:19:38,400

approximately

490

00:19:46,150 --> 00:19:43,830

that's right and we'll be providing

491

00:19:48,549 --> 00:19:46,160

coverage throughout that time until we

492

00:19:51,029 --> 00:19:48,559

have an orbital insertion

493

00:19:52,549 --> 00:19:51,039

at that time we will break our coverage

494

00:19:54,870 --> 00:19:52,559

but we'll still be here in mission

495

00:19:56,549 --> 00:19:54,880

control houston monitoring uh the solar

496

00:19:58,549 --> 00:19:56,559

array deployment that takes a few hours

497

00:20:00,390 --> 00:19:58,559

takes place a few hours later

498

00:20:02,710 --> 00:20:00,400

and confirm that

499

00:20:03,990 --> 00:20:02,720

over some of our social media sites and

500

00:20:05,750 --> 00:20:04,000

our blog

501  
00:20:08,230 --> 00:20:05,760  
make sure it is receiving enough power

502  
00:20:11,270 --> 00:20:08,240  
now it's going to spend a cygnus we'll

503  
00:20:13,350 --> 00:20:11,280  
spend about a day and a half in orbit

504  
00:20:14,390 --> 00:20:13,360  
catching up with the international space

505  
00:20:15,350 --> 00:20:14,400  
station

506  
00:20:20,710 --> 00:20:15,360  
uh

507  
00:20:24,230 --> 00:20:20,720  
robotic arm of the international space

508  
00:20:27,830 --> 00:20:24,240  
station at 4 40 a.m eastern time 3 40

509  
00:20:29,909 --> 00:20:27,840  
a.m central time on monday february 2nd

510  
00:20:31,350 --> 00:20:29,919  
the robotic arm operators on board the

511  
00:20:34,470 --> 00:20:31,360  
international space station will be

512  
00:20:36,230 --> 00:20:34,480  
jackson astronaut sowichi naguchi nasa

513  
00:20:37,190 --> 00:20:36,240

astronaut mike hopkins will be backing

514

00:20:39,350 --> 00:20:37,200

him up

515

00:20:42,070 --> 00:20:39,360

from inside the cupola

516

00:20:45,110 --> 00:20:42,080

for that coverage we'll be starting at 2

517

00:20:47,669 --> 00:20:45,120

a.m central time 3 a.m eastern

518

00:20:49,510 --> 00:20:47,679

assuming an on-time launch today again

519

00:21:01,350 --> 00:20:49,520

that capture time 3

520

00:21:06,470 --> 00:21:04,310

once cygnus arrives on orbit it'll be

521

00:21:08,230 --> 00:21:06,480

one of the several visiting vehicles to

522

00:21:09,110 --> 00:21:08,240

be attached to the international space

523

00:21:11,750 --> 00:21:09,120

station

524

00:21:13,430 --> 00:21:11,760

after it is captured by suici naguchi

525

00:21:15,430 --> 00:21:13,440

robotic operators on the ground will

526

00:21:17,590 --> 00:21:15,440

take control of the robotic arm and

527

00:21:19,830 --> 00:21:17,600

affects it to the unity module on the

528

00:21:21,830 --> 00:21:19,840

nader side you can see there sort of at

529

00:21:23,510 --> 00:21:21,840

the center of this configuration of the

530

00:21:25,669 --> 00:21:23,520

international space station there are

531

00:21:28,149 --> 00:21:25,679

two crude vehicles aboard you see on the

532

00:21:30,470 --> 00:21:28,159

left the crew won dragon that carried

533

00:21:31,830 --> 00:21:30,480

the nasa spacex crew one mission and the

534

00:21:33,669 --> 00:21:31,840

four astronauts aboard to the

535

00:21:36,310 --> 00:21:33,679

international space station and the

536

00:21:38,789 --> 00:21:36,320

soyuz ms-17 carrying kate rubins and the

537

00:21:41,510 --> 00:21:38,799

two uh russian cosmonauts to the

538

00:21:43,270 --> 00:21:41,520

international space station

539

00:21:45,350 --> 00:21:43,280

and of course the progress of vehicles

540

00:21:48,789 --> 00:21:45,360

uh currently attached 77 which just

541

00:21:51,270 --> 00:21:48,799

arrived uh earlier this week on sunday

542

00:21:52,710 --> 00:21:51,280

and uh on progress 75

543

00:21:57,990 --> 00:21:52,720

attached to the aft end of the

544

00:22:04,549 --> 00:22:01,669

fuel adjustment is not required copy 385

545

00:22:06,149 --> 00:22:04,559

prop 2 configure occs for no adjustment

546

00:22:16,070 --> 00:22:06,159

to fuel level

547

00:22:24,789 --> 00:22:19,029

and lc prop 2 occ is configured for no

548

00:22:24,799 --> 00:22:30,789

and adam in 387 is not required

549

00:22:30,799 --> 00:22:46,549

and launching advice 388 is not required

550

00:22:51,510 --> 00:22:47,990

this is mission control houston coming

551  
00:22:54,149 --> 00:22:51,520  
up inside 15 minutes counting down to 14

552  
00:22:57,029 --> 00:22:54,159  
we're still tracking our launch at the

553  
00:23:00,310 --> 00:22:57,039  
opening of the five minute window 12 36

554  
00:23:03,350 --> 00:23:00,320  
and 49 seconds p.m eastern time over in

555  
00:23:09,110 --> 00:23:03,360  
virginia 11 36 a.m central time here in

556  
00:23:13,669 --> 00:23:11,029  
again everything is still looking good

557  
00:23:15,190 --> 00:23:13,679  
uh as christina helona described they're

558  
00:23:17,750 --> 00:23:15,200  
topping off some of the fuel in the

559  
00:23:20,710 --> 00:23:17,760  
antares rocket already loaded uh with

560  
00:23:22,390 --> 00:23:20,720  
that liquid fuel rp1 kerosene and liquid

561  
00:23:25,110 --> 00:23:22,400  
oxygen billowing off some of the

562  
00:23:28,149 --> 00:23:25,120  
conditioned air into the 32 degree

563  
00:23:30,789 --> 00:23:28,159

fahrenheit weather out there at virginia

564

00:23:53,510 --> 00:23:30,799

still at about 75 favorability for

565

00:24:17,190 --> 00:23:55,830

lc this is cmd cygnus is in launch mode

566

00:24:20,950 --> 00:24:19,350

and launch team llc countdown one at

567

00:24:23,750 --> 00:24:20,960

this time on a poll to proceed with

568

00:24:25,510 --> 00:24:23,760

final countdown gso

569

00:24:26,630 --> 00:24:25,520

gso go

570

00:24:32,549 --> 00:24:26,640

rso

571

00:24:35,590 --> 00:24:32,559

td tvs go prop lead athletes go stage

572

00:24:42,070 --> 00:24:37,909

lc stage one is go helium topping is

573

00:24:44,149 --> 00:24:42,080

ongoing copy that core one

574

00:24:45,350 --> 00:24:44,159

uh in honor of alexander dictorov the

575

00:24:47,190 --> 00:24:45,360

late director

576  
00:24:49,510 --> 00:24:47,200  
director general of the uni design

577  
00:24:50,789 --> 00:24:49,520  
office whose efforts in international

578  
00:24:52,310 --> 00:24:50,799  
space flights

579  
00:24:54,710 --> 00:24:52,320  
have contributed to the success of

580  
00:24:57,909 --> 00:24:54,720  
antares core one is go

581  
00:24:58,870 --> 00:24:57,919  
copy core one mes1 messes go

582  
00:25:02,549 --> 00:24:58,880  
gc

583  
00:25:04,710 --> 00:25:02,559  
gt's go and ace aces go

584  
00:25:07,029 --> 00:25:04,720  
mars bars is go

585  
00:25:09,110 --> 00:25:07,039  
cmd cmd is go

586  
00:25:10,710 --> 00:25:09,120  
ld ld is go

587  
00:25:13,269 --> 00:25:10,720  
ng

588  
00:25:15,190 --> 00:25:13,279

north of crowman is proud to honor nasa

589

00:25:17,510 --> 00:25:15,200

mathematician and space visionary

590

00:25:19,110 --> 00:25:17,520

catherine johnson whose computational

591

00:25:21,510 --> 00:25:19,120

brilliance and relentless pursuit of

592

00:25:23,909 --> 00:25:21,520

excellence set the standard for 60 years

593

00:25:25,830 --> 00:25:23,919

of nasa mission success

594

00:25:27,350 --> 00:25:25,840

catherine humbly yet forcefully broke

595

00:25:29,190 --> 00:25:27,360

the barriers of gender and race to

596

00:25:31,590 --> 00:25:29,200

enable the future of human space

597

00:25:32,870 --> 00:25:31,600

exploration and in the process inspire

598

00:25:34,470 --> 00:25:32,880

generations

599

00:25:36,310 --> 00:25:34,480

on this anniversary of john glenn's

600

00:25:37,830 --> 00:25:36,320

historic friendship seventh flight which

601  
00:25:41,029 --> 00:25:37,840  
would not have been possible without

602  
00:25:43,669 --> 00:25:41,039  
catherine's calculations dorothy and

603  
00:25:44,870 --> 00:25:43,679  
the ss catherine johnson are go for

604  
00:26:00,149 --> 00:25:44,880  
launch

605  
00:26:01,750 --> 00:26:00,159  
you just heard that poll we are go for

606  
00:26:04,470 --> 00:26:01,760  
launch again continuing to watch that

607  
00:26:06,789 --> 00:26:04,480  
weather but uh targeting still uh the

608  
00:26:10,870 --> 00:26:06,799  
opening of our five minute window at 12

609  
00:26:12,870 --> 00:26:10,880  
36 and 49 seconds p.m is eastern time

610  
00:26:15,909 --> 00:26:12,880  
christina hellona if you are still with

611  
00:26:17,510 --> 00:26:15,919  
us hearing some of the words coming from

612  
00:26:19,990 --> 00:26:17,520  
the mission operations center and all

613  
00:26:21,350 --> 00:26:20,000

the teams working so hard on this

614

00:26:23,830 --> 00:26:21,360

mission tell me about some of your

615

00:26:26,470 --> 00:26:23,840

thoughts as we're coming up on inside 10

616

00:26:29,350 --> 00:26:26,480

minutes to launch

617

00:26:31,830 --> 00:26:29,360

hi gary yeah so our teams spread out all

618

00:26:33,750 --> 00:26:31,840

across the united states in wallops

619

00:26:35,669 --> 00:26:33,760

dulles and chandler

620

00:26:37,350 --> 00:26:35,679

the entire team is in these final

621

00:26:39,990 --> 00:26:37,360

moments are looking

622

00:26:41,430 --> 00:26:40,000

at our various telemetry data to make

623

00:26:43,669 --> 00:26:41,440

sure the health and status of the

624

00:26:45,750 --> 00:26:43,679

vehicle are within constraints

625

00:26:47,909 --> 00:26:45,760

as you just heard there was a no go go

626  
00:26:50,070 --> 00:26:47,919  
no go pull of our

627  
00:26:51,750 --> 00:26:50,080  
anterior chief engineer safety officers

628  
00:26:56,950 --> 00:26:51,760  
and

629  
00:26:58,310 --> 00:26:56,960  
we'll continue to monitor the telemetry

630  
00:27:00,630 --> 00:26:58,320  
stream and make sure

631  
00:27:03,909 --> 00:27:00,640  
antares is healthy and ready to go for

632  
00:27:07,029 --> 00:27:05,350  
and we're coming up on that shortly

633  
00:27:09,990 --> 00:27:07,039  
vehicle systems look healthy and we're

634  
00:27:11,909 --> 00:27:10,000  
still uh we're still 75 favorable and

635  
00:27:13,029 --> 00:27:11,919  
again we're targeting the beginning of

636  
00:27:15,110 --> 00:27:13,039  
that five

637  
00:27:17,029 --> 00:27:15,120  
minute window so now that we've

638  
00:27:19,029 --> 00:27:17,039

conducted that final go no-go at the

639

00:27:21,510 --> 00:27:19,039

t-minus uh 10-minute mark we'll be

640

00:27:23,830 --> 00:27:21,520

counting down to about t minus five

641

00:27:26,070 --> 00:27:23,840

and teres will switch to internal power

642

00:27:27,669 --> 00:27:26,080

at that time and uh just a little more

643

00:27:29,669 --> 00:27:27,679

than three minutes will be the auto

644

00:27:31,190 --> 00:27:29,679

sequence handoff to terminal count the

645

00:27:33,269 --> 00:27:31,200

computers will take over for the final

646

00:27:35,909 --> 00:27:33,279

steps uh to get us to launch at the

647

00:27:43,750 --> 00:27:35,919

opening of that window

648

00:27:48,389 --> 00:27:45,430

vdm's enabled

649

00:27:51,029 --> 00:27:48,399

voltage nominal odm commands are clear

650

00:28:59,269 --> 00:27:51,039

copy all like one check step 396 and

651  
00:29:09,510 --> 00:29:02,630  
and t minus eight minutes

652  
00:29:15,790 --> 00:29:11,909  
i'll see if i control g conditioning

653  
00:29:31,680 --> 00:29:15,800  
initiated happy study control check 399.

654  
00:29:31,690 --> 00:29:38,310  
[Music]

655  
00:29:42,389 --> 00:29:40,470  
inside seven and a half minutes uh

656  
00:29:44,549 --> 00:29:42,399  
you're hearing some of those countdown

657  
00:29:46,950 --> 00:29:44,559  
milestones internal power has been

658  
00:29:48,470 --> 00:29:46,960  
activated it'll be switched here shortly

659  
00:29:50,149 --> 00:29:48,480  
for the antares vehicle the

660  
00:29:53,510 --> 00:29:50,159  
international space station is currently

661  
00:29:55,350 --> 00:29:53,520  
flying 262 statute miles over the middle

662  
00:30:06,170 --> 00:29:55,360  
of the atlantic ocean just east off the

663  
00:30:29,190 --> 00:30:19,540

[Music]

664

00:30:34,710 --> 00:30:31,669

activation verified copy that lead check

665

00:30:37,909 --> 00:30:34,720

400 ops 2401 initialize ground ordinance

666

00:30:41,029 --> 00:30:37,919

power supplies lc ops 2 ground ordinance

667

00:30:42,950 --> 00:30:41,039

power supplies initialize roger that

668

00:30:45,110 --> 00:30:42,960

select one cooker and grab an ordinance

669

00:30:52,020 --> 00:30:45,120

power supplies nominal copy like one

670

00:30:52,030 --> 00:30:58,470

[Music]

671

00:30:58,480 --> 00:31:02,470

t-minus six minutes

672

00:31:02,480 --> 00:31:09,430

mark

673

00:31:14,950 --> 00:31:12,389

now inside six minutes to launch again

674

00:31:16,389 --> 00:31:14,960

again uh targeting the uh in the

675

00:31:18,870 --> 00:31:16,399

beginning of the five minute launch

676  
00:31:20,789 --> 00:31:18,880  
window at 12 36 pm eastern time

677  
00:31:22,789 --> 00:31:20,799  
christina hellona as we enter

678  
00:31:25,110 --> 00:31:22,799  
uh these final minutes up until launch

679  
00:31:31,350 --> 00:31:25,120  
any final words before we let you go and

680  
00:31:55,269 --> 00:31:33,029  
the today and i'm looking forward to

681  
00:32:03,590 --> 00:31:59,110  
ops 2 lc step 404 you go to initiate

682  
00:32:08,470 --> 00:32:06,470  
lc op 2 engine priming started

683  
00:32:11,269 --> 00:32:08,480  
and ops 1 transfer avionics to internal

684  
00:32:11,279 --> 00:32:19,269  
avionics internal power on

685  
00:32:19,279 --> 00:32:23,669  
external power off

686  
00:32:27,909 --> 00:32:25,909  
now inside uh five minutes to launch

687  
00:32:30,789 --> 00:32:27,919  
antares is now switched to internal

688  
00:32:33,909 --> 00:32:30,799

power christina helona uh

689

00:32:35,509 --> 00:32:33,919

thanks for us for joining us today uh

690

00:32:37,830 --> 00:32:35,519

but of course she's gonna be busy over

691

00:32:39,669 --> 00:32:37,840

these next uh critical milestones here

692

00:32:41,669 --> 00:32:39,679

now that we're inside five minutes and

693

00:32:43,350 --> 00:32:41,679

switch to internal power the next major

694

00:32:45,669 --> 00:32:43,360

milestone is coming up just a little

695

00:32:47,990 --> 00:32:45,679

over three minutes uh we'll begin the

696

00:32:50,470 --> 00:32:48,000

auto sequence handoff to terminal count

697

00:32:51,590 --> 00:32:50,480

the computers will take over and antares

698

00:32:53,909 --> 00:32:51,600

will be counting down with those

699

00:32:57,909 --> 00:32:53,919

computers automatically to launch uh

700

00:33:13,110 --> 00:32:57,919

targeting again 12 36 and 49 seconds pm

701  
00:33:17,750 --> 00:33:15,830

lc priming verified

702  
00:33:31,669 --> 00:33:17,760

roger that uh

703  
00:33:31,679 --> 00:33:35,430

and we're now in terminal count

704  
00:33:44,789 --> 00:33:38,310

base 3 dynamic limit will be active at

705  
00:33:49,029 --> 00:33:47,430

three minutes and 15 seconds until

706  
00:33:52,710 --> 00:33:49,039

launch terminal count targeting that

707  
00:33:54,310 --> 00:33:52,720

exact liftoff time 12 36 and 49 seconds

708  
00:33:55,990 --> 00:33:54,320

tanks will be pressurized at about t

709  
00:33:58,470 --> 00:33:56,000

minus 40 seconds and we'll be counting

710  
00:34:03,190 --> 00:33:58,480

down to t 0. everything's good for

711  
00:34:08,389 --> 00:34:05,269

auto sequence start

712  
00:34:09,750 --> 00:34:08,399

audience voltages and currencies copy

713  
00:34:12,550 --> 00:34:09,760

all that one

714

00:34:13,510 --> 00:34:12,560

gnc one step 418 verifier ready for nav

715

00:34:16,710 --> 00:34:13,520

mode

716

00:34:18,829 --> 00:34:16,720

lcg and c1 orbital ready for nav and ops

717

00:34:25,030 --> 00:34:18,839

2 you go to switch to

718

00:34:30,629 --> 00:34:26,869

nav telemetry verified

719

00:34:33,589 --> 00:34:30,639

copy all check 419 and check 420

720

00:34:37,909 --> 00:34:33,599

tlm you can switch link 41 to open loop

721

00:34:37,919 --> 00:34:58,150

link 41 open

722

00:34:58,160 --> 00:35:02,470

t-minus two minutes on my mark

723

00:35:02,480 --> 00:35:32,790

mark

724

00:35:32,800 --> 00:35:39,240

t minus 1 minute 30 seconds

725

00:35:39,250 --> 00:35:58,390

[Music]

726  
00:35:58,400 --> 00:36:02,470  
t minus one minute on my mark

727  
00:36:02,480 --> 00:36:32,150  
mark

728  
00:36:32,160 --> 00:36:51,990  
t-minus 30 seconds

729  
00:36:52,000 --> 00:36:57,510  
t minus 10

730  
00:36:59,349 --> 00:36:58,390  
five

731  
00:37:00,390 --> 00:36:59,359  
four

732  
00:37:01,430 --> 00:37:00,400  
three

733  
00:37:02,710 --> 00:37:01,440  
two

734  
00:37:05,510 --> 00:37:02,720  
one

735  
00:37:20,390 --> 00:37:05,520  
we have engine ignition

736  
00:37:20,400 --> 00:37:24,470  
substances

737  
00:37:28,550 --> 00:37:26,710  
the ss catherine johnson takes flight on

738  
00:37:30,550 --> 00:37:28,560

this the 59th anniversary of john

739

00:37:31,990 --> 00:37:30,560

glenn's mercury flight carrying 8 000

740

00:37:33,589 --> 00:37:32,000

pounds of cargo to the international

741

00:37:41,910 --> 00:37:33,599

space station good performance on the

742

00:37:41,920 --> 00:37:54,069

[Music]

743

00:37:59,510 --> 00:37:56,870

stage one continues nominal performance

744

00:38:07,880 --> 00:37:59,520

inches at 100 percent

745

00:38:24,950 --> 00:38:10,710

[Music]

746

00:38:31,510 --> 00:38:26,630

first stage passing through the area of

747

00:38:31,520 --> 00:38:38,950

90 seconds into the flight

748

00:38:42,710 --> 00:38:41,030

this first stage burns for a little over

749

00:38:51,030 --> 00:38:42,720

three minutes three minutes 18 seconds

750

00:38:51,040 --> 00:38:59,589

about 90 seconds to stage one burnout

751  
00:39:10,790 --> 00:39:01,430  
attitude nominal

752  
00:39:10,800 --> 00:39:17,349  
t plus two minutes

753  
00:39:43,670 --> 00:39:19,670  
all subsystems continue in nominal

754  
00:39:49,589 --> 00:39:46,790  
also some sub-systems are nominal

755  
00:39:57,430 --> 00:39:49,599  
we'll be ready to shift down to uh 80 on

756  
00:40:02,390 --> 00:40:00,870  
start of slow throttle down

757  
00:40:03,990 --> 00:40:02,400  
throttling down at three minutes into

758  
00:40:11,829 --> 00:40:04,000  
the flight main engine cutoff coming

759  
00:40:11,839 --> 00:40:22,790  
throttle down to 55 percent

760  
00:40:27,990 --> 00:40:25,750  
main engine cutoff

761  
00:40:29,750 --> 00:40:28,000  
we have miko and terry's entering into a

762  
00:40:32,069 --> 00:40:29,760  
co stage fairing separation will occur

763  
00:40:33,270 --> 00:40:32,079

about 30 seconds later

764

00:40:35,510 --> 00:40:33,280

as we lose side of the vehicle now

765

00:40:37,750 --> 00:40:35,520

switching to animation

766

00:40:39,349 --> 00:40:37,760

some controlled firings on the inter

767

00:40:46,950 --> 00:40:39,359

stage of the rocket

768

00:40:46,960 --> 00:40:55,030

20 seconds to stage two ignition

769

00:40:55,040 --> 00:40:59,670

all subsystems nominal

770

00:40:59,680 --> 00:41:03,589

fairing separation

771

00:41:07,349 --> 00:41:04,829

enter stage

772

00:41:11,430 --> 00:41:07,359

separation confirm fairing separation

773

00:41:18,550 --> 00:41:14,309

stage two ignition

774

00:41:30,390 --> 00:41:18,560

is a solid rocket motor burns for about

775

00:41:32,870 --> 00:41:31,990

stage 2 will continue to burn for

776  
00:41:41,510 --> 00:41:32,880  
another

777  
00:41:41,520 --> 00:42:01,990  
altitude 138 kilometers

778  
00:42:08,790 --> 00:42:05,430  
uh mission time 300 seconds

779  
00:42:11,750 --> 00:42:08,800  
velocity 4.8 kilometers per second

780  
00:42:13,270 --> 00:42:11,760  
altitude 150 kilometers

781  
00:42:15,270 --> 00:42:13,280  
all systems continue to perform

782  
00:42:17,589 --> 00:42:15,280  
nominally

783  
00:42:24,870 --> 00:42:17,599  
good calls 5 minutes 15 seconds into

784  
00:42:48,550 --> 00:42:26,950  
stage 2 motor pressure

785  
00:42:53,510 --> 00:42:50,470  
attitude nominal

786  
00:43:07,589 --> 00:42:53,520  
altitude is 170 kilometers

787  
00:43:13,510 --> 00:43:10,630  
all stage 2 and gnc parameters continue

788  
00:43:15,990 --> 00:43:13,520

to be nominal

789

00:43:18,069 --> 00:43:16,000

six minutes 15 seconds into the flight

790

00:43:19,510 --> 00:43:18,079

uh coming up on stage two burn out of

791

00:43:21,750 --> 00:43:19,520

that solid rocket motor that will

792

00:43:31,990 --> 00:43:21,760

initiate a two minute coast period until

793

00:43:32,000 --> 00:43:42,630

stage two starting to tail off

794

00:43:42,640 --> 00:43:53,589

roughly 15 seconds to burn out

795

00:43:53,599 --> 00:43:58,470

stage two burnout attitude nominal

796

00:44:08,790 --> 00:44:01,270

stage two burnout good attitude uh we'll

797

00:44:13,270 --> 00:44:11,510

cygnus exposed after that uh fairing

798

00:44:15,270 --> 00:44:13,280

separation and will continue to carry

799

00:44:33,829 --> 00:44:15,280

the second stage with it until about

800

00:44:37,510 --> 00:44:35,430

attitude nominal

801  
00:44:40,390 --> 00:44:37,520  
expected attitude control system

802  
00:44:53,190 --> 00:44:40,400  
thruster firings received

803  
00:45:02,150 --> 00:44:57,910  
roughly one minute to payload separation

804  
00:45:02,160 --> 00:45:12,390  
velocity 7.5 kilometers per second

805  
00:45:24,150 --> 00:45:14,230  
all systems continue to operate as

806  
00:45:37,190 --> 00:45:27,030  
approximately 30 seconds to spacecraft

807  
00:45:41,430 --> 00:45:38,790  
attitude nominal

808  
00:45:44,309 --> 00:45:41,440  
systems continue to perform as expected

809  
00:45:51,750 --> 00:45:44,319  
uh attitude corrections uh maintaining

810  
00:45:57,270 --> 00:45:53,990  
lc gso i just released red team to the

811  
00:46:03,829 --> 00:45:59,109  
copy that

812  
00:46:07,349 --> 00:46:05,589  
confirmed nine minutes into today's

813  
00:46:08,630 --> 00:46:07,359

flight cygnus has separated from the

814

00:46:14,870 --> 00:46:08,640

second stage

815

00:46:19,030 --> 00:46:17,910

okay ng-15 excellent job today let's go

816

00:46:21,670 --> 00:46:19,040

ahead and wrap up through this

817

00:46:23,589 --> 00:46:21,680

post-launch checklist um

818

00:46:25,829 --> 00:46:23,599

and prop one uh

819

00:46:27,349 --> 00:46:25,839

can you report on status of pulse

820

00:46:37,349 --> 00:46:27,359

purging

821

00:46:40,950 --> 00:46:39,510

and gnc 1lc

822

00:46:43,670 --> 00:46:40,960

when you have

823

00:46:45,750 --> 00:46:43,680

the antarctic state factor to the cygnus

824

00:46:48,309 --> 00:46:45,760

poc emailed confirmed give me a call

825

00:46:49,829 --> 00:46:48,319

back on step 431

826

00:46:52,069 --> 00:46:49,839

copy and work

827

00:46:54,230 --> 00:46:52,079

from the wallops range control center in

828

00:46:55,829 --> 00:46:54,240

wallops island virginia some celebratory

829

00:46:57,270 --> 00:46:55,839

fist bumps as they successfully

830

00:46:59,510 --> 00:46:57,280

delivered cygnus into orbit a

831

00:47:01,349 --> 00:46:59,520

nine-minute flight on top of antares

832

00:47:04,470 --> 00:47:01,359

from virginia space's mid-atlantic

833

00:47:06,550 --> 00:47:04,480

regional spaceport uh into orbit cygnus

834

00:47:08,390 --> 00:47:06,560

now flying free

835

00:47:10,390 --> 00:47:08,400

the ss catherine johnson in flight will

836

00:47:13,430 --> 00:47:10,400

make its uh one and a half day

837

00:47:15,270 --> 00:47:13,440

journey just a little shy of two days

838

00:47:17,270 --> 00:47:15,280

to the international space station

839

00:47:20,309 --> 00:47:17,280

arriving in the wee hours uh early

840

00:47:22,829 --> 00:47:20,319

morning on monday february 22nd harmony

841

00:47:28,390 --> 00:47:22,839

rotated arm enable indication no longer

842

00:47:32,390 --> 00:47:29,990

and also disable your local launch

843

00:47:34,870 --> 00:47:32,400

enable button

844

00:47:37,430 --> 00:47:34,880

ops one launch enable removed engine fly

845

00:47:38,790 --> 00:47:37,440

controllers in dulles virginia northrop

846

00:47:41,349 --> 00:47:38,800

grumman's mission operation center will

847

00:47:42,710 --> 00:47:41,359

take control of the cygnus and

848

00:47:44,230 --> 00:47:42,720

monitor its approach to the

849

00:47:46,309 --> 00:47:44,240

international space station over the

850

00:47:48,150 --> 00:47:46,319

next couple of days a solar array

851  
00:47:50,470 --> 00:47:48,160  
deployment coming in a couple of hours

852  
00:47:52,870 --> 00:47:50,480  
will uh be breaking before that and will

853  
00:47:55,190 --> 00:47:52,880  
provide a confirmation of that via our

854  
00:47:56,549 --> 00:47:55,200  
blog and social media before we depart

855  
00:47:58,870 --> 00:47:56,559  
with you

856  
00:48:01,030 --> 00:47:58,880  
today for our coverage of the launch of

857  
00:48:02,470 --> 00:48:01,040  
northrop grumman's crs-15 mission to the

858  
00:48:04,630 --> 00:48:02,480  
international space station we're

859  
00:48:06,549 --> 00:48:04,640  
bringing on uh deputy manager of the

860  
00:48:08,950 --> 00:48:06,559  
international space station program

861  
00:48:10,470 --> 00:48:08,960  
kenny todd on with us to provide some

862  
00:48:13,270 --> 00:48:10,480  
remarks kenny thank you for joining us

863  
00:48:13,860 --> 00:48:13,280

today hey gary good good morning good to

864

00:48:14,950 --> 00:48:13,870

be with you

865

00:48:17,109 --> 00:48:14,960

[Music]

866

00:48:19,109 --> 00:48:17,119

kenny this launch comes ahead of a crew

867

00:48:21,670 --> 00:48:19,119

rotation and of course in the near term

868

00:48:23,430 --> 00:48:21,680

some evas from the perspective of the

869

00:48:25,270 --> 00:48:23,440

international space station program what

870

00:48:27,910 --> 00:48:25,280

is the significance of this mission uh

871

00:48:29,910 --> 00:48:27,920

crs-15

872

00:48:32,790 --> 00:48:29,920

well uh gary i mean this uh this

873

00:48:35,589 --> 00:48:32,800

particular mission uh um has

874

00:48:38,069 --> 00:48:35,599

about 8 000 pounds of of cargo coming to

875

00:48:39,430 --> 00:48:38,079

the space station and uh you know

876

00:48:41,510 --> 00:48:39,440

roughly a third of it is going to be

877

00:48:43,990 --> 00:48:41,520

dedicated uh directly to utility

878

00:48:45,990 --> 00:48:44,000

utilization and science on board on

879

00:48:47,589 --> 00:48:46,000

board the station and so again that's

880

00:48:50,069 --> 00:48:47,599

our that's our bread and butter that's

881

00:48:52,309 --> 00:48:50,079

that's what we're up there to do is is

882

00:48:54,870 --> 00:48:52,319

really really uh do the utilization and

883

00:48:56,950 --> 00:48:54,880

science that uh that our commercial

884

00:48:59,510 --> 00:48:56,960

customers need the things that we need

885

00:49:01,910 --> 00:48:59,520

to learn in order to go further into our

886

00:49:03,750 --> 00:49:01,920

solar system our human research and so

887

00:49:06,069 --> 00:49:03,760

we've uh we've got a lot of this flight

888

00:49:07,270 --> 00:49:06,079

that's dedicated uh to to that kind of

889

00:49:09,109 --> 00:49:07,280

activity

890

00:49:11,030 --> 00:49:09,119

uh in addition to that we've uh we've

891

00:49:13,510 --> 00:49:11,040

got a little over a third of it that's

892

00:49:15,510 --> 00:49:13,520

dedicated just to basic vehicle systems

893

00:49:17,030 --> 00:49:15,520

maintenance hardware and some new some

894

00:49:19,910 --> 00:49:17,040

new technology that we're bringing on

895

00:49:21,910 --> 00:49:19,920

board so again as we as we look to go

896

00:49:23,829 --> 00:49:21,920

further further away

897

00:49:25,990 --> 00:49:23,839

from low earth orbit the thing that we

898

00:49:27,270 --> 00:49:26,000

have to do is continue to learn um you

899

00:49:30,150 --> 00:49:27,280

know about the systems that we're going

900

00:49:31,990 --> 00:49:30,160

to need and and the iss provides a great

901  
00:49:33,750 --> 00:49:32,000  
platform for that so we are launching

902  
00:49:36,630 --> 00:49:33,760  
some some new hardware in the vehicle

903  
00:49:38,150 --> 00:49:36,640  
systems area that allow us to to uh

904  
00:49:39,910 --> 00:49:38,160  
demonstrate some of this technology and

905  
00:49:42,230 --> 00:49:39,920  
ensure that it'll be be there for us

906  
00:49:43,990 --> 00:49:42,240  
when we need it in the future

907  
00:49:45,270 --> 00:49:44,000  
but then as always um these cygnus

908  
00:49:46,870 --> 00:49:45,280  
flights are very important to us because

909  
00:49:48,870 --> 00:49:46,880  
they bring up a lot of crew supplies as

910  
00:49:49,829 --> 00:49:48,880  
well um they are a workhorse when it

911  
00:49:51,750 --> 00:49:49,839  
comes to

912  
00:49:53,750 --> 00:49:51,760  
to uh to making sure that we keep our

913  
00:49:55,349 --> 00:49:53,760

crews sustained on orbit with the with

914

00:49:57,750 --> 00:49:55,359

the different consumables that they need

915

00:49:59,349 --> 00:49:57,760

so again a very important flight for us

916

00:50:01,670 --> 00:49:59,359

and we're glad to see it off the ground

917

00:50:03,510 --> 00:50:01,680

and on the way to station off the ground

918

00:50:05,670 --> 00:50:03,520

on the way to station on time kenny this

919

00:50:07,910 --> 00:50:05,680

is coming uh right on the heels of texas

920

00:50:09,510 --> 00:50:07,920

having some severe winter weather now

921

00:50:10,710 --> 00:50:09,520

how were international space station

922

00:50:13,030 --> 00:50:10,720

operation

923

00:50:14,870 --> 00:50:13,040

on the day that it arrives um we've got

924

00:50:16,309 --> 00:50:14,880

some some key science objectives that we

925

00:50:17,270 --> 00:50:16,319

want to get going in that first couple

926  
00:50:19,910 --> 00:50:17,280  
of days

927  
00:50:22,230 --> 00:50:19,920  
um so so the first two or three days

928  
00:50:23,190 --> 00:50:22,240  
after it gets there will will be heavily

929  
00:50:25,270 --> 00:50:23,200  
and

930  
00:50:27,030 --> 00:50:25,280  
intensely focused on on the science that

931  
00:50:27,829 --> 00:50:27,040  
we need to get up and running

932  
00:50:29,990 --> 00:50:27,839  
um

933  
00:50:31,589 --> 00:50:30,000  
then uh shortly after that and merely

934  
00:50:33,829 --> 00:50:31,599  
you know four or five days after that

935  
00:50:36,710 --> 00:50:33,839  
we'll be heavy into doing a set of eba

936  
00:50:39,190 --> 00:50:36,720  
preps uh we're uh at this point planning

937  
00:50:41,829 --> 00:50:39,200  
on on going out to do an eva in the in

938  
00:50:44,870 --> 00:50:41,839

the um you know possibly as early as

939

00:50:47,750 --> 00:50:44,880

next weekend uh we we've got a double

940

00:50:49,510 --> 00:50:47,760

double eda planned um and so uh we'll

941

00:50:51,829 --> 00:50:49,520

we'll get busy on that as quick as we

942

00:50:53,430 --> 00:50:51,839

get the cygnus uh let's get the science

943

00:50:57,349 --> 00:50:53,440

up and going that came up in cygnus and

944

00:50:59,510 --> 00:50:57,359

then we'll we'll be on onto doing evas

945

00:51:01,190 --> 00:50:59,520

a lot coming up here in the near term

946

00:51:03,510 --> 00:51:01,200

kenny todd thank you so much for uh

947

00:51:05,270 --> 00:51:03,520

joining us here at the end of our launch

948

00:51:08,069 --> 00:51:05,280

coverage thanks for having me gary i

949

00:51:10,470 --> 00:51:08,079

appreciate it

950

00:51:12,950 --> 00:51:10,480

again we had a successful launch of uh

951  
00:51:16,790 --> 00:51:12,960  
northrop grumman's crs 15 mission on

952  
00:51:18,870 --> 00:51:16,800  
time today 12 36 and 49 seconds p.m

953  
00:51:20,549 --> 00:51:18,880  
eastern time you're getting a live look

954  
00:51:22,230 --> 00:51:20,559  
at the mission operations center in

955  
00:51:24,150 --> 00:51:22,240  
dulles virginia northrop grumman flight

956  
00:51:25,990 --> 00:51:24,160  
controllers taking control of the

957  
00:51:27,910 --> 00:51:26,000  
vehicle and will monitor its approach to

958  
00:51:30,870 --> 00:51:27,920  
the international space station over the

959  
00:51:33,829 --> 00:51:30,880  
next near two days until it arrives uh

960  
00:51:35,270 --> 00:51:33,839  
in the early morning of february 22nd uh

961  
00:51:38,150 --> 00:51:35,280  
monday morning

962  
00:51:39,750 --> 00:51:38,160  
robotic operators suici naguchi and

963  
00:51:41,270 --> 00:51:39,760

mike hopkins aboard the international

964

00:51:44,309 --> 00:51:41,280

space station will be poised at the

965

00:51:46,710 --> 00:51:44,319

controls of the canadarm2 the robotic

966

00:51:51,270 --> 00:51:46,720

arm of the station ready to capture it

967

00:51:54,150 --> 00:51:51,990

the

968

00:51:56,069 --> 00:51:54,160

cygnus is in orbit right now but its

969

00:51:57,589 --> 00:51:56,079

solar arrays are not deployed we will be

970

00:51:59,270 --> 00:51:57,599

wrapping up our coverage and providing

971

00:52:00,790 --> 00:51:59,280

confirmation of that solar array

972

00:52:03,829 --> 00:52:00,800

deployment here in the next couple of

973

00:52:05,589 --> 00:52:03,839

hours uh and that it is receiving power

974

00:52:07,829 --> 00:52:05,599

and well on its way to make that journey

975

00:52:10,069 --> 00:52:07,839

to the international space station our

976

00:52:13,190 --> 00:52:10,079

coverage on monday morning will begin at

977

00:52:15,190 --> 00:52:13,200

2 a.m central time 3 a.m eastern uh to

978

00:52:17,910 --> 00:52:15,200

monitor the approach and capture of

979

00:52:20,309 --> 00:52:17,920

cygnus and the 8 000 pounds of cargo

980

00:52:21,829 --> 00:52:20,319

inside of the vehicle and we'll also uh

981

00:52:24,069 --> 00:52:21,839

be providing coverage of the

982

00:52:25,829 --> 00:52:24,079

installation process robotic operators

983

00:52:28,309 --> 00:52:25,839

on the ground will take control of the

984

00:52:30,950 --> 00:52:28,319

robotic arm and maneuver into position

985

00:52:33,430 --> 00:52:30,960

on the nadir side of the international

986

00:52:35,430 --> 00:52:33,440

space station than unity module where it

987

00:52:37,430 --> 00:52:35,440

will remain for the next several months

988

00:52:39,109 --> 00:52:37,440

into may before it departs with trash

989

00:52:41,430 --> 00:52:39,119

and science on board

990

00:52:43,430 --> 00:52:41,440

to be eventually burned up in the

991

00:52:45,510 --> 00:52:43,440

atmosphere

992

00:52:47,190 --> 00:52:45,520

from michigan control houston and uh

993

00:52:49,750 --> 00:52:47,200

from all the teams that supported the

994

00:52:52,549 --> 00:52:49,760

launch that will wrap up our coverage

995

00:52:54,390 --> 00:52:52,559

of the crs 15 mission today we'll be

996

00:53:09,230 --> 00:52:54,400

with you again on monday morning until