
Antares

1
00:00:06,289 --> 00:00:04,640
good afternoon everybody and welcome

2
00:00:08,330 --> 00:00:06,299
back to nasa's wallops flight facility

3
00:00:09,500 --> 00:00:08,340
here in Virginia I'm NASA's Josh Byerly

4
00:00:11,030 --> 00:00:09,510
we're going to be taking a look at

5
00:00:12,560 --> 00:00:11,040
tomorrow's test launch by Orbital

6
00:00:14,450 --> 00:00:12,570
Sciences as they get ready to test out

7
00:00:16,190 --> 00:00:14,460
there and terry's rocket as well as

8
00:00:17,960 --> 00:00:16,200
getting a weather update we'll also be

9
00:00:19,820 --> 00:00:17,970
talking today about orbital sciences

10
00:00:20,960 --> 00:00:19,830
progress over the last few years as part

11
00:00:23,840 --> 00:00:20,970
of NASA's commercial orbital

12
00:00:25,580 --> 00:00:23,850
transportation services program to my

13
00:00:27,230 --> 00:00:25,590

left is Alan Linda Moyer NASA's

14
00:00:28,700 --> 00:00:27,240
Commercial Crew and cargo program

15
00:00:30,980 --> 00:00:28,710
manager at the Johnson Space Center in

16
00:00:32,870 --> 00:00:30,990
Houston we also have Frank Culbertson

17
00:00:35,330 --> 00:00:32,880
the executive vice president and general

18
00:00:37,100 --> 00:00:35,340
manager of orbital sciences advanced

19
00:00:39,410 --> 00:00:37,110
programs group he's making his encore

20
00:00:41,120 --> 00:00:39,420
performance today with us we also have

21
00:00:43,070 --> 00:00:41,130
Mike Pinkston the Antares program

22
00:00:45,770 --> 00:00:43,080
manager with orbital sciences and we are

23
00:00:47,630 --> 00:00:45,780
also joined by John Dickerson the attest

24
00:00:49,960 --> 00:00:47,640
director for tomorrow's activities here

25
00:00:53,210 --> 00:00:49,970
at Wallops we'll get started with Alan

26
00:00:55,580 --> 00:00:53,220
okay thank you Josh well it's been about

27
00:00:58,280 --> 00:00:55,590
five years since we started our program

28
00:01:00,110 --> 00:00:58,290
and our partnership with orbital in the

29
00:01:02,450 --> 00:01:00,120
cots program and there were five short

30
00:01:04,969 --> 00:01:02,460
years Frank to take you think something

31
00:01:06,920 --> 00:01:04,979
that beautiful graphic it's always

32
00:01:08,780 --> 00:01:06,930
exciting to see your view graphs come to

33
00:01:10,400 --> 00:01:08,790
life and when you drive out to the pad

34
00:01:13,430 --> 00:01:10,410
today we certainly can see that

35
00:01:17,240 --> 00:01:13,440
brand-new launch pad a beautiful rocket

36
00:01:19,730 --> 00:01:17,250
and it's certainly been an amazing five

37
00:01:24,080 --> 00:01:19,740
years we began the program with several

38
00:01:26,360 --> 00:01:24,090

objectives the first was to apply NASA

39
00:01:28,670 --> 00:01:26,370
strategic investments to stimulate the

40
00:01:31,640 --> 00:01:28,680
commercial space transportation industry

41
00:01:33,260 --> 00:01:31,650
and I distinguish the transportation

42
00:01:36,280 --> 00:01:33,270
industry from the broader commercial

43
00:01:41,600 --> 00:01:36,290
space industry because it really implies

44
00:01:44,180 --> 00:01:41,610
transporting products and and cargo to a

45
00:01:46,780 --> 00:01:44,190
destination in space and and then

46
00:01:49,160 --> 00:01:46,790
potentially bringing that back as

47
00:01:50,510 --> 00:01:49,170
opposed to just launching spacecraft or

48
00:01:52,730 --> 00:01:50,520
satellite switch which has been a

49
00:01:55,940 --> 00:01:52,740
thriving industry for years so ours was

50
00:01:58,850 --> 00:01:55,950
focused on the space transportation we

51
00:02:01,520 --> 00:01:58,860
would do that by opening our vast

52
00:02:03,860 --> 00:02:01,530
resources at NASA facilitating access to

53
00:02:07,640 --> 00:02:03,870
our expertise and our facilities and our

54
00:02:10,370 --> 00:02:07,650
equipment and make that available to our

55
00:02:13,220 --> 00:02:10,380
commercial partners with the goal of

56
00:02:16,369 --> 00:02:13,230
achieving safe reliable and cost

57
00:02:18,380 --> 00:02:16,379
effective access to space and to

58
00:02:19,970 --> 00:02:18,390
low-earth orbit and and in this

59
00:02:24,170 --> 00:02:19,980
international space station in

60
00:02:26,270 --> 00:02:24,180
particular and if we were successful in

61
00:02:27,830 --> 00:02:26,280
doing that we also recognized we needed

62
00:02:29,330 --> 00:02:27,840
to create a market environment that

63
00:02:32,650 --> 00:02:29,340

would sustain this emerging new

64
00:02:36,550 --> 00:02:32,660
capability and make that environment

65
00:02:39,229 --> 00:02:36,560
okay make help create that market and

66
00:02:40,910 --> 00:02:39,239
the International Space Station provided

67
00:02:42,680 --> 00:02:40,920
a perfect market for these new

68
00:02:49,250 --> 00:02:42,690
capabilities with reliable and

69
00:02:50,509 --> 00:02:49,260
predictable needs and we followed

70
00:02:53,180 --> 00:02:50,519
through with that commitment because

71
00:02:56,599 --> 00:02:53,190
shortly after our award by the end of

72
00:02:58,300 --> 00:02:56,609
2008 we awarded orbital and our other

73
00:03:02,449 --> 00:02:58,310
partner SpaceX commercial resupply

74
00:03:05,119 --> 00:03:02,459
contract to service the space station

75
00:03:07,190 --> 00:03:05,129
and in orbitals case they were awarded a

76
00:03:13,640 --> 00:03:07,200
contract for 1.9 billion dollars and

77
00:03:22,670 --> 00:03:13,650
eight resupply missions through 2015 we

78
00:03:26,479 --> 00:03:22,680
could bring up chart one okay now under

79
00:03:30,229 --> 00:03:26,489
the initial agreement with orbital we

80
00:03:32,059 --> 00:03:30,239
were to make incremental payments up to

81
00:03:34,610 --> 00:03:32,069
a hundred and seventy million dollars

82
00:03:36,500 --> 00:03:34,620
for the successful performance of a

83
00:03:40,129 --> 00:03:36,510
series of milestones that we pre

84
00:03:42,229 --> 00:03:40,139
negotiated under the agreement those

85
00:03:45,440 --> 00:03:42,239
were a series of 19 milestones that were

86
00:03:47,089 --> 00:03:45,450
to culminate in the demonstration

87
00:03:49,430 --> 00:03:47,099
mission to the international space

88
00:03:50,809 --> 00:03:49,440

station now because we had limited

89
00:03:52,879 --> 00:03:50,819
funding in the second round of

90
00:03:56,900 --> 00:03:52,889
competition we just didn't have the

91
00:03:58,879 --> 00:03:56,910
capability at the time to provide

92
00:04:00,470 --> 00:03:58,889
assistance in funding for multiple

93
00:04:05,839 --> 00:04:00,480
flights of course that would have been

94
00:04:08,089 --> 00:04:05,849
optimum but as 2010 came rolling around

95
00:04:09,920 --> 00:04:08,099
and it quickly became realized that the

96
00:04:13,879 --> 00:04:09,930
station the Space Shuttle would be

97
00:04:16,939 --> 00:04:13,889
retiring the services of resupplying the

98
00:04:19,339 --> 00:04:16,949
space station from our American soil was

99
00:04:21,949 --> 00:04:19,349
was critically important we began asking

100
00:04:23,800 --> 00:04:21,959
the questions what could we do to reduce

101
00:04:26,230 --> 00:04:23,810
risk and

102
00:04:27,940 --> 00:04:26,240
prove the chances of success that our

103
00:04:30,909 --> 00:04:27,950
commercial partners would be able to

104
00:04:33,040 --> 00:04:30,919
provide these services and in

105
00:04:34,750 --> 00:04:33,050
consultation with orbital it was

106
00:04:37,300 --> 00:04:34,760
determined the best possible thing we

107
00:04:39,190 --> 00:04:37,310
could do to improve our chances of

108
00:04:44,590 --> 00:04:39,200
success was to add a test flight because

109
00:04:47,110 --> 00:04:44,600
testing is so important and you know she

110
00:04:49,270 --> 00:04:47,120
should there be a problem in these

111
00:04:51,760 --> 00:04:49,280
initial flights we certainly wanted the

112
00:04:56,050 --> 00:04:51,770
capability and the opportunity to be

113
00:04:59,230 --> 00:04:56,060

able to give it another try so in 2010

114
00:05:01,120 --> 00:04:59,240
we requested funding and in 2011 we were

115
00:05:02,890 --> 00:05:01,130
appropriated the funds to add in the

116
00:05:04,810 --> 00:05:02,900
additional risk mitigation milestones

117
00:05:07,120 --> 00:05:04,820
those were a series of ten additional

118
00:05:10,780 --> 00:05:07,130
milestones that orbital has performed

119
00:05:12,640 --> 00:05:10,790
over the last couple years we added 118

120
00:05:14,140 --> 00:05:12,650
million dollars and the ability to add

121
00:05:22,060 --> 00:05:14,150
the test flight that we're about to see

122
00:05:24,070 --> 00:05:22,070
tomorrow so we have left in the

123
00:05:27,779 --> 00:05:24,080
agreement for milestones the flight

124
00:05:31,630 --> 00:05:27,789
tomorrow is one of the four we have a

125
00:05:33,310 --> 00:05:31,640
payment of four million dollars on that

126
00:05:35,440 --> 00:05:33,320
milestone and there will be three more

127
00:05:37,540 --> 00:05:35,450
that will lead to the demonstration to

128
00:05:39,580 --> 00:05:37,550
the International Space Station in a

129
00:05:41,950 --> 00:05:39,590
couple of months and that will complete

130
00:05:43,840 --> 00:05:41,960
our cots agreements this does represent

131
00:05:47,170 --> 00:05:43,850
a new way of doing business for NASA

132
00:05:50,260 --> 00:05:47,180
NASA is not directing the design in this

133
00:05:53,980 --> 00:05:50,270
case we are a partner we are an investor

134
00:05:58,120 --> 00:05:53,990
we are a technical consultant and we are

135
00:06:00,370 --> 00:05:58,130
resourced to orbital to help them in

136
00:06:03,000 --> 00:06:00,380
many ways and we have reached back

137
00:06:06,520 --> 00:06:03,010
through resources across all of NASA

138
00:06:09,629 --> 00:06:06,530

throughout the years helping orbital

139
00:06:11,560 --> 00:06:09,639
with the partnership so it's really a

140
00:06:14,110 --> 00:06:11,570
different way of doing business we're

141
00:06:15,960 --> 00:06:14,120
sharing the cost this is we are

142
00:06:17,860 --> 00:06:15,970
certainly not paying the full cost of

143
00:06:21,850 --> 00:06:17,870
the development of these new

144
00:06:29,750 --> 00:06:21,860
capabilities and I think it's been very

145
00:06:36,750 --> 00:06:33,180
so our other partner SpaceX completed as

146
00:06:38,760 --> 00:06:36,760
you know the COTS Space Act agreement

147
00:06:41,250 --> 00:06:38,770
they completed their second

148
00:06:47,520 --> 00:06:41,260
demonstration mission and first flight

149
00:06:49,800 --> 00:06:47,530
to the space station last May and that

150
00:06:51,630 --> 00:06:49,810
program took about six years to complete

151
00:06:54,480 --> 00:06:51,640
from the beginning they had a head start

152
00:06:56,370 --> 00:06:54,490
on orbital year-and-a-half labor later

153
00:07:00,510 --> 00:06:56,380
we awarded the in the second round

154
00:07:01,920 --> 00:07:00,520
competition agreement with orbital but

155
00:07:04,890 --> 00:07:01,930
you can see there's a very similar

156
00:07:06,990 --> 00:07:04,900
design cycle cycle and bring in a new

157
00:07:08,520 --> 00:07:07,000
capability like this online starting

158
00:07:10,320 --> 00:07:08,530
with design and development into test

159
00:07:16,560 --> 00:07:10,330
and production and then finally the

160
00:07:19,470 --> 00:07:16,570
flight demonstrations so this is telling

161
00:07:24,630 --> 00:07:19,480
us to to create a capability like this

162
00:07:27,060 --> 00:07:24,640
is about five to six years and with the

163
00:07:30,090 --> 00:07:27,070

successful flight tomorrow space orbital

164
00:07:32,160 --> 00:07:30,100
will be on track for the ISS demo coming

165
00:07:35,310 --> 00:07:32,170
up in a couple months certainly taken a

166
00:07:40,410 --> 00:07:35,320
lot of hard work everybody has worked so

167
00:07:45,180 --> 00:07:40,420
well together between NASA Wallops the

168
00:07:48,060 --> 00:07:45,190
Mars authority and orbital and all the

169
00:07:49,770 --> 00:07:48,070
folks at NASA I want to thank them for

170
00:07:52,920 --> 00:07:49,780
getting us here to this point today

171
00:07:54,900 --> 00:07:52,930
congratulate orbital for a great work

172
00:07:57,540 --> 00:07:54,910
and getting us here and we're certainly

173
00:07:59,640 --> 00:07:57,550
looking forward to the flight tomorrow

174
00:08:03,180 --> 00:07:59,650
and then the demonstration to the space

175
00:08:04,920 --> 00:08:03,190
station this summer okay right right

176
00:08:06,660 --> 00:08:04,930
thank you very much Thank You Ellen and

177
00:08:10,230 --> 00:08:06,670
I agree you guys have been great

178
00:08:12,900 --> 00:08:10,240
partners on behalf of mr. David Thompson

179
00:08:15,510 --> 00:08:12,910
and the entire orbital community and

180
00:08:18,030 --> 00:08:15,520
team and the company I'd like to again

181
00:08:19,560 --> 00:08:18,040
thank everyone for being here we're very

182
00:08:21,120 --> 00:08:19,570
excited to be a part of this very

183
00:08:23,340 --> 00:08:21,130
excited to be at this point in our

184
00:08:24,900 --> 00:08:23,350
history and really looking forward to

185
00:08:27,480 --> 00:08:24,910
seeing it all come together in

186
00:08:30,420 --> 00:08:27,490
in a column of flame and smoke and a

187
00:08:33,300 --> 00:08:30,430
little bit of steam maybe as we come off

188
00:08:34,710 --> 00:08:33,310

the pad it has been a long journey to

189
00:08:37,380 --> 00:08:34,720
get to this point it has not been

190
00:08:40,200 --> 00:08:37,390
without its challenges one of the

191
00:08:41,460 --> 00:08:40,210
aspects of this as Alan said is we had

192
00:08:44,190 --> 00:08:41,470
to learn to work together in different

193
00:08:46,950 --> 00:08:44,200
ways between ourselves our customer our

194
00:08:49,470 --> 00:08:46,960
partners like Mars or subcontractors

195
00:08:51,480 --> 00:08:49,480
even and and figure out how to do this

196
00:08:54,810 --> 00:08:51,490
on a commercial and cost-effective basis

197
00:08:56,550 --> 00:08:54,820
that's sustainable NASA's investment of

198
00:08:58,200 --> 00:08:56,560
this has been very important orbitals

199
00:09:01,980 --> 00:08:58,210
investments been extremely important and

200
00:09:05,190 --> 00:09:01,990
then the investment made by the state of

201
00:09:07,080 --> 00:09:05,200
Virginia and by other parts of NASA have

202
00:09:09,450 --> 00:09:07,090
been important so it's all going to come

203
00:09:11,370 --> 00:09:09,460
together and in the end provide us with

204
00:09:16,440 --> 00:09:11,380
a capability that we wouldn't have had

205
00:09:19,020 --> 00:09:16,450
otherwise Alan and his team particularly

206
00:09:21,060 --> 00:09:19,030
led by Bruce manners and Kevin me and

207
00:09:22,620 --> 00:09:21,070
have been great to work with whenever we

208
00:09:26,040 --> 00:09:22,630
had problems as he said we worked them

209
00:09:27,750 --> 00:09:26,050
together it it's important to strike the

210
00:09:30,110 --> 00:09:27,760
right balance there we were very happy

211
00:09:32,370 --> 00:09:30,120
to have the help most of the time and

212
00:09:35,130 --> 00:09:32,380
when we really needed it we told you we

213
00:09:36,900 --> 00:09:35,140

really needed it but when we needed to

214
00:09:38,970 --> 00:09:36,910
do things our own way and to make our

215
00:09:41,310 --> 00:09:38,980
own decisions that gave us room to do

216
00:09:43,830 --> 00:09:41,320
that and that was much appreciated also

217
00:09:46,290 --> 00:09:43,840
because it is actually our rocket our

218
00:09:48,180 --> 00:09:46,300
spacecraft in our program and NASA is

219
00:09:50,250 --> 00:09:48,190
our customer has a great deal of say in

220
00:09:52,710 --> 00:09:50,260
that but we in the end are responsible

221
00:09:54,540 --> 00:09:52,720
for its success and we as a team

222
00:09:56,370 --> 00:09:54,550
evaluate all that and we take inputs

223
00:09:57,450 --> 00:09:56,380
from everybody but we we totally

224
00:09:59,580 --> 00:09:57,460
understand our level of the

225
00:10:01,680 --> 00:09:59,590
responsibility in this not only to the

226
00:10:04,740 --> 00:10:01,690
company and to our shareholders but to

227
00:10:05,970 --> 00:10:04,750
the customer in the country so it's

228
00:10:07,170 --> 00:10:05,980
going to be great to see this come

229
00:10:09,730 --> 00:10:07,180
together and

230
00:10:11,860 --> 00:10:09,740
Mike Pinkston our program manager will

231
00:10:13,360 --> 00:10:11,870
show a few slides in a moment and give

232
00:10:16,320 --> 00:10:13,370
you a lot more detail on the on the

233
00:10:19,900 --> 00:10:16,330
launch but I do want to say that that we

234
00:10:21,370 --> 00:10:19,910
see this as a key milestone improving

235
00:10:25,090 --> 00:10:21,380
what can be done in an industry

236
00:10:26,890 --> 00:10:25,100
government partnership and what can be

237
00:10:29,830 --> 00:10:26,900
done when when people take a fresh look

238
00:10:31,720 --> 00:10:29,840

at it how you can achieve spaceflight

239
00:10:34,660 --> 00:10:31,730
and as Phil said earlier there are many

240
00:10:36,280 --> 00:10:34,670
ways to achieve that goal and this is

241
00:10:38,110 --> 00:10:36,290
the one we've chosen and it works for us

242
00:10:41,140 --> 00:10:38,120
and we're going to continue to build on

243
00:10:42,940 --> 00:10:41,150
that once we have flown this test flight

244
00:10:44,290 --> 00:10:42,950
we will turn around and get ready for

245
00:10:46,060 --> 00:10:44,300
the demo mission in about three months

246
00:10:47,590 --> 00:10:46,070
go all the way to the international

247
00:10:49,270 --> 00:10:47,600
space station and I'll show you a brief

248
00:10:51,340 --> 00:10:49,280
video clip of what that'll look like and

249
00:10:53,700 --> 00:10:51,350
then we'll proceed on from there to

250
00:10:56,620 --> 00:10:53,710
starting to execute that contract

251
00:10:58,750 --> 00:10:56,630
sometimes we get asked well you know you

252
00:11:00,700 --> 00:10:58,760
only have a few million left on the on

253
00:11:03,060 --> 00:11:00,710
the demo mission there a few million

254
00:11:05,620 --> 00:11:03,070
there's a lot of money by the way but

255
00:11:07,750 --> 00:11:05,630
compared to the overall contract you

256
00:11:09,670 --> 00:11:07,760
know why is that important to you well

257
00:11:11,890 --> 00:11:09,680
it's not a few million we have riding on

258
00:11:14,050 --> 00:11:11,900
that's 1.9 billion and the company

259
00:11:16,870 --> 00:11:14,060
reputation all the companies involved

260
00:11:18,430 --> 00:11:16,880
reputations and so this is an extremely

261
00:11:20,650 --> 00:11:18,440
important achievement for us no matter

262
00:11:23,410 --> 00:11:20,660
what the size of the milestone payment

263
00:11:24,970 --> 00:11:23,420

is it's the whole team proving that we

264
00:11:27,580 --> 00:11:24,980
can in fact do this and do it in a

265
00:11:29,680 --> 00:11:27,590
different way and doing successfully so

266
00:11:32,220 --> 00:11:29,690
if we can roll the video I'll run

267
00:11:35,170 --> 00:11:32,230
through a brief summary of the overall

268
00:11:37,540 --> 00:11:35,180
mission concept and then Michael go into

269
00:11:42,040 --> 00:11:37,550
more detail on the launch vehicle itself

270
00:11:43,340 --> 00:11:42,050
and I was assured i'd be able to see it

271
00:11:49,220 --> 00:11:43,350
this time sort of

272
00:11:53,690 --> 00:11:49,230
don't have to fake it but do we have it

273
00:11:55,370 --> 00:11:53,700
is it rolling let me check all right all

274
00:11:59,350 --> 00:11:55,380
right stand by their kind of dig it up

275
00:12:03,470 --> 00:11:59,360
and get it so all right in the meantime

276
00:12:07,490 --> 00:12:03,480
the the launch tomorrow is going to take

277
00:12:10,370 --> 00:12:07,500
about about nine hours I'm sorry eight

278
00:12:11,840 --> 00:12:10,380
hours of countdown activities and as we

279
00:12:13,970 --> 00:12:11,850
go through all of that will be checking

280
00:12:17,510 --> 00:12:13,980
everything possible on the rocket on the

281
00:12:19,400 --> 00:12:17,520
ground systems the tracking systems NASA

282
00:12:22,250 --> 00:12:19,410
is doing a great job of supporting us in

283
00:12:23,450 --> 00:12:22,260
the range and and of course Mars is

284
00:12:26,900 --> 00:12:23,460
doing a great job of providing the

285
00:12:28,400 --> 00:12:26,910
launch facility and liftoff will it will

286
00:12:30,650 --> 00:12:28,410
probably not look like he's accelerating

287
00:12:33,050 --> 00:12:30,660
quite that fast in person but I'll

288
00:12:35,420 --> 00:12:33,060

guarantee it will be accelerating and in

289
00:12:37,640 --> 00:12:35,430
about ten minutes it'll it'll I'm sorry

290
00:12:39,020 --> 00:12:37,650
in about four minutes it'll expend all

291
00:12:41,030 --> 00:12:39,030
of the fuel in the first stage will

292
00:12:42,920 --> 00:12:41,040
separate the fairing the second stage

293
00:12:44,690 --> 00:12:42,930
will take over and boost us into orbit

294
00:12:47,060 --> 00:12:44,700
and at the end of approximately a

295
00:12:49,700 --> 00:12:47,070
10-minute flight we will separate and be

296
00:12:51,650 --> 00:12:49,710
in orbit on the demo mission once the

297
00:12:53,240 --> 00:12:51,660
Cygnus spacecraft has separated will

298
00:12:55,160 --> 00:12:53,250
deploy the solar array so that we can

299
00:12:58,250 --> 00:12:55,170
have power and then we'll go through the

300
00:13:00,410 --> 00:12:58,260
three to five days of orbital maneuvers

301
00:13:02,960 --> 00:13:00,420
required to achieve rendezvous with the

302
00:13:04,460 --> 00:13:02,970
international space station along the

303
00:13:06,530 --> 00:13:04,470
way we'll have to prove some things such

304
00:13:08,840 --> 00:13:06,540
as our ability to hold two aboard to

305
00:13:10,970 --> 00:13:08,850
control and to respond to commands from

306
00:13:14,210 --> 00:13:10,980
the station but once we do that we will

307
00:13:18,080 --> 00:13:14,220
approach from below and maintain a

308
00:13:20,810 --> 00:13:18,090
fairly stately approach speed and and

309
00:13:22,430 --> 00:13:20,820
stop about 10 meters from the station so

310
00:13:24,980 --> 00:13:22,440
that the station crew can then reach us

311
00:13:27,550 --> 00:13:24,990
with their remote manipulator system or

312
00:13:32,480 --> 00:13:27,560
robotic arm once we're in position and

313
00:13:34,190 --> 00:13:32,490

stable they will grapple us and that's a

314
00:13:35,270 --> 00:13:34,200
that's a fun time for the crew actually

315
00:13:36,500 --> 00:13:35,280
they don't get to operate the arm all

316
00:13:37,610 --> 00:13:36,510
that much so they're happy to see

317
00:13:39,740 --> 00:13:37,620
something like that come up and

318
00:13:42,740 --> 00:13:39,750
demonstrate they really can't use that

319
00:13:44,810 --> 00:13:42,750
training and so they'll grapple us and

320
00:13:47,960 --> 00:13:44,820
then attaches to the nadir port of the

321
00:13:48,350 --> 00:13:47,970
node number two at that point they'll go

322
00:13:51,050 --> 00:13:48,360
through

323
00:13:54,829 --> 00:13:51,060
a variety of checks to make sure that we

324
00:13:56,449 --> 00:13:54,839
are pressurized there's no leaks between

325
00:13:59,350 --> 00:13:56,459
the two vehicles and we have a good

326
00:14:02,030 --> 00:13:59,360
solid connection both mechanically and

327
00:14:03,590 --> 00:14:02,040
electrically and once that's completed

328
00:14:06,470 --> 00:14:03,600
the crew will go through the process of

329
00:14:08,860 --> 00:14:06,480
opening the hatch and looking for their

330
00:14:11,509 --> 00:14:08,870
Easter eggs or Christmas surprises and

331
00:14:14,810 --> 00:14:11,519
and the food that we are and clothing

332
00:14:17,150 --> 00:14:14,820
that we're sending up and we won't have

333
00:14:19,519 --> 00:14:17,160
this much on the first first mission but

334
00:14:22,310 --> 00:14:19,529
we will have a lot of those bags 800

335
00:14:24,319 --> 00:14:22,320
kilograms worth in the summer that will

336
00:14:27,680 --> 00:14:24,329
go up to the station they'll unload it

337
00:14:29,870 --> 00:14:27,690
stow it and then they'll stow what we

338
00:14:32,540 --> 00:14:29,880

call disposal cargo in the in the

339
00:14:35,449 --> 00:14:32,550
spacecraft in anticipation of unbirth

340
00:14:37,670 --> 00:14:35,459
thing and deorbit once the hatch is

341
00:14:40,630 --> 00:14:37,680
closed and everything is as it should be

342
00:14:43,870 --> 00:14:40,640
there will use the arm to release it and

343
00:14:48,410 --> 00:14:43,880
it'll fly away under its own power and

344
00:14:50,900 --> 00:14:48,420
deorbit safely away from the station a

345
00:14:52,759 --> 00:14:50,910
day or two later it could stay in orbit

346
00:14:54,740 --> 00:14:52,769
for several days or even several months

347
00:14:57,470 --> 00:14:54,750
if need be depending on what its mission

348
00:14:59,329 --> 00:14:57,480
is once it leaves the station but when

349
00:15:01,790 --> 00:14:59,339
it does the orbit will fire the Jets

350
00:15:03,769 --> 00:15:01,800
slow it down by about 300 miles an hour

351
00:15:06,439 --> 00:15:03,779
it will reenter the atmosphere over the

352
00:15:10,069 --> 00:15:06,449
Pacific and burn up at that time and

353
00:15:12,710 --> 00:15:10,079
very small pieces and hopefully none of

354
00:15:16,370 --> 00:15:12,720
that disposal cargo or trash will make

355
00:15:18,220 --> 00:15:16,380
it to the earth and this isn't my

356
00:15:21,889 --> 00:15:18,230
favorite shot but it does show that it

357
00:15:25,280 --> 00:15:21,899
does in fact come apart and burn up and

358
00:15:26,329 --> 00:15:25,290
we can stop it there so anyway we're

359
00:15:27,769 --> 00:15:26,339
looking forward to that mission but

360
00:15:30,319 --> 00:15:27,779
right now we're focused on this one this

361
00:15:32,750 --> 00:15:30,329
is a test mission there are things we

362
00:15:34,220 --> 00:15:32,760
may learn and if we do see any anomalies

363
00:15:36,500 --> 00:15:34,230

will respond to them immediately and

364
00:15:39,230 --> 00:15:36,510
take whatever action is necessary either

365
00:15:40,670 --> 00:15:39,240
in real time or after the flight after

366
00:15:41,470 --> 00:15:40,680
we analyze everything and decide what we

367
00:15:43,780 --> 00:15:41,480
need to do to make it

368
00:15:45,280 --> 00:15:43,790
better going forward but we will learn a

369
00:15:47,439 --> 00:15:45,290
lot from this it's a tremendous

370
00:15:49,210 --> 00:15:47,449
challenge to get to this point I

371
00:15:52,840 --> 00:15:49,220
congratulate all the members of the team

372
00:15:57,040 --> 00:15:52,850
on on reaching this point our folks on

373
00:15:59,410 --> 00:15:57,050
the Ataris program the wallops team Mars

374
00:16:01,840 --> 00:15:59,420
and the broader NASA International Space

375
00:16:03,400 --> 00:16:01,850
Station program and the other centers

376
00:16:05,650 --> 00:16:03,410
that have chipped in to help us get to

377
00:16:07,800 --> 00:16:05,660
this point thanks very much and also

378
00:16:09,750 --> 00:16:07,810
want to thank our legislators and

379
00:16:11,920 --> 00:16:09,760
government leaders around the

380
00:16:14,680 --> 00:16:11,930
mid-atlantic states that have helped us

381
00:16:16,780 --> 00:16:14,690
achieve this also they've been a key key

382
00:16:18,790 --> 00:16:16,790
element in keeping it going and keeping

383
00:16:21,490 --> 00:16:18,800
it funded and keeping the support there

384
00:16:22,689 --> 00:16:21,500
so my thanks to all of you and with that

385
00:16:25,509 --> 00:16:22,699
i'm on turn it over to our program

386
00:16:28,600 --> 00:16:25,519
manager Mike Pinkston who's who used to

387
00:16:31,110 --> 00:16:28,610
have short blond hair but we've really

388
00:16:33,280 --> 00:16:31,120

worn him down the last few months and

389
00:16:34,500 --> 00:16:33,290
Mike's done a great job with his team

390
00:16:37,180 --> 00:16:34,510
they've been working really hard

391
00:16:39,340 --> 00:16:37,190
including the last 24 hours and getting

392
00:16:43,689 --> 00:16:39,350
ready to go so okay night all right well

393
00:16:46,329 --> 00:16:43,699
uh good afternoon and thanks to all for

394
00:16:49,809 --> 00:16:46,339
coming out to what ought to be a good

395
00:16:51,309 --> 00:16:49,819
show tomorrow I've got a few view graphs

396
00:16:55,139 --> 00:16:51,319
if we could bring them up to kind of

397
00:16:56,889 --> 00:16:55,149
walk us through the the a1 mission and

398
00:17:02,439 --> 00:16:56,899
configuration of the Antares launch

399
00:17:05,049 --> 00:17:02,449
vehicle next next slide please okay as

400
00:17:06,669 --> 00:17:05,059
you may have gathered the primary

401
00:17:09,579 --> 00:17:06,679
objective of the a1 mission is really to

402
00:17:10,809 --> 00:17:09,589
provide a risk reduction for a

403
00:17:13,120 --> 00:17:10,819
demonstration of the launch vehicle

404
00:17:16,510 --> 00:17:13,130
capability itself prior to our first

405
00:17:19,720 --> 00:17:16,520
cargo delivery mission to the space

406
00:17:21,939 --> 00:17:19,730
station in our in our cots demonstration

407
00:17:25,960 --> 00:17:21,949
mission that that objective is being

408
00:17:29,470 --> 00:17:25,970
achieved by designing an a-one mission

409
00:17:32,830 --> 00:17:29,480
and really all regards that is intended

410
00:17:33,700 --> 00:17:32,840
to be directly a representative of what

411
00:17:36,490 --> 00:17:33,710
we're going to do on the cots

412
00:17:38,200 --> 00:17:36,500
demonstration you know the launch

413
00:17:41,280 --> 00:17:38,210

vehicle configuration is obviously the

414
00:17:43,930 --> 00:17:41,290
start we also are carrying on board a

415
00:17:47,289 --> 00:17:43,940
mass representative Cygnus simulator

416
00:17:51,039 --> 00:17:47,299
that represents mass properties the

417
00:17:52,370 --> 00:17:51,049
volumetric size of the spacecraft as

418
00:17:55,190 --> 00:17:52,380
well as the

419
00:17:56,780 --> 00:17:55,200
the direct mechanical interfaces we will

420
00:17:58,790 --> 00:17:56,790
also be carrying on board that payload

421
00:18:01,870 --> 00:17:58,800
simulator an instrumentation sweet

422
00:18:04,370 --> 00:18:01,880
that'll be used to gather dynamic

423
00:18:07,250 --> 00:18:04,380
environments data that we can use to

424
00:18:09,110 --> 00:18:07,260
validate models and ensure that we know

425
00:18:10,850 --> 00:18:09,120
going into the demo mission what the the

426
00:18:13,670 --> 00:18:10,860
Cygnus spacecraft will actually see in

427
00:18:16,940 --> 00:18:13,680
flight obviously the orbital parameters

428
00:18:18,080 --> 00:18:16,950
are set to be sucking you know identical

429
00:18:19,790 --> 00:18:18,090
to what we're going to be flying on the

430
00:18:21,920 --> 00:18:19,800
demo mission and then all of the

431
00:18:25,300 --> 00:18:21,930
integration and launch operations have

432
00:18:27,680 --> 00:18:25,310
been you know a scripted in order to

433
00:18:31,180 --> 00:18:27,690
emulate the flow that will take place

434
00:18:34,430 --> 00:18:31,190
when we've got a live Cygnus on board

435
00:18:35,660 --> 00:18:34,440
the objectives maybe more specifically

436
00:18:37,370 --> 00:18:35,670
the mission is to give you some things

437
00:18:39,290 --> 00:18:37,380
to look for the things that will be

438
00:18:43,250 --> 00:18:39,300

looking for to achieve out of the

439
00:18:45,020 --> 00:18:43,260
mission first on on launch day the the

440
00:18:46,730 --> 00:18:45,030
commodity loading and countdown

441
00:18:48,590 --> 00:18:46,740
operation to launch as Frank mentioned

442
00:18:50,560 --> 00:18:48,600
it's about an eight hour operation for

443
00:18:54,170 --> 00:18:50,570
the time we get our team on station

444
00:18:56,210 --> 00:18:54,180
through the check out of the of the all

445
00:18:58,940 --> 00:18:56,220
of the subsystems on board the rocket

446
00:19:01,000 --> 00:18:58,950
then we fuel the rocket and then enter a

447
00:19:03,230 --> 00:19:01,010
terminal account to launch it'll all be

448
00:19:06,170 --> 00:19:03,240
conducted as it would be on the

449
00:19:09,140 --> 00:19:06,180
demonstration mission once we leave the

450
00:19:10,790 --> 00:19:09,150
pad I will be looking at the the stage

451
00:19:12,110 --> 00:19:10,800
one fly out including the the

452
00:19:15,350 --> 00:19:12,120
performance looking phenomenal

453
00:19:18,950 --> 00:19:15,360
performance of the engine core and

454
00:19:21,410 --> 00:19:18,960
thrust vector control subsystems after

455
00:19:24,560 --> 00:19:21,420
stage one burns at about four minutes

456
00:19:26,570 --> 00:19:24,570
after ignition we will separate the

457
00:19:28,760 --> 00:19:26,580
stage it's actually a series of

458
00:19:31,130 --> 00:19:28,770
separation events where will separate

459
00:19:32,720 --> 00:19:31,140
the first stage will separate the

460
00:19:35,810 --> 00:19:32,730
fairing and then we'll separate the

461
00:19:37,880 --> 00:19:35,820
interstage that the it holds the second

462
00:19:40,790 --> 00:19:37,890
stage to the first stage ignite the

463
00:19:42,410 --> 00:19:40,800

second stage it'll fly we'll look at its

464
00:19:44,810 --> 00:19:42,420
performance as well as the performance

465
00:19:47,350 --> 00:19:44,820
of its thrust vector control system and

466
00:19:50,000 --> 00:19:47,360
then once we're in orbit we will

467
00:19:53,030 --> 00:19:50,010
separate the payload so that's that's

468
00:19:56,660 --> 00:19:53,040
kind of it in a nutshell if we could go

469
00:19:59,360 --> 00:19:56,670
to the next chart just a few I guess

470
00:20:02,990 --> 00:19:59,370
important facts about the mission it is

471
00:20:04,830 --> 00:20:03,000
in Antares 110 configuration that's our

472
00:20:07,500 --> 00:20:04,840
standard first stage

473
00:20:10,500 --> 00:20:07,510
a caster 30 second stage and then the

474
00:20:14,039 --> 00:20:10,510
you know no third stage it is as

475
00:20:17,190 --> 00:20:14,049
mentioned a 3800 kilogram Cygnus payload

476
00:20:20,539 --> 00:20:17,200
simulator flying out of the Mars pad 0a

477
00:20:23,190 --> 00:20:20,549
the Wallops is the obviously lead range

478
00:20:27,240 --> 00:20:23,200
launch date tomorrow and our launch

479
00:20:30,120 --> 00:20:27,250
window currently is a 5 p.m. 28 p.m.

480
00:20:31,950 --> 00:20:30,130
local we will make a decision tonight

481
00:20:34,500 --> 00:20:31,960
after we get our last weather briefing

482
00:20:36,360 --> 00:20:34,510
on on where to target we can actually

483
00:20:38,970 --> 00:20:36,370
target two hours within that three-hour

484
00:20:40,769 --> 00:20:38,980
window so the decision tonight will be

485
00:20:42,600 --> 00:20:40,779
made as far as where we're going to go

486
00:20:43,919 --> 00:20:42,610
if I unless I see something that

487
00:20:45,539 --> 00:20:43,929
surprises me in a weather briefing

488
00:20:47,820 --> 00:20:45,549

coming up on my guesses will be going

489
00:20:50,669 --> 00:20:47,830
for the front end of that target at five

490
00:20:55,019 --> 00:20:50,679
o'clock liftoff the altitude I orbit

491
00:20:59,010 --> 00:20:55,029
itself is a 250 by 303 kilometer orbital

492
00:21:01,889 --> 00:20:59,020
inclined at 51.6 four degrees and then

493
00:21:03,899 --> 00:21:01,899
as you've you know heard previously the

494
00:21:06,210 --> 00:21:03,909
time from liftoff through payload

495
00:21:08,669 --> 00:21:06,220
separation is about 600 seconds or about

496
00:21:10,440 --> 00:21:08,679
10 minutes we do execute a series of

497
00:21:13,289 --> 00:21:10,450
collision and contamination avoidance

498
00:21:15,090 --> 00:21:13,299
maneuvers once we separate the Cygnus

499
00:21:18,180 --> 00:21:15,100
payload simulator and that that will

500
00:21:21,389 --> 00:21:18,190
continue on for for another 500 plus

501
00:21:23,730 --> 00:21:21,399
seconds but essentially or that that

502
00:21:24,960 --> 00:21:23,740
will take us to our nominal into mission

503
00:21:27,630 --> 00:21:24,970
around eleven hundred and twenty four

504
00:21:32,820 --> 00:21:27,640
seconds if you go to the next chart

505
00:21:35,970 --> 00:21:32,830
please the this is a graphical

506
00:21:38,340 --> 00:21:35,980
representation of the flyout events

507
00:21:41,010 --> 00:21:38,350
along with a timeline down on the bottom

508
00:21:42,440 --> 00:21:41,020
right hand corner the the flyout events

509
00:21:44,899 --> 00:21:42,450
are essentially as i've previously

510
00:21:48,330 --> 00:21:44,909
described we've got about a four minute

511
00:21:50,779 --> 00:21:48,340
first stage burn at which point we'll

512
00:21:52,799 --> 00:21:50,789
we'll cut the first stage engines off

513
00:21:56,159 --> 00:21:52,809

there's a bit of a coast while we

514
00:21:58,289 --> 00:21:56,169
separate the stage and the fairing and

515
00:22:01,139 --> 00:21:58,299
the interstage and then we will ignite

516
00:22:02,940 --> 00:22:01,149
the caster 30 second stage and that

517
00:22:06,480 --> 00:22:02,950
burns for about a hundred and fifty five

518
00:22:09,060 --> 00:22:06,490
seconds leading us to a orbit insertion

519
00:22:11,700 --> 00:22:09,070
in payload separation at about six

520
00:22:15,010 --> 00:22:11,710
hundred and three seconds

521
00:22:16,270 --> 00:22:15,020
see the next chart is hopefully a brief

522
00:22:20,110 --> 00:22:16,280
animation it'll give you a little bit of

523
00:22:23,290 --> 00:22:20,120
a cutaway view of the the Antares launch

524
00:22:27,040 --> 00:22:23,300
vehicle do we have that yeah there you

525
00:22:30,370 --> 00:22:27,050
go so you'll see the aj26 dual aj26

526
00:22:34,180 --> 00:22:30,380
engines provide the first stage

527
00:22:36,040 --> 00:22:34,190
propulsion they are connected to a pair

528
00:22:39,310 --> 00:22:36,050
of propellant tanks the big blue and is

529
00:22:43,990 --> 00:22:39,320
our liquid oxygen tank and the yellow

530
00:22:46,570 --> 00:22:44,000
colored tank contains rp1 kerosene fuel

531
00:22:47,830 --> 00:22:46,580
the second stage is the caster 30 and

532
00:22:50,650 --> 00:22:47,840
you can see the thrust vector control

533
00:22:53,230 --> 00:22:50,660
system situated around the the top of

534
00:22:55,450 --> 00:22:53,240
the nozzle along with our orbital

535
00:22:58,600 --> 00:22:55,460
provided avionics system then up at the

536
00:23:00,760 --> 00:22:58,610
top is a two-piece fairing that shrouds

537
00:23:03,330 --> 00:23:00,770
the payload during atmospheric flight

538
00:23:07,360 --> 00:23:03,340

and then inside that fairing is a

539
00:23:13,030 --> 00:23:07,370
sickness mass simulator or on the demo

540
00:23:17,470 --> 00:23:13,040
mission a real Cygnus so next chart

541
00:23:18,670 --> 00:23:17,480
please providing a just a couple of

542
00:23:20,140 --> 00:23:18,680
pictures to show you what some of that

543
00:23:22,510 --> 00:23:20,150
that Hardware looked like in the hiff

544
00:23:25,420 --> 00:23:22,520
you can see the Cygnus emanate simulator

545
00:23:28,540 --> 00:23:25,430
waiting for the the fairing to be mated

546
00:23:31,240 --> 00:23:28,550
and then a picture of the entire launch

547
00:23:34,330 --> 00:23:31,250
vehicle being lifted and transferred

548
00:23:37,540 --> 00:23:34,340
over to our transporter erector in the

549
00:23:39,880 --> 00:23:37,550
horizontal integration facility and then

550
00:23:41,860 --> 00:23:39,890
the last two photos are a couple of

551
00:23:46,000 --> 00:23:41,870
pictures from just a couple of weeks ago

552
00:23:47,980 --> 00:23:46,010
with the rollout on the morning of

553
00:23:50,080 --> 00:23:47,990
saturday the sixth followed by the

554
00:23:51,730 --> 00:23:50,090
erection to vertical on the launch pad

555
00:23:54,370 --> 00:23:51,740
and that's where we sit today running

556
00:23:59,650 --> 00:23:54,380
through our final last few preparations

557
00:24:03,000 --> 00:23:59,660
for launch tomorrow so with that that's

558
00:24:07,420 --> 00:24:03,010
a brief description and I think its

559
00:24:10,120 --> 00:24:07,430
range guy yes good afternoon as test

560
00:24:13,450 --> 00:24:10,130
director here at NASA's only launch

561
00:24:16,150 --> 00:24:13,460
range I am responsible for ensuring the

562
00:24:18,760 --> 00:24:16,160
path where it's clear for the terries to

563
00:24:21,850 --> 00:24:18,770

have a safe flight to space early today

564
00:24:22,659 --> 00:24:21,860
our Center Director granted us authority

565
00:24:25,629 --> 00:24:22,669
to proceed

566
00:24:29,139 --> 00:24:25,639
with tomorrow's launch operations which

567
00:24:32,169 --> 00:24:29,149
is the final go for executing our launch

568
00:24:36,489 --> 00:24:32,179
plans and the countdown my first slide

569
00:24:39,009 --> 00:24:36,499
please from the data communications

570
00:24:42,159 --> 00:24:39,019
perspective we have assets in Antigua

571
00:24:44,649 --> 00:24:42,169
Bermuda coquina North Carolina as well

572
00:24:47,379 --> 00:24:44,659
as here on a wallops rain supporting

573
00:24:50,680 --> 00:24:47,389
that Terry's launch all assets have been

574
00:24:53,830 --> 00:24:50,690
configured tested and verified ready to

575
00:24:55,869 --> 00:24:53,840
support launch operations at this time

576
00:24:58,629 --> 00:24:55,879
we have approval from all external

577
00:25:01,239 --> 00:24:58,639
agencies responsible for controlling the

578
00:25:04,539 --> 00:25:01,249
airspace for fly out and we've issued

579
00:25:07,389 --> 00:25:04,549
our standard notices to Airmen our

580
00:25:10,269 --> 00:25:07,399
person you like to thank mr. ed Gannon

581
00:25:12,820 --> 00:25:10,279
from the FAA Adam Baker from the joint

582
00:25:15,489 --> 00:25:12,830
space operations command and Ben Nelson

583
00:25:18,129 --> 00:25:15,499
from fleet forces vacate for their

584
00:25:21,479 --> 00:25:18,139
assistance and responsiveness regarding

585
00:25:24,519 --> 00:25:21,489
area clearance on a second slide please

586
00:25:27,430 --> 00:25:24,529
for Mariners the initial hazard area is

587
00:25:30,789 --> 00:25:27,440
an odd shape that extends out about 90

588
00:25:32,769 --> 00:25:30,799

miles notice the manners issue this week

589
00:25:36,340 --> 00:25:32,779
requests that boaters coming from the

590
00:25:39,729 --> 00:25:36,350
north rain nor for 37 degrees 50 minutes

591
00:25:42,039 --> 00:25:39,739
and east of 75 degrees and those boats

592
00:25:45,450 --> 00:25:42,049
traveling from the South being south of

593
00:25:48,489 --> 00:25:45,460
37 degrees twenty minutes and west of 75

594
00:25:50,499 --> 00:25:48,499
our partnership with the Coast Guard and

595
00:25:52,389 --> 00:25:50,509
of a dream rainy police with sistance

596
00:25:56,259 --> 00:25:52,399
and cleaning an area prior to launch and

597
00:25:59,369 --> 00:25:56,269
I person like to thank all of our area

598
00:26:01,810 --> 00:25:59,379
Mariners for the support and corporation

599
00:26:04,060 --> 00:26:01,820
finally like to end with our forecast

600
00:26:07,389 --> 00:26:04,070
for tomorrow currently the weather

601
00:26:09,970 --> 00:26:07,399
officer reports that the winds at t0

602
00:26:13,749 --> 00:26:09,980
will be out of the south between eight

603
00:26:17,200 --> 00:26:13,759
and 13 knots visibility would be seven

604
00:26:19,479 --> 00:26:17,210
miles with low-level cloudiness with a

605
00:26:22,539 --> 00:26:19,489
slight chance of showers putting all

606
00:26:24,549 --> 00:26:22,549
that together it looks like from the t

607
00:26:27,729 --> 00:26:24,559
minus 48 hours we have about a forty

608
00:26:29,649 --> 00:26:27,739
five percent chance fable weather for

609
00:26:33,039 --> 00:26:29,659
launch because of the low cloud ceiling

610
00:26:35,950 --> 00:26:33,049
and the possibility for participate

611
00:26:39,820 --> 00:26:35,960
specific for precipitation and

612
00:26:46,140 --> 00:26:39,830
storms on a personal note for me this is

613
00:26:49,690 --> 00:26:46,150

both exciting optimistic nervous and

614
00:26:52,750 --> 00:26:49,700
just ready to to execute this mission I

615
00:26:55,960 --> 00:26:52,760
like thank the folks in the field both

616
00:26:57,700 --> 00:26:55,970
at Antigua bermuda and coquina for the

617
00:27:00,370 --> 00:26:57,710
support getting ready for us and all the

618
00:27:03,210 --> 00:27:00,380
checkouts and the tremendous work that

619
00:27:06,010 --> 00:27:03,220
they've done for us as far on that note

620
00:27:07,960 --> 00:27:06,020
the NASA wildest range is go for

621
00:27:10,420 --> 00:27:07,970
supporting tomorrow's launch and I turn

622
00:27:12,430 --> 00:27:10,430
it back over Josh for questions okay

623
00:27:13,360 --> 00:27:12,440
thank you John we're gonna start here in

624
00:27:15,120 --> 00:27:13,370
the room and then we'll take some

625
00:27:17,560 --> 00:27:15,130
questions from the phone so let's see

626
00:27:25,030 --> 00:27:17,570
start with Dan then we'll go down this

627
00:27:27,640 --> 00:27:25,040
way ok guys thanks for coming down

628
00:27:30,700 --> 00:27:27,650
thanks for having us again this is this

629
00:27:33,280 --> 00:27:30,710
is an Alan question I think we know that

630
00:27:35,020 --> 00:27:33,290
the contracts for cargo delivery will

631
00:27:37,390 --> 00:27:35,030
run out and all the flights will

632
00:27:38,950 --> 00:27:37,400
hopefully have been successful before

633
00:27:41,530 --> 00:27:38,960
the space station is done with its

634
00:27:43,780 --> 00:27:41,540
mission so when do you anticipate you

635
00:27:45,940 --> 00:27:43,790
might go about procuring more cargo

636
00:27:48,940 --> 00:27:45,950
flights and and do you think that it's

637
00:27:51,310 --> 00:27:48,950
credible to have a new participant in

638
00:27:54,340 --> 00:27:51,320

this without doing say another coughs

639
00:27:56,410 --> 00:27:54,350
like program well the planning is

640
00:27:58,240 --> 00:27:56,420
underway right now to continue the

641
00:28:01,030 --> 00:27:58,250
resupply services to the station but I

642
00:28:04,960 --> 00:28:01,040
don't have personally just specifics on

643
00:28:06,550 --> 00:28:04,970
that so I I'm afraid I won't be able to

644
00:28:08,680 --> 00:28:06,560
answer specifically how we would go

645
00:28:10,060 --> 00:28:08,690
about it but definitely the planning is

646
00:28:12,640 --> 00:28:10,070
underway so that we would have

647
00:28:14,800 --> 00:28:12,650
continuous service of resupply to the

648
00:28:19,930 --> 00:28:14,810
space station after these initial

649
00:28:26,159 --> 00:28:19,940
contracts run out okay

650
00:28:31,229 --> 00:28:28,259
thank you a talk milk with the space

651
00:28:34,739 --> 00:28:31,239
calm and I think my question is or is

652
00:28:36,899 --> 00:28:34,749
for the the orbital representatives you

653
00:28:38,580 --> 00:28:36,909
mentioned this is a test flight you know

654
00:28:39,899 --> 00:28:38,590
that you're going to see how it goes

655
00:28:41,879 --> 00:28:39,909
tomorrow but I'm wondering what your

656
00:28:43,409 --> 00:28:41,889
confidence level is based on what you've

657
00:28:45,479 --> 00:28:43,419
seen the the work you've done on the

658
00:28:48,479 --> 00:28:45,489
vehicle over the last six years of

659
00:28:51,299 --> 00:28:48,489
success tomorrow and the ensuing points

660
00:28:53,399 --> 00:28:51,309
later this year Thanks well my

661
00:28:55,169 --> 00:28:53,409
confidence level is very high having

662
00:28:57,749 --> 00:28:55,179
watched i joined over about five years

663
00:29:00,690 --> 00:28:57,759

ago and having watched the team work on

664
00:29:02,970 --> 00:29:00,700
this on the development on the testing

665
00:29:05,580 --> 00:29:02,980
it has preceded this and then having

666
00:29:08,009 --> 00:29:05,590
participated in the practices and

667
00:29:10,349 --> 00:29:08,019
rehearsals in the control center and

668
00:29:11,909 --> 00:29:10,359
watching the oral team as well as all

669
00:29:13,919 --> 00:29:11,919
the supporting teams work together i

670
00:29:15,899 --> 00:29:13,929
have a lot of confidence that all of

671
00:29:18,330 --> 00:29:15,909
that is going to go well the hardware is

672
00:29:22,289 --> 00:29:18,340
ready it's been through its own testing

673
00:29:25,200 --> 00:29:22,299
and and i think that we're going to see

674
00:29:27,570 --> 00:29:25,210
a nice show tomorrow this mike said so

675
00:29:29,789 --> 00:29:27,580
my confidence is high I don't know what

676
00:29:33,239 --> 00:29:29,799
number you put on that but I feel good

677
00:29:34,470 --> 00:29:33,249
about it Mike you what Mike program

678
00:29:35,879 --> 00:29:34,480
manager how do you feel that this

679
00:29:37,379 --> 00:29:35,889
wouldn't be here if we weren't highly

680
00:29:40,499 --> 00:29:37,389
confident that's not right ago that's

681
00:29:42,539 --> 00:29:40,509
right I can't claim her feet numbers

682
00:29:45,060 --> 00:29:42,549
today Frank in the orbital

683
00:29:46,379 --> 00:29:45,070
representative since this is an MP LMK

684
00:29:48,450 --> 00:29:46,389
design I wonder if he could talk a

685
00:29:52,460 --> 00:29:48,460
little bit about the evolved versions of

686
00:29:54,960 --> 00:29:52,470
the sickness you brought up in the last

687
00:29:58,080 --> 00:29:54,970
briefing about going beyond Earth orbit

688
00:30:00,299 --> 00:29:58,090

I'm also wondering about you said you

689
00:30:02,669 --> 00:30:00,309
could say through 30 to 90 days what

690
00:30:03,930 --> 00:30:02,679
about a longer term if you increase the

691
00:30:06,930 --> 00:30:03,940
shielding could this be a permanent

692
00:30:09,269 --> 00:30:06,940
addition to the space station well a lot

693
00:30:10,470 --> 00:30:09,279
of things are possible and you know we

694
00:30:13,700 --> 00:30:10,480
really focused on this flight for

695
00:30:19,110 --> 00:30:13,710
tomorrow but looking long term the

696
00:30:21,270 --> 00:30:19,120
Cygnus cargo module is based on the MP

697
00:30:22,950 --> 00:30:21,280
design built by the same company the

698
00:30:26,280 --> 00:30:22,960
spacecraft itself however the service

699
00:30:28,170 --> 00:30:26,290
module is based on our legacy spacecraft

700
00:30:31,650 --> 00:30:28,180
with a lot of enhancements to make it

701
00:30:33,780 --> 00:30:31,660
more redundant and more reliable but it

702
00:30:35,310 --> 00:30:33,790
is designed for operating in space

703
00:30:38,010 --> 00:30:35,320
longer than the current 30-day

704
00:30:39,840 --> 00:30:38,020
requirement and and with some additional

705
00:30:41,570 --> 00:30:39,850
certification and testing I feel sure

706
00:30:44,070 --> 00:30:41,580
we'd be comfortable going beyond that

707
00:30:45,510 --> 00:30:44,080
and I think as I mentioned earlier we

708
00:30:49,230 --> 00:30:45,520
probably could go as long as a year if

709
00:30:51,120 --> 00:30:49,240
we had the right amount of fuel and did

710
00:30:53,790 --> 00:30:51,130
the other very certain occasions

711
00:30:55,200 --> 00:30:53,800
necessary for the hardware that would

712
00:30:56,700 --> 00:30:55,210
require a mission that would require

713
00:30:59,070 --> 00:30:56,710

people wanted to use it for that long

714
00:31:01,890 --> 00:30:59,080
and there are folks interested but we

715
00:31:04,470 --> 00:31:01,900
don't have actual customers yet in terms

716
00:31:06,150 --> 00:31:04,480
of using it as a habitation module we'd

717
00:31:10,110 --> 00:31:06,160
have to have great a number of things to

718
00:31:12,330 --> 00:31:10,120
add redundancy add shielding I had life

719
00:31:14,430 --> 00:31:12,340
support systems of course and so right

720
00:31:17,430 --> 00:31:14,440
now it's it's a very well designed cargo

721
00:31:20,100 --> 00:31:17,440
carrier and it's single purpose as a

722
00:31:22,500 --> 00:31:20,110
cargo carrier but very efficient we

723
00:31:24,540 --> 00:31:22,510
could evolve it to other things if those

724
00:31:29,730 --> 00:31:24,550
missions start showing up on our radar

725
00:31:31,680 --> 00:31:29,740
screen okay down here Jason power with

726
00:31:32,940 --> 00:31:31,690
wired and for either of you can you

727
00:31:35,460 --> 00:31:32,950
describe a little bit more in detail

728
00:31:38,490 --> 00:31:35,470
what the dummy payload is constructed of

729
00:31:41,390 --> 00:31:38,500
what it's made of how its solid is it

730
00:31:45,299 --> 00:31:41,400
empties it let me tell detail about that

731
00:31:48,510 --> 00:31:45,309
yeah I get as quickly it's it's it's

732
00:31:52,340 --> 00:31:48,520
metallic it's a it's not solid it's a

733
00:31:55,049 --> 00:31:52,350
it's a framework with with some panels

734
00:31:56,910 --> 00:31:55,059
around it so that you know when you saw

735
00:31:59,520 --> 00:31:56,920
the photo it's actually looks like a big

736
00:32:02,520 --> 00:31:59,530
white cylinders or white panels around

737
00:32:06,060 --> 00:32:02,530
the outside of it within it we've got

738
00:32:09,270 --> 00:32:06,070

some instrumentation and like of that to

739
00:32:11,790 --> 00:32:09,280
measure acoustics and vibrations and

740
00:32:14,520 --> 00:32:11,800
Turner and thermal environments again

741
00:32:16,620 --> 00:32:14,530
for a model validation and and to

742
00:32:18,390 --> 00:32:16,630
provide some direct measurements of the

743
00:32:20,430 --> 00:32:18,400
environment the sickness will see on

744
00:32:23,430 --> 00:32:20,440
it's on it's right up on the on the

745
00:32:25,680 --> 00:32:23,440
demonstration mission there's also a

746
00:32:28,259 --> 00:32:25,690
couple secondary payloads that are

747
00:32:30,690 --> 00:32:28,269
are attached to the there's a couple of

748
00:32:32,460 --> 00:32:30,700
those panels that are that are left open

749
00:32:34,409 --> 00:32:32,470
with a couple of small secondary

750
00:32:37,560 --> 00:32:34,419
payloads break you may know more about

751
00:32:39,749 --> 00:32:37,570
the secondaries than I do we have two

752
00:32:41,070 --> 00:32:39,759
people I dispensers for some cube sets

753
00:32:44,310 --> 00:32:41,080
that will deploy shortly after

754
00:32:46,950 --> 00:32:44,320
separation and that'll give us a chance

755
00:32:51,149 --> 00:32:46,960
to get some additional give additional

756
00:32:53,940 --> 00:32:51,159
rides to do other other users it's

757
00:32:56,909 --> 00:32:53,950
probably aluminum it's yes it's it's a

758
00:33:00,269 --> 00:32:56,919
little right fine it's mainly a

759
00:33:01,860 --> 00:33:00,279
framework of girders designed to come

760
00:33:07,019 --> 00:33:01,870
apart once it renders the atmosphere and

761
00:33:09,090 --> 00:33:07,029
burn up quickly okay here I Steven Clark

762
00:33:12,480 --> 00:33:09,100
with a space by now a couple of

763
00:33:14,879 --> 00:33:12,490

questions first could one of you go over

764
00:33:16,490 --> 00:33:14,889
the launch with the strategy for launch

765
00:33:19,919 --> 00:33:16,500
opportunities over the next few days

766
00:33:22,680 --> 00:33:19,929
with the weather being a field at least

767
00:33:24,210 --> 00:33:22,690
two other three days ahead would you try

768
00:33:26,820 --> 00:33:24,220
three days in a row or would you stand

769
00:33:29,669 --> 00:33:26,830
down after a couple of opportunities for

770
00:33:34,799 --> 00:33:29,679
a crew rest or some hardware reason have

771
00:33:36,990 --> 00:33:34,809
a follow-up yeah I think we will we will

772
00:33:38,490 --> 00:33:37,000
almost definitely take a shot first two

773
00:33:43,799 --> 00:33:38,500
days you know looking at the weather

774
00:33:47,060 --> 00:33:43,809
briefing the the weather on Friday looks

775
00:33:49,560 --> 00:33:47,070
looks really really really unfavorable

776
00:33:50,639 --> 00:33:49,570
you know the other consideration as you

777
00:33:54,029 --> 00:33:50,649
mentioned i think the other big

778
00:33:56,009 --> 00:33:54,039
considerations crew rest you know if we

779
00:33:58,139 --> 00:33:56,019
get into and this is all somewhat

780
00:33:59,820 --> 00:33:58,149
dynamic you know if we get into a

781
00:34:01,710 --> 00:33:59,830
situation where we've actually begun

782
00:34:03,960 --> 00:34:01,720
fueling the vehicle and then have to be

783
00:34:05,700 --> 00:34:03,970
tank the vehicle after a scrub because

784
00:34:07,799 --> 00:34:05,710
of weather then that makes for a very

785
00:34:09,180 --> 00:34:07,809
long day for our team and if we were to

786
00:34:11,309 --> 00:34:09,190
do that two days in a row we probably

787
00:34:12,750 --> 00:34:11,319
would be you know looking at trying to

788
00:34:14,280 --> 00:34:12,760

get a day a rest in there somewhere but

789
00:34:16,500 --> 00:34:14,290
you know again I think it's going to be

790
00:34:18,359 --> 00:34:16,510
a dynamic decision process as we look at

791
00:34:20,450 --> 00:34:18,369
the weather on any given day I don't

792
00:34:23,430 --> 00:34:20,460
think there's anything hardware-wise

793
00:34:26,280 --> 00:34:23,440
that that necessarily

794
00:34:29,339 --> 00:34:26,290
that necessarily this would require us

795
00:34:30,869 --> 00:34:29,349
to take a 48-hour recycle but but

796
00:34:33,629 --> 00:34:30,879
certainly if we get to certain points in

797
00:34:36,180 --> 00:34:33,639
the count both crew rest and consumption

798
00:34:37,950 --> 00:34:36,190
of commodities there we get very far

799
00:34:40,470 --> 00:34:37,960
down in the count we can consume enough

800
00:34:42,419 --> 00:34:40,480
commodities to where the Mars team would

801
00:34:45,149 --> 00:34:42,429
need a cup of a full data to turn that

802
00:34:47,099 --> 00:34:45,159
around as well so not not a very

803
00:34:48,329 --> 00:34:47,109
specific answer to your question but it

804
00:34:49,980 --> 00:34:48,339
is going to be kind of a dynamic process

805
00:34:53,040 --> 00:34:49,990
that takes those factors into account

806
00:34:55,589 --> 00:34:53,050
okay thanks and one more question for

807
00:34:57,780 --> 00:34:55,599
micro Frank either one of your both of

808
00:35:01,410 --> 00:34:57,790
you can address this can you talk about

809
00:35:03,180 --> 00:35:01,420
the fairing for Antares and any changes

810
00:35:04,530 --> 00:35:03,190
you may have made to the fairing design

811
00:35:06,960 --> 00:35:04,540
how different is it from the tourists

812
00:35:09,089 --> 00:35:06,970
design for example and any changes you

813
00:35:11,370 --> 00:35:09,099

made following those accidents thanks

814
00:35:13,980 --> 00:35:11,380
Mike can give more specifics but I'll

815
00:35:17,790 --> 00:35:13,990
just say that in general is a similar

816
00:35:20,309 --> 00:35:17,800
design it's fairly common to two orbital

817
00:35:23,069 --> 00:35:20,319
launch vehicles however they have been

818
00:35:24,510 --> 00:35:23,079
modifications to increase the

819
00:35:26,880 --> 00:35:24,520
probability of everything working the

820
00:35:28,890 --> 00:35:26,890
way it's supposed to based on lessons

821
00:35:31,890 --> 00:35:28,900
learned from the previous Taurus

822
00:35:35,040 --> 00:35:31,900
launches and we feel very confident in

823
00:35:38,960 --> 00:35:35,050
the components that we have the approach

824
00:35:41,910 --> 00:35:38,970
that we've taken as well as the

825
00:35:43,859 --> 00:35:41,920
suppliers that participated in this one

826
00:35:46,890 --> 00:35:43,869
and the plant we have for this flight so

827
00:35:49,710 --> 00:35:46,900
Mike if you want yeah I'm not sure

828
00:35:51,510 --> 00:35:49,720
they're there are a lot of changes

829
00:35:54,960 --> 00:35:51,520
obviously you can imagine as we went

830
00:35:58,980 --> 00:35:54,970
through the mishap investigation coming

831
00:36:02,730 --> 00:35:58,990
out of the Taurus XL as Frank mentioned

832
00:36:05,099 --> 00:36:02,740
this is a the frangible joints are in

833
00:36:07,410 --> 00:36:05,109
particular are a common product that we

834
00:36:11,430 --> 00:36:07,420
use across our fleet and and there were

835
00:36:14,430 --> 00:36:11,440
a number of changes that were you know

836
00:36:17,220 --> 00:36:14,440
that came out of those investigations

837
00:36:19,740 --> 00:36:17,230
both in terms of increasing design

838
00:36:21,990 --> 00:36:19,750

margin in the in the design as well as

839
00:36:24,660 --> 00:36:22,000
additional testing and additional

840
00:36:27,030 --> 00:36:24,670
process controls on the materials that

841
00:36:29,460 --> 00:36:27,040
are that are used as as delivered from

842
00:36:31,650 --> 00:36:29,470
our suppliers I can say that we have

843
00:36:34,120 --> 00:36:31,660
implemented all of those

844
00:36:36,130 --> 00:36:34,130
corrective actions including you know

845
00:36:38,530 --> 00:36:36,140
additional measurements on materials

846
00:36:44,050 --> 00:36:38,540
properties there were some actual design

847
00:36:46,000 --> 00:36:44,060
changes to the design of the joint and

848
00:36:47,790 --> 00:36:46,010
then it's some some additional and more

849
00:36:49,990 --> 00:36:47,800
rigorous testing all those were

850
00:36:52,420 --> 00:36:50,000
corrective actions were employed on the

851
00:36:55,240 --> 00:36:52,430
on the Antares frangible joint designs

852
00:36:59,110 --> 00:36:55,250
and they all passed and a are ready to

853
00:37:00,460 --> 00:36:59,120
go okay we got one more question in the

854
00:37:01,780 --> 00:37:00,470
room but let me go ahead and get

855
00:37:02,980 --> 00:37:01,790
everybody on the phone lines to stand by

856
00:37:04,180 --> 00:37:02,990
sending to vork you're going to be up

857
00:37:06,250 --> 00:37:04,190
next right after Robert asked his

858
00:37:07,840 --> 00:37:06,260
question hi Robert perla with

859
00:37:10,930 --> 00:37:07,850
collectspace.com with the question for

860
00:37:12,700 --> 00:37:10,940
francoeur I think maybe John different

861
00:37:16,810 --> 00:37:12,710
launch teams have different traditions

862
00:37:18,910 --> 00:37:16,820
the JPL teams have their peanuts the

863
00:37:20,680 --> 00:37:18,920

shuttle team had their beans does

864
00:37:23,500 --> 00:37:20,690
orbital have any traditions or if this

865
00:37:26,380 --> 00:37:23,510
is as this is a maiden flight are you

866
00:37:30,850 --> 00:37:26,390
playing to initiate any new traditions

867
00:37:35,440 --> 00:37:30,860
for Antares we'll see what develops as

868
00:37:39,850 --> 00:37:35,450
far as the range the fso and I currently

869
00:37:42,550 --> 00:37:39,860
wear bowties that's our work in

870
00:37:43,840 --> 00:37:42,560
tradition if we get off the pad will all

871
00:37:47,470 --> 00:37:43,850
pay attention to what color socks we

872
00:37:49,450 --> 00:37:47,480
were okay let's go to the phone lines

873
00:37:51,880 --> 00:37:49,460
Nick to work with Bloomberg can you hear

874
00:37:53,710 --> 00:37:51,890
a cenar you ready to ask a question yes

875
00:37:55,810 --> 00:37:53,720
they do I just got a couple quick things

876
00:37:57,760 --> 00:37:55,820
so I image ticket how long will the

877
00:38:00,270 --> 00:37:57,770
replica be in orbit transmitting

878
00:38:03,250 --> 00:38:00,280
information before bringing up for that

879
00:38:06,310 --> 00:38:03,260
mysterion which until through which year

880
00:38:08,050 --> 00:38:06,320
are the resupply contract but those

881
00:38:13,390 --> 00:38:08,060
eight mission is that through 2015 or

882
00:38:15,010 --> 00:38:13,400
through 2016 the Cygnus simulator will

883
00:38:17,260 --> 00:38:15,020
remain on orbit for approximately two

884
00:38:18,910 --> 00:38:17,270
weeks plus or minus a little bit it will

885
00:38:20,500 --> 00:38:18,920
only transmit information up until

886
00:38:23,380 --> 00:38:20,510
separation at that point it'll lose

887
00:38:25,090 --> 00:38:23,390
power and we'll we'll go dead so we

888
00:38:28,210 --> 00:38:25,100

won't hear anything else from after that

889
00:38:33,010 --> 00:38:28,220
point and what was the other question

890
00:38:35,010 --> 00:38:33,020
the CRS oh the contract is 48 cargo

891
00:38:38,680 --> 00:38:35,020
delivery missions beginning this fall

892
00:38:41,830 --> 00:38:38,690
that will probably take us through some

893
00:38:43,750 --> 00:38:41,840
time in 2016 depending on our launch

894
00:38:44,590 --> 00:38:43,760
rate as well as the rate at which the

895
00:38:47,380 --> 00:38:44,600
station will

896
00:38:49,300 --> 00:38:47,390
we'll ask us to deliver so we're it's a

897
00:38:51,010 --> 00:38:49,310
it requires both parties to agree on

898
00:38:56,250 --> 00:38:51,020
when the when the cargo delivery is

899
00:38:59,530 --> 00:38:56,260
required okay Irene Klotz with Reuters I

900
00:39:01,780 --> 00:38:59,540
thanks very much have a couple questions

901
00:39:04,650 --> 00:39:01,790
of the Franco followers from the other

902
00:39:07,000 --> 00:39:04,660
briefing you mentioned a possible future

903
00:39:10,960 --> 00:39:07,010
missions first Cygnus could you also

904
00:39:12,850 --> 00:39:10,970
please describe what what might be in

905
00:39:16,090 --> 00:39:12,860
store for unties if you have any

906
00:39:17,890 --> 00:39:16,100
customers and what this test launch

907
00:39:19,600 --> 00:39:17,900
might do and then have a couple of

908
00:39:21,820 --> 00:39:19,610
general questions about the spaceport

909
00:39:24,580 --> 00:39:21,830
itself I don't know they of you all have

910
00:39:28,150 --> 00:39:24,590
this not but just what the state and

911
00:39:31,030 --> 00:39:28,160
NASA paid to develop the Mars spaceport

912
00:39:33,010 --> 00:39:31,040
and I regret having asked this question

913
00:39:36,130 --> 00:39:33,020

but dude did you guys have to do

914
00:39:38,260 --> 00:39:36,140
anything with upgrading security in

915
00:39:41,380 --> 00:39:38,270
light of the attacks in Boston yesterday

916
00:39:47,530 --> 00:39:41,390
thank you you want one person to answer

917
00:39:51,580 --> 00:39:47,540
all those hopefully I'll start let's see

918
00:39:56,800 --> 00:39:51,590
the first one was the other done yeah

919
00:39:58,930 --> 00:39:56,810
beyond beyond Cygnus for Antares we

920
00:40:00,640 --> 00:39:58,940
don't have any customers on contract yet

921
00:40:04,330 --> 00:40:00,650
we certainly are talking to a number of

922
00:40:06,720 --> 00:40:04,340
folks including NASA for using Antares

923
00:40:08,770 --> 00:40:06,730
for deploying satellites into

924
00:40:12,130 --> 00:40:08,780
particularly low Earth orbit but also

925
00:40:14,320 --> 00:40:12,140
beyond we feel pretty strongly that a

926
00:40:16,720 --> 00:40:14,330
successful test flight here and also a

927
00:40:18,400 --> 00:40:16,730
successful demo later will help us in

928
00:40:19,810 --> 00:40:18,410
our marketing a great deal then I'll

929
00:40:21,820 --> 00:40:19,820
just leave it at that some of our

930
00:40:23,200 --> 00:40:21,830
business development folks are out here

931
00:40:25,960 --> 00:40:23,210
in the audience probably drumming up

932
00:40:29,560 --> 00:40:25,970
business as we speak and it will help a

933
00:40:32,710 --> 00:40:29,570
lot tomorrow I know mark as far as

934
00:40:36,030 --> 00:40:32,720
security i'll have to ask John to to

935
00:40:38,320 --> 00:40:36,040
address it there's been no additional

936
00:40:40,270 --> 00:40:38,330
measures taken because we're already at

937
00:40:44,160 --> 00:40:40,280
a posture now because they have hazard

938
00:40:48,089 --> 00:40:44,170

areas up we have man guards

939
00:40:51,539 --> 00:40:48,099
at every station so there's literally no

940
00:40:54,990 --> 00:40:51,549
way to get access to the pad to those

941
00:40:57,180 --> 00:40:55,000
areas so that was no need to take I

942
00:40:59,039 --> 00:40:57,190
guess additional measures or a different

943
00:41:03,240 --> 00:40:59,049
posture for this OP because we're

944
00:41:05,700 --> 00:41:03,250
already there then as far as the expense

945
00:41:07,049 --> 00:41:05,710
of the pad development etc I don't have

946
00:41:09,030 --> 00:41:07,059
those numbers off the top of my head so

947
00:41:11,849 --> 00:41:09,040
I'd recommend contacting NASA public

948
00:41:16,230 --> 00:41:11,859
affairs and seeing what information they

949
00:41:20,510 --> 00:41:16,240
have available all right let's go to

950
00:41:25,260 --> 00:41:20,520
James Dean with Florida today thank you

951
00:41:27,450 --> 00:41:25,270
for sculpture center fixin aj26 at a

952
00:41:29,339 --> 00:41:27,460
mishap I guess a while back during

953
00:41:32,880 --> 00:41:29,349
testing of Stannis could you explain

954
00:41:35,579 --> 00:41:32,890
what happened and what you needed to do

955
00:41:37,500 --> 00:41:35,589
to correct that issue and what are their

956
00:41:41,339 --> 00:41:37,510
any yo engine concerns you'll be keeping

957
00:41:45,329 --> 00:41:41,349
an eye on since that as you washing

958
00:41:48,030 --> 00:41:45,339
tomorrow we die guess we're talking

959
00:41:49,859 --> 00:41:48,040
about the the eform yes mixed up where

960
00:41:54,329 --> 00:41:49,869
we had the failure of the field line

961
00:41:58,020 --> 00:41:54,339
yeah well that obviously prompted a very

962
00:42:00,210 --> 00:41:58,030
in depth and detailed investigation and

963
00:42:03,000 --> 00:42:00,220

what you know what came out of it and I

964
00:42:06,299 --> 00:42:03,010
think primarily in simple terms is a

965
00:42:08,700 --> 00:42:06,309
series of additional inspections that we

966
00:42:10,289 --> 00:42:08,710
have employed on all of the all of the

967
00:42:12,349 --> 00:42:10,299
future engines obviously including the

968
00:42:14,700 --> 00:42:12,359
engines we're going to fly tomorrow and

969
00:42:17,930 --> 00:42:14,710
you know they have some some engines

970
00:42:21,150 --> 00:42:17,940
have have have shown indications that

971
00:42:22,770 --> 00:42:21,160
would require repair and we have the

972
00:42:26,849 --> 00:42:22,780
techniques developed to repair those

973
00:42:29,460 --> 00:42:26,859
engines and and you know some some of

974
00:42:31,289 --> 00:42:29,470
these indications are acceptable as is

975
00:42:33,500 --> 00:42:31,299
but we've got now all the rigorous

976
00:42:36,000 --> 00:42:33,510
engineering behind it to show that those

977
00:42:39,000 --> 00:42:36,010
you know any of those indications are

978
00:42:41,280 --> 00:42:39,010
acceptable for flight so that that

979
00:42:44,670 --> 00:42:41,290
process has been applied to these two

980
00:42:47,039 --> 00:42:44,680
engines and and they've been you know

981
00:42:49,079 --> 00:42:47,049
being flight worthy and passed their

982
00:42:49,660 --> 00:42:49,089
their acceptance testing it's dennis and

983
00:42:54,819 --> 00:42:49,670
our

984
00:42:58,809 --> 00:42:54,829
to go ready to go okay let's go to Shane

985
00:43:03,700 --> 00:42:58,819
Harris with Washingtonian magazine no

986
00:43:06,789 --> 00:43:03,710
question okay bill Harwood with CBS see

987
00:43:08,410 --> 00:43:06,799
you there yeah I'm here Josh and I'm not

988
00:43:10,870 --> 00:43:08,420

sure who this is for maybe franker for

989
00:43:13,180 --> 00:43:10,880
mr. Kingston I'm just continuing on the

990
00:43:14,440 --> 00:43:13,190
Indian seam for just a moment can one of

991
00:43:18,819 --> 00:43:14,450
you guys tell us a little bit more about

992
00:43:20,440 --> 00:43:18,829
what the aj26 or that brings to you guys

993
00:43:22,180 --> 00:43:20,450
being the advantages the engine offers

994
00:43:24,190 --> 00:43:22,190
and a little bit more about what you do

995
00:43:26,109 --> 00:43:24,200
to refurbish these guys or upgrade them

996
00:43:31,839 --> 00:43:26,119
from the stockpile state that they came

997
00:43:34,450 --> 00:43:31,849
know from Aerojet in Thanks what the

998
00:43:35,980 --> 00:43:34,460
aj26 brings as an engine that was

999
00:43:37,990 --> 00:43:35,990
developed quite a while ago but

1000
00:43:40,780 --> 00:43:38,000
developed under a program that was very

1001
00:43:45,849 --> 00:43:40,790
robust and intended to be used many many

1002
00:43:47,349 --> 00:43:45,859
times with with multiple articles built

1003
00:43:48,609 --> 00:43:47,359
during the the time frame when the

1004
00:43:52,329 --> 00:43:48,619
Russians were intending to go to the

1005
00:43:53,859 --> 00:43:52,339
moon the engine did fly on some very

1006
00:43:55,480 --> 00:43:53,869
short flights but the flights were not

1007
00:43:57,490 --> 00:43:55,490
successful due to other problems not

1008
00:44:00,370 --> 00:43:57,500
related to the engines they also have

1009
00:44:04,089 --> 00:44:00,380
thousands and thousands of seconds of

1010
00:44:07,240 --> 00:44:04,099
test time behind them tested in a wide

1011
00:44:10,359 --> 00:44:07,250
variety of conditions and power levels

1012
00:44:11,680 --> 00:44:10,369
so we know the engines are robust as we

1013
00:44:14,079 --> 00:44:11,690

went through testing we did discover

1014
00:44:15,819 --> 00:44:14,089
that there were some effects of aging

1015
00:44:17,829 --> 00:44:15,829
since they've been in storage for a

1016
00:44:19,569 --> 00:44:17,839
while in including Co some stress

1017
00:44:21,730 --> 00:44:19,579
corrosion cracking and that's what we're

1018
00:44:25,480 --> 00:44:21,740
correcting with the with the welder

1019
00:44:28,480 --> 00:44:25,490
repairs and other inspections but what

1020
00:44:31,450 --> 00:44:28,490
they bring is an engine that produces a

1021
00:44:33,099 --> 00:44:31,460
lot of power has a great deal of

1022
00:44:36,430 --> 00:44:33,109
performance and satisfies our needs for

1023
00:44:40,420 --> 00:44:36,440
getting payloads to orbit and and we

1024
00:44:42,490 --> 00:44:40,430
also have the the legacy of proven

1025
00:44:46,150 --> 00:44:42,500
design that we can that we can depend on

1026
00:44:49,329 --> 00:44:46,160
like yeah you know as far as is how the

1027
00:44:51,549 --> 00:44:49,339
how the engines are taken from there you

1028
00:44:53,740 --> 00:44:51,559
know previous state to a flight ready

1029
00:44:57,510 --> 00:44:53,750
state for us it's you know it's a number

1030
00:44:59,910 --> 00:44:57,520
of items it's some reconfiguration

1031
00:45:02,370 --> 00:44:59,920
in particular provide the the gimbal

1032
00:45:04,470 --> 00:45:02,380
mechanism that allows us to to vector

1033
00:45:07,460 --> 00:45:04,480
the engine in flight to provide the

1034
00:45:10,710 --> 00:45:07,470
thrust vector control summit you know

1035
00:45:15,090 --> 00:45:10,720
upgraded and modernized instrumentation

1036
00:45:16,940 --> 00:45:15,100
as well as the the one-shot devices the

1037
00:45:21,900 --> 00:45:16,950
power Technic devices that are used to

1038
00:45:23,880 --> 00:45:21,910

ignite and then bring up the engine and

1039
00:45:27,030 --> 00:45:23,890
then you know obviously we go through a

1040
00:45:28,590 --> 00:45:27,040
very rigorous our partner air jet goes

1041
00:45:31,110 --> 00:45:28,600
through a very rigorous process of

1042
00:45:33,570 --> 00:45:31,120
inspecting and testing the engines

1043
00:45:36,150 --> 00:45:33,580
including the the hot fire test at

1044
00:45:38,160 --> 00:45:36,160
Stennis before we declare it

1045
00:45:39,960 --> 00:45:38,170
flight-worthy and bring it out here to

1046
00:45:44,310 --> 00:45:39,970
Wallops to integrate on an Antares

1047
00:45:45,750 --> 00:45:44,320
launch vehicle okay just going to do it

1048
00:45:52,280 --> 00:45:45,760
for the phone lines there's some

1049
00:45:57,630 --> 00:45:55,200
since this is a dub Moni TMC satellite

1050
00:46:00,510 --> 00:45:57,640
spotlight since this is a commercially

1051
00:46:02,280 --> 00:46:00,520
run mission who holds the key for a

1052
00:46:05,460 --> 00:46:02,290
flight termination in case of an

1053
00:46:06,840 --> 00:46:05,470
incident is that NASA or is that is that

1054
00:46:11,220 --> 00:46:06,850
orbital where does that responsibility

1055
00:46:14,580 --> 00:46:11,230
by NASA NASA NASA owns the range and so

1056
00:46:22,520 --> 00:46:14,590
they're ultimately responsible they

1057
00:46:28,290 --> 00:46:22,530
talked to us a lot okay back here I am

1058
00:46:30,830 --> 00:46:28,300
let's write again oh here calm I was

1059
00:46:35,900 --> 00:46:30,840
wondering about the viability of

1060
00:46:38,070 --> 00:46:35,910
upgrading Cygnus to re-entry capability

1061
00:46:40,200 --> 00:46:38,080
Cygnus as it's currently designed

1062
00:46:43,230 --> 00:46:40,210
doesn't have a reentry capability

1063
00:46:45,720 --> 00:46:43,240

however we are looking at ways to either

1064
00:46:48,390 --> 00:46:45,730
modify the system or bring onboard a

1065
00:46:50,370 --> 00:46:48,400
different type of design so that if NASA

1066
00:46:51,990 --> 00:46:50,380
would like for us to explore that

1067
00:46:54,000 --> 00:46:52,000
possibility in the future we can do that

1068
00:46:55,350 --> 00:46:54,010
and and there's several different ways

1069
00:46:57,900 --> 00:46:55,360
we could go with that but right now we

1070
00:46:59,970 --> 00:46:57,910
don't have a contractor or even a study

1071
00:47:01,260 --> 00:46:59,980
to do it but we know that in the future

1072
00:47:03,300 --> 00:47:01,270
they're going to want more and more that

1073
00:47:05,970 --> 00:47:03,310
capability so it's certainly something

1074
00:47:10,140 --> 00:47:05,980
we're looking at very very carefully

1075
00:47:12,390 --> 00:47:10,150
yelling okay is that it here in the room

1076
00:47:13,950 --> 00:47:12,400
all right that's going to wrap it up for

1077
00:47:16,110 --> 00:47:13,960
us we want to remind you that our live

1078
00:47:18,240 --> 00:47:16,120
coverage tomorrow's launch will begin at

1079
00:47:20,460 --> 00:47:18,250
three p.m. central time for p.m. eastern

1080
00:47:23,070 --> 00:47:20,470
time here on NASA television you can

1081
00:47:25,290 --> 00:47:23,080
also stream it live on the web at wwc

1082
00:47:27,420 --> 00:47:25,300
gov of course while the latest on

1083
00:47:31,500 --> 00:47:27,430
tomorrow's activities we've actually log

1084
00:47:33,690 --> 00:47:31,510
on to WWE gov / orbital there is a media

1085
00:47:35,160 --> 00:47:33,700
resources section on that page Allen

1086
00:47:37,470 --> 00:47:35,170
slides are up there we'll try to get

1087
00:47:38,820 --> 00:47:37,480
Mike and John's it slides up there later

1088
00:47:41,190 --> 00:47:38,830

on today as well so you guys can have

1089
00:47:42,810 --> 00:47:41,200
those of course while the latest log on

1090
00:47:45,150 --> 00:47:42,820
to NASA Tyga follow us on all of our

1091
00:47:51,730 --> 00:47:45,160
various social media accounts and we'll