1
00:02:26,550 --> 00:00:41,850
[Music]

2
00:02:26,560 --> 00:02:31,190
so

3
00:02:56,140 --> 00:02:51,560
[Music]

4
00:03:39,750 --> 00:02:56,150
[Applause]

5
00:04:40,900 --> 00:03:42,000
do

6
00:04:40,910 --> 00:04:49,270
[Music]

7
00:04:52,629 --> 00:04:50,870
all right everybody good afternoon and

8
00:04:55,189 --> 00:04:52,639
welcome to the johnson space center here

9
00:04:57,270 --> 00:04:55,199
in houston texas i'm nasa's gary jordan

10
00:04:58,790 --> 00:04:57,280
thank you for joining us here today we

11
00:05:00,070 --> 00:04:58,800
have a very excitement exciting

12
00:05:01,909 --> 00:05:00,080
announcement today to reveal the

13
00:05:03,430 --> 00:05:01,919

companies who have been selected uh to

14
00:05:06,390 --> 00:05:03,440
move forward in developing the next

15
00:05:08,629 --> 00:05:06,400
generation of uh spacesuits that will be

16
00:05:10,710 --> 00:05:08,639
used for artemis missions to the moon as

17
00:05:12,870 --> 00:05:10,720
well as at the international space

18
00:05:14,070 --> 00:05:12,880
station in low earth orbit we have some

19
00:05:15,510 --> 00:05:14,080
panelists here today that will be

20
00:05:17,590 --> 00:05:15,520
providing remarks and answering

21
00:05:19,510 --> 00:05:17,600
questions uh regarding the new award uh

22
00:05:21,270 --> 00:05:19,520
here at the table today uh from left to

23
00:05:23,270 --> 00:05:21,280
right we have vanessa weich the director

24
00:05:25,430 --> 00:05:23,280
of the johnson space center uh lindsay

25
00:05:27,350 --> 00:05:25,440
hsn program executive for the

26
00:05:30,070 --> 00:05:27,360
extravehicular activity and human

27
00:05:31,670 --> 00:05:30,080
surface mobility program or ehp for

28
00:05:33,830 --> 00:05:31,680
short she's coming in from nasa's

29
00:05:35,350 --> 00:05:33,840
headquarters in washington d.c we also

30
00:05:37,189 --> 00:05:35,360
have dina contella operations

31
00:05:38,629 --> 00:05:37,199
integration manager of the international

32
00:05:40,629 --> 00:05:38,639
space station program here at the

33
00:05:42,790 --> 00:05:40,639
johnson space center and laura kearney

34
00:05:44,710 --> 00:05:42,800
manager of ehp

35
00:05:46,390 --> 00:05:44,720
here at the johnson space center we of

36
00:05:47,830 --> 00:05:46,400
course also have representatives of the

37
00:05:49,670 --> 00:05:47,840
awarded companies to provide opening

38
00:05:51,270 --> 00:05:49,680

remarks and addressing questions but i

39
00:05:53,590 --> 00:05:51,280
won't be the one spoiling the fun i'll

40
00:05:55,189 --> 00:05:53,600
leave that to vanessa weich

41
00:05:57,270 --> 00:05:55,199
we'll first start with some initial

42
00:05:58,710 --> 00:05:57,280
remarks from each of the briefers before

43
00:06:00,629 --> 00:05:58,720
opening it up for questions we'll be

44
00:06:02,469 --> 00:06:00,639
taking questions on our phone bridge as

45
00:06:04,230 --> 00:06:02,479
well as here at the johnson space center

46
00:06:06,070 --> 00:06:04,240
and of course on social media platforms

47
00:06:07,909 --> 00:06:06,080
if you're on our phone bridge press star

48
00:06:10,150 --> 00:06:07,919
1 to enter into the queue

49
00:06:11,990 --> 00:06:10,160
and of course if you're media you'll be

50
00:06:14,629 --> 00:06:12,000
raising your hand and for social just

51
00:06:16,469 --> 00:06:14,639
use the hashtag ask nasa so let's begin

52
00:06:17,990 --> 00:06:16,479
with some opening remarks with vanessa

53
00:06:20,950 --> 00:06:18,000
weich vanessa

54
00:06:23,350 --> 00:06:20,960
thank you gary oh i'm super excited

55
00:06:25,350 --> 00:06:23,360
about today i'm going to do my best to

56
00:06:27,270 --> 00:06:25,360
contain my excitement

57
00:06:28,629 --> 00:06:27,280
at nasa's johnson space center we have

58
00:06:31,749 --> 00:06:28,639
been working

59
00:06:34,710 --> 00:06:31,759
to have new exploration suit

60
00:06:36,710 --> 00:06:34,720
capabilities for a number of years

61
00:06:39,189 --> 00:06:36,720
and we will have these suits and they'll

62
00:06:41,749 --> 00:06:39,199
be made available for us to support the

63
00:06:45,350 --> 00:06:41,759

international space station as well as

64
00:06:48,790 --> 00:06:45,360
for our artemis missions going forward

65
00:06:50,710 --> 00:06:48,800
this is a historic day for us and

66
00:06:51,670 --> 00:06:50,720
the history will be made with these

67
00:06:53,589 --> 00:06:51,680
suits

68
00:06:55,749 --> 00:06:53,599
when we get to the moon

69
00:06:58,070 --> 00:06:55,759
we will have our first person of color

70
00:07:00,309 --> 00:06:58,080
and our first woman that will be wearers

71
00:07:02,390 --> 00:07:00,319
and users of these suits in space so

72
00:07:05,670 --> 00:07:02,400
this is a very important day

73
00:07:08,309 --> 00:07:05,680
we've had our internal team working for

74
00:07:10,870 --> 00:07:08,319
several years on a

75
00:07:13,670 --> 00:07:10,880
government reference design as well as

76
00:07:16,870 --> 00:07:13,680
technology that we made available to the

77
00:07:19,430 --> 00:07:16,880
companies that submitted proposals for

78
00:07:21,990 --> 00:07:19,440
providing the service capability

79
00:07:25,749 --> 00:07:22,000
so without further ado i am very happy

80
00:07:27,430 --> 00:07:25,759
to announce that the awardees will be

81
00:07:28,230 --> 00:07:27,440
axiom space

82
00:07:31,510 --> 00:07:28,240
and

83
00:07:33,189 --> 00:07:31,520
collins aerospace industry team so

84
00:07:36,230 --> 00:07:33,199
congratulations they're represented

85
00:07:38,550 --> 00:07:36,240
today axiom space by michael safradini

86
00:07:46,869 --> 00:07:38,560
and the collins aerospace industry team

87
00:07:50,309 --> 00:07:47,990
so

88
00:07:53,749 --> 00:07:50,319

this particular type of contract is

89
00:07:55,990 --> 00:07:53,759
going to be a task award and so as

90
00:07:59,270 --> 00:07:56,000
they're developing the service

91
00:08:00,950 --> 00:07:59,280
nasa will be certifying along side to

92
00:08:03,510 --> 00:08:00,960
make sure that they are ready for our

93
00:08:05,749 --> 00:08:03,520
astronauts to be a part of them and then

94
00:08:08,790 --> 00:08:05,759
once the suits are then ready they will

95
00:08:10,869 --> 00:08:08,800
be used these capabilities are for as i

96
00:08:12,390 --> 00:08:10,879
said for the international space station

97
00:08:14,390 --> 00:08:12,400
and we anticipate

98
00:08:16,469 --> 00:08:14,400
that we will continue operations on the

99
00:08:18,070 --> 00:08:16,479
international space station until 2030

100
00:08:21,350 --> 00:08:18,080
so it's important that we have a

101
00:08:23,670 --> 00:08:21,360
capability there and for artemis the

102
00:08:26,629 --> 00:08:23,680
first use will be on artemis iii which

103
00:08:27,830 --> 00:08:26,639
will be the first lunar landing for over

104
00:08:29,749 --> 00:08:27,840
50 years

105
00:08:31,189 --> 00:08:29,759
so it's very important that we have

106
00:08:33,829 --> 00:08:31,199
these suits

107
00:08:36,149 --> 00:08:33,839
i do want to also acknowledge the

108
00:08:38,469 --> 00:08:36,159
procurement and the legal team for all

109
00:08:40,870 --> 00:08:38,479
of the hard work that went into making

110
00:08:43,909 --> 00:08:40,880
this possible it was over a year's worth

111
00:08:46,310 --> 00:08:43,919
of work to be able to get the proposal

112
00:08:48,470 --> 00:08:46,320
uh packages uh ready to go out with all

113
00:08:50,949 --> 00:08:48,480

of their requirements our engineering

114
00:08:51,990 --> 00:08:50,959
teams have put together the standards

115
00:08:59,670 --> 00:08:52,000
and

116
00:09:01,269 --> 00:08:59,680
proposals the companies have agreed that

117
00:09:04,470 --> 00:09:01,279
they're going to meet those requirements

118
00:09:07,269 --> 00:09:04,480
and standards and so we will be able to

119
00:09:09,590 --> 00:09:07,279
have these capabilities tested and

120
00:09:10,870 --> 00:09:09,600
they'll be tested before our astronauts

121
00:09:12,630 --> 00:09:10,880
are being used

122
00:09:13,509 --> 00:09:12,640
on orbit or either on the surface of the

123
00:09:15,350 --> 00:09:13,519
moon

124
00:09:17,670 --> 00:09:15,360
so i just want to share that you know

125
00:09:21,190 --> 00:09:17,680
this is a credible time in human space i

126
00:09:23,829 --> 00:09:21,200
think most people are aware that nasa's

127
00:09:26,949 --> 00:09:23,839
johnson space center continues to be a

128
00:09:30,070 --> 00:09:26,959
very critical hub for space exploration

129
00:09:31,670 --> 00:09:30,080
uh we're have missions today going on at

130
00:09:34,070 --> 00:09:31,680
the international space station we're

131
00:09:37,750 --> 00:09:34,080
looking forward to our time uh when

132
00:09:39,190 --> 00:09:37,760
we'll go to the moon and then on to mars

133
00:09:42,710 --> 00:09:39,200
thank you

134
00:09:44,150 --> 00:09:42,720
lindsay hsn

135
00:09:46,070 --> 00:09:44,160
so as you might glean from vanessa's

136
00:09:47,350 --> 00:09:46,080
remarks spacesuits have been a critical

137
00:09:48,949 --> 00:09:47,360
part of every part of our human

138
00:09:50,630 --> 00:09:48,959

spaceflight programs

139
00:09:52,550 --> 00:09:50,640
going all the way back to the original

140
00:09:54,310 --> 00:09:52,560
missions back with mercury gemini and

141
00:09:56,070 --> 00:09:54,320
apollo and they continue to be at the

142
00:09:57,750 --> 00:09:56,080
forefront you'll notice that spacesuits

143
00:09:59,190 --> 00:09:57,760
are going to be a key focal point when

144
00:10:01,190 --> 00:09:59,200
we take those first steps back on the

145
00:10:02,949 --> 00:10:01,200
lunar south pole and when we're there

146
00:10:04,550 --> 00:10:02,959
this xebas contract is a critical

147
00:10:05,910 --> 00:10:04,560
milestone to getting us to that point so

148
00:10:07,750 --> 00:10:05,920
we're all super excited to be able to

149
00:10:10,069 --> 00:10:07,760
reach that today

150
00:10:11,590 --> 00:10:10,079
recently congress agreed to formulate a

151
00:10:13,670 --> 00:10:11,600
new program here at the johnson space

152
00:10:14,949 --> 00:10:13,680
center and that program is the

153
00:10:18,069 --> 00:10:14,959
exploration

154
00:10:19,509 --> 00:10:18,079
eva human service mobility program ehp

155
00:10:20,790 --> 00:10:19,519
and as part of that program that's

156
00:10:23,430 --> 00:10:20,800
managed by laura kearney from whom

157
00:10:25,670 --> 00:10:23,440
you'll hear soon we're going to not only

158
00:10:27,670 --> 00:10:25,680
develop the spacesuits but also also the

159
00:10:29,190 --> 00:10:27,680
human rover systems which will help us

160
00:10:30,630 --> 00:10:29,200
explore more of the moon than we ever

161
00:10:33,030 --> 00:10:30,640
have before

162
00:10:35,110 --> 00:10:33,040
the xevas contract is the first major

163
00:10:36,389 --> 00:10:35,120

acquisition of this new program and

164
00:10:37,750 --> 00:10:36,399
under that you'll see the commitment

165
00:10:39,670 --> 00:10:37,760
that nasa has to developing

166
00:10:41,829 --> 00:10:39,680
public-private partnerships across the

167
00:10:43,590 --> 00:10:41,839
agency so that we can do more under this

168
00:10:45,509 --> 00:10:43,600
new arrangement we're not only meeting

169
00:10:47,590 --> 00:10:45,519
nasa's objectives but also helping to

170
00:10:49,509 --> 00:10:47,600
support and encourage an emerging space

171
00:10:51,350 --> 00:10:49,519
economy so that in the future it's not

172
00:10:52,949 --> 00:10:51,360
just nasa eva services but there'll be a

173
00:10:54,630 --> 00:10:52,959
range of customers that can purchase

174
00:10:56,069 --> 00:10:54,640
that in the future it's exciting it

175
00:10:57,910 --> 00:10:56,079
leads to innovation and make sure that

176
00:10:58,790 --> 00:10:57,920
we have sustained competition along the

177
00:11:01,110 --> 00:10:58,800
way

178
00:11:02,389 --> 00:11:01,120
and now to talk more about how the xevas

179
00:11:03,910 --> 00:11:02,399
contract is important to the space

180
00:11:06,389 --> 00:11:03,920
station program i'll turn it over to

181
00:11:08,310 --> 00:11:06,399
dina all right thank you

182
00:11:09,829 --> 00:11:08,320
the state space station program is

183
00:11:11,430 --> 00:11:09,839
really excited to be here today to be

184
00:11:13,990 --> 00:11:11,440
part of this announcement

185
00:11:16,470 --> 00:11:14,000
um you know the existing spacesuit has

186
00:11:17,430 --> 00:11:16,480
been the workhorse for the agency for 40

187
00:11:20,550 --> 00:11:17,440
years

188
00:11:22,069 --> 00:11:20,560

and uh helped maintain uh and utilize

189
00:11:23,509 --> 00:11:22,079
the the international space station as

190
00:11:25,990 --> 00:11:23,519
well as construct it

191
00:11:28,310 --> 00:11:26,000
and so of the 250 spacewalks that our

192
00:11:29,630 --> 00:11:28,320
partners and and we have done on onboard

193
00:11:32,230 --> 00:11:29,640
space station

194
00:11:33,430 --> 00:11:32,240
169 of those have been with the existing

195
00:11:34,389 --> 00:11:33,440
spacesuit

196
00:11:36,230 --> 00:11:34,399
and so

197
00:11:39,030 --> 00:11:36,240
the spacesuit technology though of

198
00:11:41,590 --> 00:11:39,040
course at 40 years is now

199
00:11:43,430 --> 00:11:41,600
aging and so we'd like to try new future

200
00:11:45,350 --> 00:11:43,440
technologies and we'd like to do an

201
00:11:48,550 --> 00:11:45,360
affordable in an affordable way

202
00:11:50,870 --> 00:11:48,560
and so this contract is actually a great

203
00:11:52,310 --> 00:11:50,880
part of our strategy for iss for

204
00:11:54,310 --> 00:11:52,320
maintaining and utilizing the space

205
00:11:57,430 --> 00:11:54,320
station for years to come

206
00:11:59,990 --> 00:11:57,440
and so as the providers that will be um

207
00:12:02,550 --> 00:12:00,000
certifying and demonstrating their

208
00:12:04,310 --> 00:12:02,560
technologies for new spacesuits we'll be

209
00:12:06,230 --> 00:12:04,320
conducting an orderly transition away

210
00:12:07,910 --> 00:12:06,240
from our existing spacesuit and over to

211
00:12:10,870 --> 00:12:07,920
the new spacesuits

212
00:12:12,389 --> 00:12:10,880
and so you know iss it's it's a test bed

213
00:12:15,110 --> 00:12:12,399

and it's especially a test bed for

214
00:12:17,110 --> 00:12:15,120
exploration and so we're looking forward

215
00:12:18,230 --> 00:12:17,120
to learning what we can on iss and then

216
00:12:19,430 --> 00:12:18,240
handing what we've learned over to

217
00:12:21,750 --> 00:12:19,440
artemis

218
00:12:23,990 --> 00:12:21,760
and so uh we're looking forward to

219
00:12:26,389 --> 00:12:24,000
working with the providers as partners

220
00:12:29,350 --> 00:12:26,399
and bringing iss and and their

221
00:12:31,110 --> 00:12:29,360
spacesuits into the modern age i'd say

222
00:12:32,310 --> 00:12:31,120
and helping the agency on its way to the

223
00:12:34,389 --> 00:12:32,320
moon

224
00:12:36,150 --> 00:12:34,399
and so next up is laura kearney who's

225
00:12:37,829 --> 00:12:36,160
going to talk about her management of

226
00:12:40,230 --> 00:12:37,839
this contract as part of the johnson

227
00:12:42,949 --> 00:12:40,240
space center's overall strategy

228
00:12:44,629 --> 00:12:42,959
thanks tina yeah good afternoon

229
00:12:47,190 --> 00:12:44,639
so i just wanted to start by saying

230
00:12:49,350 --> 00:12:47,200
thank you thank you to the nasa team and

231
00:12:50,389 --> 00:12:49,360
to our industry team for getting us here

232
00:12:53,110 --> 00:12:50,399
today

233
00:12:55,350 --> 00:12:53,120
vanessa mentioned it but it takes a lot

234
00:12:56,550 --> 00:12:55,360
of hard work and effort to pull a

235
00:12:58,790 --> 00:12:56,560
contract

236
00:13:00,790 --> 00:12:58,800
like this together i know a lot of blood

237
00:13:02,790 --> 00:13:00,800
sweat and tears and late nights go into

238
00:13:04,310 --> 00:13:02,800

it so i want to just put out my personal

239
00:13:06,150 --> 00:13:04,320
appreciation

240
00:13:07,590 --> 00:13:06,160
to everyone who was a part of getting us

241
00:13:11,350 --> 00:13:07,600
here today

242
00:13:12,069 --> 00:13:11,360
as lindsay mentioned uh the ehp program

243
00:13:14,069 --> 00:13:12,079
it's

244
00:13:16,870 --> 00:13:14,079
um one of our goals really is to look

245
00:13:19,190 --> 00:13:16,880
for new innovative ways of being more

246
00:13:22,790 --> 00:13:19,200
affordable all while we continue to

247
00:13:25,110 --> 00:13:22,800
focus on safety and mission success

248
00:13:27,030 --> 00:13:25,120
and i think this contract and our new

249
00:13:30,310 --> 00:13:27,040
partners we're going to be the first

250
00:13:32,550 --> 00:13:30,320
ones out the gate in this program

251
00:13:34,710 --> 00:13:32,560
working towards that goal

252
00:13:37,190 --> 00:13:34,720
we were really impressed with the

253
00:13:38,870 --> 00:13:37,200
proposals that came in the ingenuity and

254
00:13:41,509 --> 00:13:38,880
the innovation that we saw in the

255
00:13:44,550 --> 00:13:41,519
proposals we are very very confident

256
00:13:46,310 --> 00:13:44,560
that together uh collaborating with our

257
00:13:48,069 --> 00:13:46,320
partners and our nasa team we're going

258
00:13:49,990 --> 00:13:48,079
to be successful

259
00:13:51,750 --> 00:13:50,000
and we're very very excited about seeing

260
00:13:54,069 --> 00:13:51,760
these new suits operating on the space

261
00:13:57,030 --> 00:13:54,079
station and on the moon

262
00:13:59,590 --> 00:13:57,040
so i wanted to just extend on behalf of

263
00:14:02,710 --> 00:13:59,600

my team and my

264
00:14:04,790 --> 00:14:02,720
colleagues in the ehp welcome to our new

265
00:14:06,470 --> 00:14:04,800
team we are super excited to be working

266
00:14:08,310 --> 00:14:06,480
with you guys

267
00:14:11,269 --> 00:14:08,320
put your running shoes on because it's

268
00:14:13,509 --> 00:14:11,279
going to be a very busy next few years

269
00:14:14,870 --> 00:14:13,519
and we're ready to jump in on this great

270
00:14:17,670 --> 00:14:14,880
adventure with you guys so

271
00:14:19,110 --> 00:14:17,680
congratulations and welcome to the team

272
00:14:21,350 --> 00:14:19,120
all right thank you laura we'll now go

273
00:14:23,590 --> 00:14:21,360
to the companies in alphabetical order

274
00:14:25,269 --> 00:14:23,600
starting with axiom space we have mike

275
00:14:28,470 --> 00:14:25,279
suffer dean mike

276
00:14:32,230 --> 00:14:28,480
so first i have to say thank you to my

277
00:14:33,430 --> 00:14:32,240
nasa friends and colleagues um

278
00:14:35,910 --> 00:14:33,440
well first you thank them for the

279
00:14:38,870 --> 00:14:35,920
selection but really as laura said it's

280
00:14:41,990 --> 00:14:38,880
a tremendous amount of work uh to uh to

281
00:14:43,590 --> 00:14:42,000
do the process of selecting

282
00:14:45,110 --> 00:14:43,600
contractors and there's a tremendous

283
00:14:46,389 --> 00:14:45,120
amount of work on our side to create

284
00:14:48,310 --> 00:14:46,399
proposals

285
00:14:50,389 --> 00:14:48,320
thousands of pages long that these poor

286
00:14:52,629 --> 00:14:50,399
guys have to pour through every word and

287
00:14:53,990 --> 00:14:52,639
make sure it makes sense and so my hat's

288
00:14:56,470 --> 00:14:54,000

off to the

289
00:14:58,069 --> 00:14:56,480
nassau team and and also to the axiom

290
00:14:59,910 --> 00:14:58,079
team and collins dean as well for the

291
00:15:01,910 --> 00:14:59,920
work that's necessary to get to the

292
00:15:03,750 --> 00:15:01,920
point we are today

293
00:15:05,750 --> 00:15:03,760
but what i think is really

294
00:15:07,350 --> 00:15:05,760
important about today is we have talked

295
00:15:08,949 --> 00:15:07,360
about you know i've been on both sides

296
00:15:11,269 --> 00:15:08,959
and we've talked about for many years

297
00:15:13,430 --> 00:15:11,279
public and private partnerships and i

298
00:15:15,829 --> 00:15:13,440
think this is really one of the first

299
00:15:18,470 --> 00:15:15,839
cases where it's actually

300
00:15:20,710 --> 00:15:18,480
benefits both sides normally

301
00:15:23,189 --> 00:15:20,720
as the agency is trying to pull

302
00:15:24,310 --> 00:15:23,199
commercial to start doing things it's

303
00:15:26,870 --> 00:15:24,320
been about

304
00:15:28,550 --> 00:15:26,880
helping commercial develop

305
00:15:31,509 --> 00:15:28,560
so that they can provide a product that

306
00:15:33,350 --> 00:15:31,519
the agency can buy and ultimately they

307
00:15:35,030 --> 00:15:33,360
they'll be able to sell at some point

308
00:15:37,110 --> 00:15:35,040
but in this case we

309
00:15:39,430 --> 00:15:37,120
we are building a space station we have

310
00:15:41,749 --> 00:15:39,440
a need axiom space has a need for a

311
00:15:44,069 --> 00:15:41,759
space suit we have a number of customers

312
00:15:45,189 --> 00:15:44,079
that already would like to do a space

313
00:15:47,269 --> 00:15:45,199

walk

314
00:15:49,749 --> 00:15:47,279
and we had planned to build a suit as

315
00:15:52,949 --> 00:15:49,759
part of our our program and so it's

316
00:15:55,269 --> 00:15:52,959
fantastic to have a partnership where we

317
00:15:56,949 --> 00:15:55,279
can benefit from the years of experience

318
00:15:59,509 --> 00:15:56,959
that nasa has and all the work they've

319
00:16:01,350 --> 00:15:59,519
done to to advance the design to where

320
00:16:04,629 --> 00:16:01,360
it is today and then us as a commercial

321
00:16:06,949 --> 00:16:04,639
company come in and and work with them

322
00:16:09,430 --> 00:16:06,959
to to build it in a way that's that's

323
00:16:12,470 --> 00:16:09,440
lowest cost uh so that we can both

324
00:16:14,790 --> 00:16:12,480
utilize the suit to to meet our needs so

325
00:16:17,269 --> 00:16:14,800
we're very excited to be a a part of

326
00:16:19,990 --> 00:16:17,279
this partnership it is very beneficial

327
00:16:22,949 --> 00:16:20,000
to us both one of the things that that's

328
00:16:24,790 --> 00:16:22,959
important for us to that we tell people

329
00:16:27,110 --> 00:16:24,800
around here axiom is a houston-based

330
00:16:29,749 --> 00:16:27,120
company we've everything we do is done

331
00:16:31,509 --> 00:16:29,759
in houston texas our spacecraft would be

332
00:16:32,790 --> 00:16:31,519
built here in houston texas the space

333
00:16:35,910 --> 00:16:32,800
suits will be built here in houston

334
00:16:37,509 --> 00:16:35,920
texas this job alone increases

335
00:16:40,150 --> 00:16:37,519
the our

336
00:16:43,030 --> 00:16:40,160
size of our company by a little over 300

337
00:16:45,269 --> 00:16:43,040
people so it's a significant positive

338
00:16:47,269 --> 00:16:45,279

impact to the city of houston and to our

339
00:16:50,470 --> 00:16:47,279
surrounding area as well so we're

340
00:16:52,629 --> 00:16:50,480
excited to be here and and uh appreciate

341
00:16:54,470 --> 00:16:52,639
the um the faith you guys have in this

342
00:16:56,150 --> 00:16:54,480
so thank you very much okay and lastly

343
00:16:58,230 --> 00:16:56,160
we have dan burbank with collins

344
00:17:00,310 --> 00:16:58,240
aerospace dam yeah thanks very much gary

345
00:17:02,230 --> 00:17:00,320
and uh and again i'd echo what uh what

346
00:17:04,470 --> 00:17:02,240
mike said and thank uh that the team

347
00:17:06,150 --> 00:17:04,480
that did the evaluations i would thank

348
00:17:07,270 --> 00:17:06,160
the entirety of the nasa engineering

349
00:17:08,710 --> 00:17:07,280
team that laid this tremendous

350
00:17:10,309 --> 00:17:08,720
foundation with the work done on the

351
00:17:11,909 --> 00:17:10,319
xcmu

352
00:17:14,069 --> 00:17:11,919
we've been partnering together for a

353
00:17:16,390 --> 00:17:14,079
long long time we um in the collins team

354
00:17:18,390 --> 00:17:16,400
we include also ilc

355
00:17:20,230 --> 00:17:18,400
dover and we also have oceaneering three

356
00:17:22,069 --> 00:17:20,240
strategic partners all of which have

357
00:17:24,549 --> 00:17:22,079
astronaut representation so we try our

358
00:17:27,029 --> 00:17:24,559
very best to have the end user deeply

359
00:17:28,470 --> 00:17:27,039
embedded in the design aspect because

360
00:17:29,909 --> 00:17:28,480
we want the spacesuit although we'll

361
00:17:32,390 --> 00:17:29,919
often call the spacesuit the world's

362
00:17:33,909 --> 00:17:32,400
smallest spacecraft it's uh it's human

363
00:17:35,909 --> 00:17:33,919

shaped human sized it shouldn't feel

364
00:17:38,070 --> 00:17:35,919
like a spacecraft we want to be able to

365
00:17:40,070 --> 00:17:38,080
create an immersive environment that for

366
00:17:42,230 --> 00:17:40,080
the crew member gives them the most

367
00:17:43,909 --> 00:17:42,240
amount of mobility that gives them that

368
00:17:45,909 --> 00:17:43,919
complements a crew member's capability

369
00:17:48,150 --> 00:17:45,919
rather than constrains it

370
00:17:49,990 --> 00:17:48,160
so we're very excited to do this we um

371
00:17:51,669 --> 00:17:50,000
you know our heritage corporations

372
00:17:53,830 --> 00:17:51,679
worked on the apollo suit and designed

373
00:17:56,470 --> 00:17:53,840
and developed and um and fielded and

374
00:17:58,950 --> 00:17:56,480
operated that apollo suit so we've got

375
00:18:00,870 --> 00:17:58,960
some surface experience we've also got

376
00:18:02,950 --> 00:18:00,880
more than four decades with uh with a

377
00:18:04,630 --> 00:18:02,960
space suit designed for the space

378
00:18:07,190 --> 00:18:04,640
shuttle that was then evolved in its

379
00:18:08,950 --> 00:18:07,200
current iteration to be supported for

380
00:18:11,590 --> 00:18:08,960
six years onboard space station with

381
00:18:13,110 --> 00:18:11,600
only crew members working on it and in

382
00:18:15,909 --> 00:18:13,120
the process of doing that we've learned

383
00:18:18,230 --> 00:18:15,919
an awful lot so the goal is to take the

384
00:18:20,470 --> 00:18:18,240
foundations that nasa nasolate with with

385
00:18:22,630 --> 00:18:20,480
the xcmu in partnership with industry

386
00:18:25,590 --> 00:18:22,640
and evolve that technology and create a

387
00:18:26,950 --> 00:18:25,600
suit that is compatible with the entire

388
00:18:29,190 --> 00:18:26,960

spectrum of crew members so that

389
00:18:32,310 --> 00:18:29,200
commander of artemis iii she may weigh

390
00:18:33,909 --> 00:18:32,320
120 pounds on earth and so that that she

391
00:18:36,150 --> 00:18:33,919
has got a suit that's appropriately

392
00:18:38,549 --> 00:18:36,160
sized and tailored for her that doesn't

393
00:18:40,310 --> 00:18:38,559
feel like a spacecraft but feels like a

394
00:18:42,549 --> 00:18:40,320
ruggedized set of extreme sport

395
00:18:44,310 --> 00:18:42,559
outerwear that should be the goal and so

396
00:18:45,669 --> 00:18:44,320
we're very excited very proud to be a

397
00:18:47,350 --> 00:18:45,679
part of this we've been

398
00:18:49,190 --> 00:18:47,360
working for an awful long time with you

399
00:18:50,950 --> 00:18:49,200
with with your leadership and very

400
00:18:52,470 --> 00:18:50,960
excited about the opportunity go back to

401
00:18:53,750 --> 00:18:52,480
the moon and create a spacesuit that

402
00:18:55,430 --> 00:18:53,760
will also work

403
00:18:56,870 --> 00:18:55,440
for the follow-on years for the

404
00:18:58,789 --> 00:18:56,880
international space station and

405
00:19:00,549 --> 00:18:58,799
commercial leo destinations as well very

406
00:19:01,990 --> 00:19:00,559
exciting thank you

407
00:19:03,510 --> 00:19:02,000
very good thank you to all of our

408
00:19:05,590 --> 00:19:03,520
briefers for those initial remarks we're

409
00:19:07,270 --> 00:19:05,600
not going to open it up for questions we

410
00:19:09,430 --> 00:19:07,280
have questions on the phone line as well

411
00:19:11,669 --> 00:19:09,440
as folks here in the room and then we'll

412
00:19:13,830 --> 00:19:11,679
be taking ask nasa questions as well for

413
00:19:15,430 --> 00:19:13,840

those on the phone press star 1 to enter

414
00:19:17,510 --> 00:19:15,440
into our queue to ask a question and

415
00:19:19,029 --> 00:19:17,520
just make sure you state to whom you'd

416
00:19:20,630 --> 00:19:19,039
like to direct your question

417
00:19:22,070 --> 00:19:20,640
if you find a question has already been

418
00:19:24,150 --> 00:19:22,080
asked though you can press star 2 to

419
00:19:25,750 --> 00:19:24,160
withdraw at any time for those in the

420
00:19:26,950 --> 00:19:25,760
room just state your name affiliation

421
00:19:29,029 --> 00:19:26,960
and to whom you'd like to direct a

422
00:19:31,430 --> 00:19:29,039
question and then for social media just

423
00:19:33,510 --> 00:19:31,440
use the hashtag asknessa let's go ahead

424
00:19:35,350 --> 00:19:33,520
and start here in the room uh mark caro

425
00:19:37,430 --> 00:19:35,360
if you want to kick us off

426
00:19:40,789 --> 00:19:37,440
oh thank you mark caro with aviation

427
00:19:43,190 --> 00:19:40,799
week is there a sort of target

428
00:19:45,270 --> 00:19:43,200
date for having a prototype that would

429
00:19:48,310 --> 00:19:45,280
be ready to

430
00:19:50,870 --> 00:19:48,320
assess on the space station and

431
00:19:52,950 --> 00:19:50,880
would that be the kind of key milestone

432
00:19:55,190 --> 00:19:52,960
in this or would there be something

433
00:19:59,430 --> 00:19:55,200
on the ground that might be as

434
00:20:04,230 --> 00:20:01,190
sure i can start so

435
00:20:07,350 --> 00:20:04,240
we did require that um

436
00:20:09,830 --> 00:20:07,360
the industry demonstrate in what we call

437
00:20:12,149 --> 00:20:09,840
a relevant environment so we are leaving

438
00:20:14,630 --> 00:20:12,159

it up to them as to what that is

439
00:20:16,470 --> 00:20:14,640
very well could be on the space station

440
00:20:18,549 --> 00:20:16,480
it could also be in some kind of

441
00:20:21,110 --> 00:20:18,559
combination of

442
00:20:22,390 --> 00:20:21,120
say lunar simulating environments here

443
00:20:24,789 --> 00:20:22,400
on the ground

444
00:20:27,270 --> 00:20:24,799
so that is a major milestone

445
00:20:29,750 --> 00:20:27,280
to demonstrate that capability before we

446
00:20:31,750 --> 00:20:29,760
execute what we're calling services

447
00:20:33,510 --> 00:20:31,760
under this contract

448
00:20:34,390 --> 00:20:33,520
as far as

449
00:20:36,470 --> 00:20:34,400
when

450
00:20:38,310 --> 00:20:36,480
i would probably leave it up to you guys

451
00:20:41,270 --> 00:20:38,320
is to answer a win question that

452
00:20:43,270 --> 00:20:41,280
demonstration ought to take uh place but

453
00:20:45,750 --> 00:20:43,280
um in the very near future in the next

454
00:20:48,789 --> 00:20:45,760
year or two i would say

455
00:20:50,789 --> 00:20:48,799
so i'd offer up one thing mark so so the

456
00:20:52,310 --> 00:20:50,799
the development for for our suit right

457
00:20:53,990 --> 00:20:52,320
now has been continually ongoing for a

458
00:20:55,909 --> 00:20:54,000
long time so it's a rapid spiral

459
00:20:58,789 --> 00:20:55,919
development where we continually do a

460
00:21:01,029 --> 00:20:58,799
design build test repeat and evolve that

461
00:21:02,710 --> 00:21:01,039
the technology as we go it'll become

462
00:21:04,390 --> 00:21:02,720
it'll be tested in more and more

463
00:21:06,789 --> 00:21:04,400

flight-like environments including

464
00:21:08,470 --> 00:21:06,799
thermal vac um i was in the suit this

465
00:21:10,789 --> 00:21:08,480
morning in fact i was almost a little

466
00:21:13,190 --> 00:21:10,799
late for today's event so so the suit is

467
00:21:15,110 --> 00:21:13,200
constantly evolving and it's uh in its

468
00:21:17,510 --> 00:21:15,120
um and it's the the technology is

469
00:21:19,510 --> 00:21:17,520
maturing and the goal would be to be

470
00:21:21,669 --> 00:21:19,520
able to meet nasa's requirements on that

471
00:21:23,590 --> 00:21:21,679
schedule whether that's 2025 which i

472
00:21:25,669 --> 00:21:23,600
believe we've talked about for space

473
00:21:27,909 --> 00:21:25,679
station demonstration but but i think

474
00:21:30,230 --> 00:21:27,919
we're well on track to do that

475
00:21:31,909 --> 00:21:30,240
and dan said right there's it's more

476
00:21:35,110 --> 00:21:31,919
than just the demonstration although the

477
00:21:38,070 --> 00:21:35,120
demonstration is a key milestone um for

478
00:21:40,149 --> 00:21:38,080
us and and others because after that

479
00:21:42,230 --> 00:21:40,159
successful demonstration we should be

480
00:21:44,470 --> 00:21:42,240
off to be able to do operations but

481
00:21:45,990 --> 00:21:44,480
there's pdr and cdr and all the normal

482
00:21:47,909 --> 00:21:46,000
milestones we go through we do those

483
00:21:49,830 --> 00:21:47,919
together with nasa and it is our

484
00:21:51,669 --> 00:21:49,840
intention to demonstrate it in 25 time

485
00:21:53,350 --> 00:21:51,679
frame as well

486
00:21:55,029 --> 00:21:53,360
okay excellent let's uh stay here in the

487
00:21:56,149 --> 00:21:55,039
room if you state your name affiliation

488
00:21:58,230 --> 00:21:56,159

and to whom you like to direct the

489
00:22:00,470 --> 00:21:58,240
question abc news i don't know who wants

490
00:22:02,789 --> 00:22:00,480
to take this one but in the past we've

491
00:22:04,630 --> 00:22:02,799
had you know relied on the existing

492
00:22:06,470 --> 00:22:04,640
spacesuit as a mix and match and there

493
00:22:08,470 --> 00:22:06,480
have been some issues with

494
00:22:10,950 --> 00:22:08,480
when the astronauts get an orbit that

495
00:22:16,310 --> 00:22:10,960
fit wasn't quite right how will this

496
00:22:21,029 --> 00:22:18,710
i'll ask laura to respond to that but

497
00:22:22,390 --> 00:22:21,039
we've been working

498
00:22:24,549 --> 00:22:22,400
internally

499
00:22:26,789 --> 00:22:24,559
doing what we call advanced technology

500
00:22:29,110 --> 00:22:26,799
development to look just at that to make

501
00:22:31,430 --> 00:22:29,120
sure that we have sizing available that

502
00:22:34,070 --> 00:22:31,440
will fit you know the 5th to the 95th

503
00:22:35,430 --> 00:22:34,080
percentile all of those requirements

504
00:22:37,590 --> 00:22:35,440
we've actually

505
00:22:38,950 --> 00:22:37,600
put into the

506
00:22:40,950 --> 00:22:38,960
contracts that we'll have with both

507
00:22:42,950 --> 00:22:40,960
companies but i'll let laura speak more

508
00:22:45,029 --> 00:22:42,960
about i think from the vanessa said it

509
00:22:48,470 --> 00:22:45,039
really we we tried really hard in this

510
00:22:51,750 --> 00:22:48,480
acquisition not to specify the how but

511
00:22:55,430 --> 00:22:51,760
the what and so we did not dictate

512
00:22:58,549 --> 00:22:55,440
to um industry how it should be done we

513
00:23:00,470 --> 00:22:58,559

did levy the requirement that we fit a

514
00:23:02,950 --> 00:23:00,480
fifth percentile female to a 95th

515
00:23:05,190 --> 00:23:02,960
percentile male

516
00:23:07,510 --> 00:23:05,200
we verified through the proposals that

517
00:23:08,789 --> 00:23:07,520
we saw we believe their designs will do

518
00:23:11,110 --> 00:23:08,799
that

519
00:23:12,710 --> 00:23:11,120
and so the process now is an engineering

520
00:23:14,950 --> 00:23:12,720
design process and as they're going

521
00:23:16,630 --> 00:23:14,960
through that process we will be there

522
00:23:18,710 --> 00:23:16,640
alongside them verifying that they are

523
00:23:21,750 --> 00:23:18,720
meeting that requirement

524
00:23:23,669 --> 00:23:21,760
and the goal is to do it with the

525
00:23:25,270 --> 00:23:23,679
with as few extra parts as possible so

526
00:23:27,350 --> 00:23:25,280
we don't want to have

527
00:23:31,350 --> 00:23:27,360
20 suits on order we want to have a

528
00:23:36,310 --> 00:23:33,590
modifiable if you will to to allow them

529
00:23:39,029 --> 00:23:36,320
to fit that range that nasa dictated

530
00:23:40,870 --> 00:23:39,039
that we also support as well

531
00:23:43,110 --> 00:23:40,880
and for us today that was exactly part

532
00:23:45,029 --> 00:23:43,120
of the you know the the the test

533
00:23:46,789 --> 00:23:45,039
uh points for today were to prove that

534
00:23:48,470 --> 00:23:46,799
we could we could fit the taller crew

535
00:23:51,190 --> 00:23:48,480
members and the smaller crew members in

536
00:23:53,190 --> 00:23:51,200
fact it was exactly the same suit and we

537
00:23:55,590 --> 00:23:53,200
did a rapid resize it took about 30

538
00:23:57,110 --> 00:23:55,600

minutes between um evolutions and we

539
00:23:59,110 --> 00:23:57,120
went from somebody that was considerably

540
00:24:01,350 --> 00:23:59,120
shorter than i am shorter wingspan as

541
00:24:02,870 --> 00:24:01,360
well and then it worked really well but

542
00:24:04,070 --> 00:24:02,880
that's not to say there's not always

543
00:24:06,070 --> 00:24:04,080
going would be opportunity to make it

544
00:24:07,669 --> 00:24:06,080
better and better in apollo the suits

545
00:24:10,549 --> 00:24:07,679
were all custom made so they were

546
00:24:13,110 --> 00:24:10,559
custom-made for the crew members and and

547
00:24:15,350 --> 00:24:13,120
on space station and on shuttle we have

548
00:24:16,470 --> 00:24:15,360
essentially a modular base spacesuit so

549
00:24:18,310 --> 00:24:16,480
we don't have a

550
00:24:20,390 --> 00:24:18,320
fleet of spacesuits with two spacesuits

551
00:24:22,390 --> 00:24:20,400
per crew member and to get the costs

552
00:24:24,390 --> 00:24:22,400
where you need to be that the challenge

553
00:24:26,470 --> 00:24:24,400
is to have a modular approach that does

554
00:24:28,310 --> 00:24:26,480
allow that full indexability and full

555
00:24:29,990 --> 00:24:28,320
tailorability and i think we have line

556
00:24:33,029 --> 00:24:30,000
of sight on it it's actually very

557
00:24:34,870 --> 00:24:33,039
promising so okay let's go to the phone

558
00:24:36,789 --> 00:24:34,880
next again if you're on our phone bridge

559
00:24:39,029 --> 00:24:36,799
it's star one to enter into our queue

560
00:24:41,190 --> 00:24:39,039
let's start with elizabeth howell from

561
00:24:43,029 --> 00:24:41,200
space.com

562
00:24:44,390 --> 00:24:43,039
hi uh congratulations to the two

563
00:24:46,710 --> 00:24:44,400

companies so i'm just trying to

564
00:24:47,750 --> 00:24:46,720
understand about how the spacesuits

565
00:24:50,310 --> 00:24:47,760
would work in the sense that you're

566
00:24:51,990 --> 00:24:50,320
going to be trying to design for micro g

567
00:24:54,149 --> 00:24:52,000
at the iss and potentially in other

568
00:24:55,750 --> 00:24:54,159
environments like that and also for the

569
00:24:58,070 --> 00:24:55,760
moon and artemis mission so are we

570
00:24:59,269 --> 00:24:58,080
talking to different types of spacesuits

571
00:25:00,710 --> 00:24:59,279
at least or is this going to be more of

572
00:25:02,149 --> 00:25:00,720
a modular approach and i'm thinking the

573
00:25:04,070 --> 00:25:02,159
two companies might want to answer or

574
00:25:06,070 --> 00:25:04,080
perhaps nasa maybe trolls but let me

575
00:25:10,230 --> 00:25:06,080
know

576
00:25:12,470 --> 00:25:10,240
from all of the work that vanessa and

577
00:25:15,190 --> 00:25:12,480
lizzie both talked about uh that the

578
00:25:17,110 --> 00:25:15,200
nasa team has done the requirements set

579
00:25:20,710 --> 00:25:17,120
for a low earth orbit suit on space

580
00:25:22,710 --> 00:25:20,720
station and a suit on the lunar surface

581
00:25:25,430 --> 00:25:22,720
is not significantly different

582
00:25:27,110 --> 00:25:25,440
particularly for the life support system

583
00:25:29,110 --> 00:25:27,120
the the differences really come in the

584
00:25:31,110 --> 00:25:29,120
pressure garment the difference in being

585
00:25:32,710 --> 00:25:31,120
in zero gravity on space station versus

586
00:25:34,549 --> 00:25:32,720
having to walk on the moon where you

587
00:25:37,750 --> 00:25:34,559
need all of the mobility

588
00:25:40,470 --> 00:25:37,760

um so really at its core the requirement

589
00:25:43,110 --> 00:25:40,480
set is is generally the same

590
00:25:45,510 --> 00:25:43,120
but like like i in the previous question

591
00:25:48,070 --> 00:25:45,520
we did not dictate to them that it be

592
00:25:51,269 --> 00:25:48,080
one suit two suits or whatever we we

593
00:25:53,510 --> 00:25:51,279
basically bounded for them the um

594
00:25:55,669 --> 00:25:53,520
say up mass or stowage volume

595
00:25:58,149 --> 00:25:55,679
constraints that they would have

596
00:26:00,230 --> 00:25:58,159
either in a lander or on space station

597
00:26:03,430 --> 00:26:00,240
and said you only have this much room or

598
00:26:05,350 --> 00:26:03,440
this much mass to fit extra parts

599
00:26:07,269 --> 00:26:05,360
you know how then would you do that and

600
00:26:09,510 --> 00:26:07,279
that's the way we were able to get the

601
00:26:11,110 --> 00:26:09,520
innovation from the companies

602
00:26:13,029 --> 00:26:11,120
because they can tell us what they

603
00:26:17,510 --> 00:26:13,039
believe their best solution set would be

604
00:26:20,549 --> 00:26:19,110
so is it one thing that's that's very

605
00:26:21,590 --> 00:26:20,559
different between the suits well i guess

606
00:26:23,029 --> 00:26:21,600
i would say

607
00:26:25,350 --> 00:26:23,039
first off

608
00:26:27,190 --> 00:26:25,360
mass is a much bigger constraint and a

609
00:26:29,590 --> 00:26:27,200
driver for a surface suit than it is in

610
00:26:31,350 --> 00:26:29,600
microgravity so in microgravity as a

611
00:26:33,750 --> 00:26:31,360
crew member doing a spacewalk you could

612
00:26:35,909 --> 00:26:33,760
be in a 350 pound suit and it's not an

613
00:26:38,630 --> 00:26:35,919

impediment in fact maybe by some

614
00:26:40,950 --> 00:26:38,640
estimations it could actually actually

615
00:26:43,510 --> 00:26:40,960
enhance or be more stable platform to be

616
00:26:45,909 --> 00:26:43,520
in but on a but on a planetary

617
00:26:47,830 --> 00:26:45,919
environment especially when you consider

618
00:26:50,710 --> 00:26:47,840
that that environment is not

619
00:26:53,110 --> 00:26:50,720
an engineered spacecraft designed for a

620
00:26:55,269 --> 00:26:53,120
spacesuit designed for that spacecraft

621
00:26:58,230 --> 00:26:55,279
instead you've got trip hazards and all

622
00:26:59,669 --> 00:26:58,240
kind of in a in a in a surface that is

623
00:27:02,470 --> 00:26:59,679
not

624
00:27:03,909 --> 00:27:02,480
amenable to ease of motion anyway so we

625
00:27:05,909 --> 00:27:03,919
would want to have a lower torso

626
00:27:08,070 --> 00:27:05,919
assembly that would have enough mobility

627
00:27:10,470 --> 00:27:08,080
for the crew member to walk naturally

628
00:27:13,510 --> 00:27:10,480
like they would on on planet earth on a

629
00:27:15,190 --> 00:27:13,520
space station it's actually not

630
00:27:17,190 --> 00:27:15,200
not an especially helpful thing you'd

631
00:27:20,070 --> 00:27:17,200
almost your legs you don't really use it

632
00:27:21,830 --> 00:27:20,080
all you use your arms to do the eva

633
00:27:23,750 --> 00:27:21,840
activities so you almost on occasion

634
00:27:26,230 --> 00:27:23,760
would you rather just put your feet into

635
00:27:28,310 --> 00:27:26,240
a foot restraint and have your lower

636
00:27:29,830 --> 00:27:28,320
torso be essentially like a pedestal

637
00:27:31,830 --> 00:27:29,840
rigid giving you a good stability to

638
00:27:32,870 --> 00:27:31,840

work very very different design but it's

639
00:27:37,990 --> 00:27:32,880
really

640
00:27:39,909 --> 00:27:38,000
the lower torso assembly so i think like

641
00:27:42,149 --> 00:27:39,919
laura said the technologies part and

642
00:27:43,510 --> 00:27:42,159
parcel with the life support systems are

643
00:27:45,750 --> 00:27:43,520
very very similar

644
00:27:47,350 --> 00:27:45,760
and that's the goal is to to make sure

645
00:27:48,630 --> 00:27:47,360
the suits are as similar as they can be

646
00:27:51,190 --> 00:27:48,640
the other one that hasn't been mentioned

647
00:27:52,389 --> 00:27:51,200
is dust dust is a big a big deal on the

648
00:27:53,269 --> 00:27:52,399
moon and it's one of the things you

649
00:27:55,269 --> 00:27:53,279
don't have to worry about in

650
00:27:57,909 --> 00:27:55,279
microgravity environment but it's a it's

651
00:27:58,870 --> 00:27:57,919
a big big problem um on the surface so

652
00:28:00,789 --> 00:27:58,880
that's another thing that we have to

653
00:28:03,190 --> 00:28:00,799
deal with

654
00:28:06,870 --> 00:28:03,200
okay let's go to andrea leinfelder with

655
00:28:10,470 --> 00:28:08,389
hi thank you guys for taking the

656
00:28:12,950 --> 00:28:10,480
question um this one's for both acting

657
00:28:15,029 --> 00:28:12,960
space and collins aerospace will you

658
00:28:16,389 --> 00:28:15,039
build the suits at the houston spaceport

659
00:28:19,110 --> 00:28:16,399
where you guys are building headquarter

660
00:28:20,630 --> 00:28:19,120
campuses and then did collins previously

661
00:28:22,310 --> 00:28:20,640
build suits in houston or just moving

662
00:28:23,750 --> 00:28:22,320
from another part of the country thank

663
00:28:26,630 --> 00:28:23,760

you

664
00:28:28,470 --> 00:28:26,640
so we will begin to suit work uh at

665
00:28:31,269 --> 00:28:28,480
facilities here in the area we don't

666
00:28:33,830 --> 00:28:31,279
move into the the big spaceport for

667
00:28:36,470 --> 00:28:33,840
another uh year and a half to get into

668
00:28:37,990 --> 00:28:36,480
the to the high bay so

669
00:28:39,990 --> 00:28:38,000
so we got a lot of work to do before

670
00:28:41,590 --> 00:28:40,000
then so we have actually a facility here

671
00:28:44,149 --> 00:28:41,600
that a lot of the work could be done to

672
00:28:46,310 --> 00:28:44,159
start with once we build up the campus

673
00:28:48,710 --> 00:28:46,320
at ellington we'll we'll eventually move

674
00:28:50,630 --> 00:28:48,720
it over there

675
00:28:52,470 --> 00:28:50,640
and uh to tackle the last part of the

676
00:28:55,830 --> 00:28:52,480
question back in the uh for the apollo

677
00:28:57,990 --> 00:28:55,840
a7 lb uh suits and for the the space

678
00:28:59,830 --> 00:28:58,000
shuttle suit which became the space

679
00:29:00,950 --> 00:28:59,840
station suit those were designed and

680
00:29:02,789 --> 00:29:00,960
built in

681
00:29:04,950 --> 00:29:02,799
out of windsor locks in connecticut at

682
00:29:06,789 --> 00:29:04,960
our facility up there

683
00:29:08,630 --> 00:29:06,799
here in in houston there's a new

684
00:29:11,510 --> 00:29:08,640
facility going in at the spaceport that

685
00:29:13,510 --> 00:29:11,520
we're building 125 000 square foot

686
00:29:15,990 --> 00:29:13,520
a lot of the the technology the

687
00:29:17,669 --> 00:29:16,000
development production of all of the the

688
00:29:19,590 --> 00:29:17,679

components of the the portable life

689
00:29:21,269 --> 00:29:19,600
support system will continue to be made

690
00:29:22,710 --> 00:29:21,279
in windsor locks in addition to some

691
00:29:23,909 --> 00:29:22,720
other sites that we've got both at our

692
00:29:27,590 --> 00:29:23,919
partner

693
00:29:29,190 --> 00:29:27,600
companies as part of the collins team

694
00:29:30,070 --> 00:29:29,200
but as well as some of the other collins

695
00:29:32,549 --> 00:29:30,080
sites

696
00:29:34,549 --> 00:29:32,559
elsewhere the assembly the maintenance

697
00:29:36,389 --> 00:29:34,559
the testing and the the sustaining of

698
00:29:39,350 --> 00:29:36,399
those suits will will be done you know

699
00:29:41,350 --> 00:29:39,360
largely here in houston

700
00:29:45,190 --> 00:29:41,360
okay excellent let's go to david curley

701
00:29:50,630 --> 00:29:49,110
thank you gary um for the nasa folks um

702
00:29:53,430 --> 00:29:50,640
did you consider

703
00:29:55,350 --> 00:29:53,440
one company for

704
00:29:57,110 --> 00:29:55,360
orbital evas and another for the moon

705
00:29:58,789 --> 00:29:57,120
could you still do that

706
00:30:00,070 --> 00:29:58,799
uh in the contract and can you talk a

707
00:30:02,389 --> 00:30:00,080
little bit about the fact that this is a

708
00:30:03,990 --> 00:30:02,399
services contract the companies will own

709
00:30:05,830 --> 00:30:04,000
the suits and for the companies you

710
00:30:07,909 --> 00:30:05,840
talked about evolution

711
00:30:09,510 --> 00:30:07,919
you're both pretty far down the road on

712
00:30:13,190 --> 00:30:09,520
suit development what would those

713
00:30:17,269 --> 00:30:15,350

okay i heard about three questions in

714
00:30:18,870 --> 00:30:17,279
there so i'm trying to decide kind of

715
00:30:22,630 --> 00:30:18,880
where to start um

716
00:30:24,870 --> 00:30:22,640
so maybe i'll start with the first so

717
00:30:27,430 --> 00:30:24,880
again big day today with axiom and

718
00:30:29,430 --> 00:30:27,440
collins being awarded this contract we

719
00:30:31,830 --> 00:30:29,440
have a step ahead of us the way the

720
00:30:34,149 --> 00:30:31,840
contract is structured

721
00:30:36,549 --> 00:30:34,159
they will actually we will now put out

722
00:30:37,990 --> 00:30:36,559
task orders for the demonstration

723
00:30:39,830 --> 00:30:38,000
periods

724
00:30:42,389 --> 00:30:39,840
and they get the

725
00:30:44,710 --> 00:30:42,399
opportunity to compete on those task

726
00:30:46,470 --> 00:30:44,720
orders and as we go through that process

727
00:30:48,230 --> 00:30:46,480
for a task order for the demonstration

728
00:30:50,630 --> 00:30:48,240
on space station capability

729
00:30:53,110 --> 00:30:50,640
demonstration for the lunar capability

730
00:30:55,350 --> 00:30:53,120
um we will actually reevaluate those

731
00:30:58,070 --> 00:30:55,360
task order proposals and and determine

732
00:31:00,070 --> 00:30:58,080
the best approach for um both space

733
00:31:02,149 --> 00:31:00,080
station and for the moon

734
00:31:04,549 --> 00:31:02,159
um i know there was another question

735
00:31:07,750 --> 00:31:04,559
there basically about services

736
00:31:10,070 --> 00:31:07,760
so you know as was mentioned by by both

737
00:31:12,310 --> 00:31:10,080
uh mike and dan you know the

738
00:31:15,269 --> 00:31:12,320

public-private partnership is really a

739
00:31:17,509 --> 00:31:15,279
benefit to nasa and

740
00:31:19,830 --> 00:31:17,519
it will allow us to have

741
00:31:21,909 --> 00:31:19,840
the capability to use and then as well

742
00:31:24,549 --> 00:31:21,919
they will have it so that they could

743
00:31:27,590 --> 00:31:24,559
provide it for non-nasa customers

744
00:31:29,430 --> 00:31:27,600
so it's a shared investment where

745
00:31:31,830 --> 00:31:29,440
we're we're both getting something out

746
00:31:35,590 --> 00:31:31,840
of it but this will allow us to have

747
00:31:37,190 --> 00:31:35,600
services for both the moon and for iss

748
00:31:39,669 --> 00:31:37,200
and then the companies will also have

749
00:31:42,230 --> 00:31:39,679
the ability uh to have other users and

750
00:31:44,789 --> 00:31:42,240
so that allows us to be able to save

751
00:31:47,509 --> 00:31:44,799
costs on the government side as we share

752
00:31:49,190 --> 00:31:47,519
this investment

753
00:31:51,430 --> 00:31:49,200
let's see and i'll answer your question

754
00:31:54,149 --> 00:31:51,440
about evolvability

755
00:31:56,470 --> 00:31:54,159
two parts of that um the suits are not

756
00:31:59,269 --> 00:31:56,480
we haven't completed uh

757
00:32:00,950 --> 00:31:59,279
critical design reviews it's called

758
00:32:03,190 --> 00:32:00,960
there's a lot of work being done on

759
00:32:05,350 --> 00:32:03,200
suits and a lot of testing dan's told

760
00:32:07,430 --> 00:32:05,360
you a whole bunch of the stuff he's been

761
00:32:10,070 --> 00:32:07,440
involved in that's in prototype type

762
00:32:11,430 --> 00:32:10,080
suits that ultimately inform the design

763
00:32:13,669 --> 00:32:11,440

so there's still at least in our case

764
00:32:15,509 --> 00:32:13,679
there's still work to do to finalize

765
00:32:17,350 --> 00:32:15,519
some of the design and you get informed

766
00:32:19,190 --> 00:32:17,360
by the work you're doing testing and

767
00:32:21,269 --> 00:32:19,200
suits that exist today that you built up

768
00:32:23,509 --> 00:32:21,279
as you go

769
00:32:25,190 --> 00:32:23,519
but from our perspective

770
00:32:26,870 --> 00:32:25,200
you know you don't want to build a suit

771
00:32:28,549 --> 00:32:26,880
that never evolves you want to build a

772
00:32:29,909 --> 00:32:28,559
suit that can evolve over time so we'll

773
00:32:31,909 --> 00:32:29,919
build a suit

774
00:32:34,549 --> 00:32:31,919
everybody will be happy with it we'll

775
00:32:37,029 --> 00:32:34,559
start using it we'll want to refine it

776
00:32:39,110 --> 00:32:37,039
as we learn more we want to refine it to

777
00:32:41,190 --> 00:32:39,120
keep the cost down we want to refine it

778
00:32:44,230 --> 00:32:41,200
to do the job better over the life of

779
00:32:47,029 --> 00:32:44,240
the suit and i fully expect to see that

780
00:32:49,029 --> 00:32:47,039
over time as it will involve the design

781
00:32:51,830 --> 00:32:49,039
and evolve it even more once you get to

782
00:32:54,230 --> 00:32:51,840
the lunar surface as well

783
00:32:57,509 --> 00:32:54,240
yeah i would echo that so i i don't

784
00:33:00,149 --> 00:32:57,519
think there's anything uh improper or

785
00:33:01,590 --> 00:33:00,159
problematic about evolving the design so

786
00:33:02,950 --> 00:33:01,600
in the development stage like this i

787
00:33:04,870 --> 00:33:02,960
think that's that's just a natural thing

788
00:33:06,950 --> 00:33:04,880

you're going to do i would say also with

789
00:33:08,950 --> 00:33:06,960
respect to having a suit that would work

790
00:33:10,549 --> 00:33:08,960
for one environment or the other there's

791
00:33:12,470 --> 00:33:10,559
a tremendous amount of opportunity to

792
00:33:14,549 --> 00:33:12,480
have synergy debate to be able to have a

793
00:33:15,750 --> 00:33:14,559
suit that that supports the microgravity

794
00:33:17,909 --> 00:33:15,760
requirements

795
00:33:20,389 --> 00:33:17,919
and then the things you learn there also

796
00:33:22,149 --> 00:33:20,399
help to inform the the uh the nature of

797
00:33:23,750 --> 00:33:22,159
how the suit would work on a on a

798
00:33:25,029 --> 00:33:23,760
planetary surface like the surface of

799
00:33:26,870 --> 00:33:25,039
the moon suit's got to be an

800
00:33:29,350 --> 00:33:26,880
interoperable with all the systems it

801
00:33:30,950 --> 00:33:29,360
interfaces with so all the air locks on

802
00:33:32,870 --> 00:33:30,960
international space station on

803
00:33:34,149 --> 00:33:32,880
commercial space stations on lunar

804
00:33:36,149 --> 00:33:34,159
landers

805
00:33:37,430 --> 00:33:36,159
on pressurized rovers the suit's got to

806
00:33:39,750 --> 00:33:37,440
be able to interface with all the

807
00:33:41,909 --> 00:33:39,760
systems as as efficiently and as well as

808
00:33:43,830 --> 00:33:41,919
possible a lot of those designs for the

809
00:33:44,789 --> 00:33:43,840
future systems aren't fully refined yet

810
00:33:46,789 --> 00:33:44,799
too so i think there'll be an

811
00:33:48,549 --> 00:33:46,799
opportunity to make sure that that

812
00:33:50,310 --> 00:33:48,559
evolution of the interoperability takes

813
00:33:52,310 --> 00:33:50,320

place and the most important thing of

814
00:33:53,909 --> 00:33:52,320
all is interoperability with the human

815
00:33:55,430 --> 00:33:53,919
element so we think that is really

816
00:33:56,950 --> 00:33:55,440
critical and we're going to we

817
00:33:59,110 --> 00:33:56,960
continually learn and we're going to

818
00:34:01,029 --> 00:33:59,120
learn more as we get more and more you

819
00:34:04,549 --> 00:34:01,039
know crew members in the suit and learn

820
00:34:07,029 --> 00:34:04,559
how to make it better for them

821
00:34:09,349 --> 00:34:07,039
okay let's go to uh joey roulette with

822
00:34:11,669 --> 00:34:09,359
reuters

823
00:34:14,310 --> 00:34:11,679
hey thanks uh this one's for any of the

824
00:34:16,869 --> 00:34:14,320
nasa uh representatives um what is what

825
00:34:19,270 --> 00:34:16,879
is the value of each contract awarded

826
00:34:21,030 --> 00:34:19,280
today and uh and also sorry if i missed

827
00:34:23,349 --> 00:34:21,040
something in the past with this but

828
00:34:26,869 --> 00:34:23,359
um with this new spacesuit program what

829
00:34:31,829 --> 00:34:26,879
will be made of nasa's xemu spacesuits

830
00:34:36,790 --> 00:34:35,349
so as far as the the contract values um

831
00:34:38,710 --> 00:34:36,800
that information is going to be

832
00:34:40,869 --> 00:34:38,720
published in the source selection

833
00:34:43,669 --> 00:34:40,879
statement that is due to be out uh in

834
00:34:46,790 --> 00:34:43,679
the late june time frame

835
00:34:49,349 --> 00:34:46,800
and as far as the xcmu

836
00:34:51,270 --> 00:34:49,359
data we actually have through the end of

837
00:34:53,349 --> 00:34:51,280
this fiscal year our team here in

838
00:34:55,510 --> 00:34:53,359

houston our civil servant team with our

839
00:34:58,470 --> 00:34:55,520
support contractor

840
00:35:00,950 --> 00:34:58,480
continuing to work on that

841
00:35:03,349 --> 00:35:00,960
high fidelity engineering unit they're

842
00:35:04,950 --> 00:35:03,359
putting it through a lot of testing in

843
00:35:06,950 --> 00:35:04,960
fact the life support system is in a

844
00:35:09,430 --> 00:35:06,960
chamber as we speak running through

845
00:35:11,750 --> 00:35:09,440
tests pressure garment is also going

846
00:35:13,990 --> 00:35:11,760
through testing and we

847
00:35:15,829 --> 00:35:14,000
just like we have today we have a

848
00:35:17,910 --> 00:35:15,839
technical library that is available

849
00:35:19,990 --> 00:35:17,920
where we're making all of the results

850
00:35:22,310 --> 00:35:20,000
from the nasa

851
00:35:23,910 --> 00:35:22,320
tests available to these companies so

852
00:35:26,230 --> 00:35:23,920
they can use any

853
00:35:28,310 --> 00:35:26,240
and all of it as they choose

854
00:35:30,150 --> 00:35:28,320
so we're continuing to run that gfe

855
00:35:32,550 --> 00:35:30,160
effort the government effort through the

856
00:35:35,270 --> 00:35:32,560
end of this fiscal year

857
00:35:36,470 --> 00:35:35,280
and then the the nasa team will shift

858
00:35:38,630 --> 00:35:36,480
focus

859
00:35:41,030 --> 00:35:38,640
and be in an inside oversight role and

860
00:35:42,829 --> 00:35:41,040
then collaboration team

861
00:35:45,510 --> 00:35:42,839
with our

862
00:35:49,990 --> 00:35:45,520
partners all right let's go to kristen

863
00:35:53,750 --> 00:35:51,750

hello everyone thanks for taking my

864
00:35:56,150 --> 00:35:53,760
question um this question is for anybody

865
00:35:58,790 --> 00:35:56,160
at nasa who wants it uh first i just

866
00:36:00,550 --> 00:35:58,800
want to confirm the target date for when

867
00:36:03,190 --> 00:36:00,560
you all hope to have

868
00:36:04,710 --> 00:36:03,200
these new spacesuits from axiom space

869
00:36:07,349 --> 00:36:04,720
and collins aerospace i believe the

870
00:36:08,870 --> 00:36:07,359
company said 2025 but can i just get a

871
00:36:11,510 --> 00:36:08,880
confirmation on that from somebody at

872
00:36:13,349 --> 00:36:11,520
nasa and then given

873
00:36:15,030 --> 00:36:13,359
the current issues with the spacesuits

874
00:36:17,109 --> 00:36:15,040
aboard the international space station

875
00:36:18,390 --> 00:36:17,119
water and helmets and whatnot is there

876
00:36:20,390 --> 00:36:18,400
any way that

877
00:36:21,349 --> 00:36:20,400
was there any discussion being had about

878
00:36:22,950 --> 00:36:21,359
you know if either of these two

879
00:36:24,790 --> 00:36:22,960
companies could speed up the development

880
00:36:26,950 --> 00:36:24,800
of these spacesuits if indeed the ones

881
00:36:28,390 --> 00:36:26,960
that are currently up there just

882
00:36:31,030 --> 00:36:28,400
aren't working anymore because they're

883
00:36:33,430 --> 00:36:31,040
so old thank you

884
00:36:35,670 --> 00:36:33,440
okay well i guess i'll take that one and

885
00:36:38,230 --> 00:36:35,680
so again we're going to transition the

886
00:36:40,550 --> 00:36:38,240
spacesuits on iss and demonstrate them

887
00:36:41,750 --> 00:36:40,560
after they are proven safe and have

888
00:36:43,990 --> 00:36:41,760

worked through all the milestones that

889
00:36:47,750 --> 00:36:44,000
are necessary and yes we are targeting

890
00:36:49,349 --> 00:36:47,760
um mid-2020s and it will be a aligned

891
00:36:51,589 --> 00:36:49,359
with the schedules that will be dictated

892
00:36:54,790 --> 00:36:51,599
by the providers

893
00:36:56,870 --> 00:36:54,800
and as soon as possible prior to

894
00:36:58,150 --> 00:36:56,880
the artemis missions and that particular

895
00:36:59,910 --> 00:36:58,160
need so

896
00:37:01,510 --> 00:36:59,920
still clearly some

897
00:37:03,030 --> 00:37:01,520
you know the schedule pieces are still

898
00:37:04,870 --> 00:37:03,040
being worked out and need to be worked

899
00:37:06,150 --> 00:37:04,880
with the providers

900
00:37:08,230 --> 00:37:06,160
in terms of water and helmet

901
00:37:09,589 --> 00:37:08,240
investigation and i just want to first

902
00:37:11,430 --> 00:37:09,599
say that

903
00:37:13,670 --> 00:37:11,440
i mentioned that the emu the current

904
00:37:14,950 --> 00:37:13,680
space suit is the workhorse for the

905
00:37:16,230 --> 00:37:14,960
agency

906
00:37:18,150 --> 00:37:16,240
and as you mentioned it's under

907
00:37:20,950 --> 00:37:18,160
investigation right now and we have an

908
00:37:23,030 --> 00:37:20,960
extremely capable team existing team

909
00:37:25,829 --> 00:37:23,040
that's investigating the what's

910
00:37:28,470 --> 00:37:25,839
happening at this point with the suit

911
00:37:30,950 --> 00:37:28,480
in fact we just received a status today

912
00:37:33,349 --> 00:37:30,960
they have a lot of mitigation techniques

913
00:37:35,190 --> 00:37:33,359

that i've already looked at for

914
00:37:36,710 --> 00:37:35,200
in case we have water introduction

915
00:37:38,710 --> 00:37:36,720
they've been looking at the fault tree

916
00:37:39,910 --> 00:37:38,720
for the suit and have

917
00:37:41,430 --> 00:37:39,920
you know

918
00:37:42,390 --> 00:37:41,440
tried to identify where the failures

919
00:37:43,990 --> 00:37:42,400
could be

920
00:37:47,109 --> 00:37:44,000
we're going to be down manifesting or

921
00:37:48,550 --> 00:37:47,119
bringing down on spacex 25 the spacesuit

922
00:37:50,310 --> 00:37:48,560
that actually had the most recent water

923
00:37:53,270 --> 00:37:50,320
and helmet anomaly and so the teams will

924
00:37:54,870 --> 00:37:53,280
be taking a look at that particular suit

925
00:37:56,870 --> 00:37:54,880
and so the team will be looking at all

926
00:37:58,470 --> 00:37:56,880
of that and we'll do a formal review at

927
00:37:59,510 --> 00:37:58,480
which point i'm i'm confident that we're

928
00:38:01,109 --> 00:37:59,520
going to pass

929
00:38:02,470 --> 00:38:01,119
the same spacesuit maybe with some

930
00:38:05,430 --> 00:38:02,480
additional mitigation techniques

931
00:38:07,430 --> 00:38:05,440
absorption in the helmet or other other

932
00:38:08,710 --> 00:38:07,440
types of mitigations

933
00:38:09,990 --> 00:38:08,720
and we'll figure out what the what the

934
00:38:11,990 --> 00:38:10,000
cause was and we'll be able to get

935
00:38:14,470 --> 00:38:12,000
through this particular issue at which

936
00:38:16,150 --> 00:38:14,480
point that suit will be able and capable

937
00:38:17,829 --> 00:38:16,160
for many years to come

938
00:38:20,870 --> 00:38:17,839

as we work with our providers in that

939
00:38:21,829 --> 00:38:20,880
transition and orderly transition so um

940
00:38:23,670 --> 00:38:21,839
just

941
00:38:24,630 --> 00:38:23,680
want to say that that particular suit is

942
00:38:26,870 --> 00:38:24,640
still

943
00:38:30,790 --> 00:38:26,880
planned to be used until it is safe to

944
00:38:34,390 --> 00:38:32,069
all right let's go back to the phone

945
00:38:37,190 --> 00:38:34,400
line uh we have jeff faust

946
00:38:39,030 --> 00:38:37,200
with space news

947
00:38:41,349 --> 00:38:39,040
good afternoon for the uh the two

948
00:38:43,510 --> 00:38:41,359
companies uh how much have you invested

949
00:38:45,430 --> 00:38:43,520
so far in suit development and how much

950
00:38:46,790 --> 00:38:45,440
more do you plan to invest to complete

951
00:38:48,790 --> 00:38:46,800
development

952
00:38:51,829 --> 00:38:48,800
of the suits either the dollar value or

953
00:38:55,990 --> 00:38:51,839
relative to the value of the nasa awards

954
00:38:59,970 --> 00:38:57,829
let's see that's a

955
00:39:01,349 --> 00:38:59,980
that's a delicate question

956
00:39:03,829 --> 00:39:01,359
[Music]

957
00:39:06,710 --> 00:39:03,839
the let me say this i feel comfortable

958
00:39:11,349 --> 00:39:06,720
saying this the all of the cost to

959
00:39:12,710 --> 00:39:11,359
develop the suit is uh is axiom

960
00:39:14,230 --> 00:39:12,720
investment

961
00:39:15,750 --> 00:39:14,240
so there you go now you got to go figure

962
00:39:16,630 --> 00:39:15,760
out what that is but

963
00:39:18,630 --> 00:39:16,640

uh

964
00:39:20,870 --> 00:39:18,640
that's that's the axiom investment

965
00:39:23,030 --> 00:39:20,880
primarily

966
00:39:25,510 --> 00:39:23,040
again for the collins team um i i

967
00:39:27,109 --> 00:39:25,520
represent that the technical team

968
00:39:29,270 --> 00:39:27,119
more than the uh

969
00:39:30,790 --> 00:39:29,280
um than the programmatic team so i don't

970
00:39:32,069 --> 00:39:30,800
really i don't have a figure for you but

971
00:39:33,990 --> 00:39:32,079
i would say that

972
00:39:35,589 --> 00:39:34,000
that the work that's been going on for

973
00:39:37,750 --> 00:39:35,599
the last you know intensively

974
00:39:40,230 --> 00:39:37,760
specifically for a next generation space

975
00:39:44,310 --> 00:39:40,240
over the last year or so that really is

976
00:39:46,069 --> 00:39:44,320
just the latest version of a continual

977
00:39:47,430 --> 00:39:46,079
investment in

978
00:39:49,750 --> 00:39:47,440
internal r d

979
00:39:51,670 --> 00:39:49,760
and uh contributing technologies for the

980
00:39:54,069 --> 00:39:51,680
xcmu for example for the carbon dioxide

981
00:39:55,670 --> 00:39:54,079
scrubber the fan the pump co2 sensors

982
00:39:57,430 --> 00:39:55,680
things like that so a lot of that

983
00:39:59,190 --> 00:39:57,440
technology it would be very difficult i

984
00:40:01,030 --> 00:39:59,200
think right now at least in this setting

985
00:40:01,910 --> 00:40:01,040
to be able to tease out how many things

986
00:40:03,510 --> 00:40:01,920
have

987
00:40:05,670 --> 00:40:03,520
are actually work that we do that

988
00:40:08,390 --> 00:40:05,680

supports the existing emu work that we

989
00:40:09,910 --> 00:40:08,400
supports the the xcmu development or

990
00:40:11,430 --> 00:40:09,920
this ongoing work we're doing on next

991
00:40:13,910 --> 00:40:11,440
generation spacesuits we'd have to get

992
00:40:16,550 --> 00:40:13,920
back to you on that i think

993
00:40:18,790 --> 00:40:16,560
all right let's uh go to daniel regera

994
00:40:20,150 --> 00:40:18,800
with uh our drone

995
00:40:21,510 --> 00:40:20,160
our drone you

996
00:40:27,430 --> 00:40:21,520
sorry

997
00:40:32,550 --> 00:40:29,190
the biggest question our people is

998
00:40:36,069 --> 00:40:32,560
asking in spanish is a how little look

999
00:40:38,790 --> 00:40:36,079
this is new suits and if we can see any

1000
00:40:40,790 --> 00:40:38,800
problems or another picture so

1001
00:40:43,349 --> 00:40:40,800
we will see that

1002
00:40:48,790 --> 00:40:45,990
in terms of drawings and pictures right

1003
00:40:51,109 --> 00:40:48,800
now today the nasa team

1004
00:40:53,190 --> 00:40:51,119
because we're just now going into the

1005
00:40:54,069 --> 00:40:53,200
award process we don't have pictures to

1006
00:40:56,150 --> 00:40:54,079
show

1007
00:40:59,430 --> 00:40:56,160
and um they maybe when would you have

1008
00:41:05,109 --> 00:40:59,440
them available yeah shortly same

1009
00:41:09,349 --> 00:41:06,550
all right very good let's go back to the

1010
00:41:12,870 --> 00:41:09,359
phone line with uh michael greshko with

1011
00:41:15,829 --> 00:41:14,870
thank you all so much for for doing this

1012
00:41:18,230 --> 00:41:15,839
um

1013
00:41:21,109 --> 00:41:18,240

quick question for the the nasa

1014
00:41:23,750 --> 00:41:21,119
representatives here could you speak to

1015
00:41:27,109 --> 00:41:23,760
uh kind of the milestones or what the

1016
00:41:29,589 --> 00:41:27,119
turnaround will look like going from a

1017
00:41:31,829 --> 00:41:29,599
space station demonstration

1018
00:41:34,550 --> 00:41:31,839
to artemis iii and then for the

1019
00:41:37,510 --> 00:41:34,560
companies could you speak to

1020
00:41:39,109 --> 00:41:37,520
specifically how you all

1021
00:41:42,710 --> 00:41:39,119
are leveraging

1022
00:41:45,990 --> 00:41:42,720
nasa's investment in the xcmu program

1023
00:41:50,150 --> 00:41:48,630
so as far as the turn around again i

1024
00:41:52,630 --> 00:41:50,160
mentioned a little bit earlier we are

1025
00:41:55,109 --> 00:41:52,640
requiring that demonstration in a

1026
00:41:57,510 --> 00:41:55,119
relevant environment um

1027
00:41:59,589 --> 00:41:57,520
as vanessa mentioned however for artemis

1028
00:42:03,109 --> 00:41:59,599
the demonstration is actually the

1029
00:42:05,190 --> 00:42:03,119
artemis iii mission um so we're actually

1030
00:42:08,630 --> 00:42:05,200
calling that flight the demonstration

1031
00:42:10,309 --> 00:42:08,640
mission so um prior to that the actual

1032
00:42:12,150 --> 00:42:10,319
flight of the artemis iii mission we

1033
00:42:14,950 --> 00:42:12,160
will have required that

1034
00:42:17,270 --> 00:42:14,960
these folks can show us and and verify

1035
00:42:19,109 --> 00:42:17,280
the requirements um in a relative

1036
00:42:21,510 --> 00:42:19,119
environment either on the ground or on

1037
00:42:23,910 --> 00:42:21,520
space station so um the timing for how

1038
00:42:27,829 --> 00:42:23,920

that turns around i think will just have

1039
00:42:29,430 --> 00:42:27,839
to play out over time and and and see um

1040
00:42:31,750 --> 00:42:29,440
you know how they hit their milestones

1041
00:42:32,950 --> 00:42:31,760
and and how quickly we're ready

1042
00:42:38,069 --> 00:42:32,960
and

1043
00:42:38,079 --> 00:42:41,589
yeah the other part um

1044
00:42:45,829 --> 00:42:43,510
well i think um and i kind of alluded

1045
00:42:48,230 --> 00:42:45,839
this a couple times already so i i think

1046
00:42:50,550 --> 00:42:48,240
it really bears emphasis that the work

1047
00:42:52,470 --> 00:42:50,560
that was done on the on the xcmu by nasa

1048
00:42:54,630 --> 00:42:52,480
in partnership with industry and we're

1049
00:42:57,109 --> 00:42:54,640
very happy to have been a part of that

1050
00:43:00,069 --> 00:42:57,119
is a tremendous foundation that work

1051
00:43:02,870 --> 00:43:00,079
basically is a technological test bed

1052
00:43:05,510 --> 00:43:02,880
for exploration spacesuit technologies

1053
00:43:08,069 --> 00:43:05,520
which all of our solutions are based on

1054
00:43:10,390 --> 00:43:08,079
so it is a it is a it is a very robust

1055
00:43:12,309 --> 00:43:10,400
foundation within which we now have the

1056
00:43:14,950 --> 00:43:12,319
opportunity to innovate to drive down

1057
00:43:16,870 --> 00:43:14,960
the mass to drive uh to drive up the

1058
00:43:19,109 --> 00:43:16,880
mobility and the compatibility with the

1059
00:43:20,630 --> 00:43:19,119
human element to reduce the volume as

1060
00:43:21,589 --> 00:43:20,640
much as possible

1061
00:43:23,510 --> 00:43:21,599
there are some things about the

1062
00:43:25,109 --> 00:43:23,520
international space station maintaining

1063
00:43:28,230 --> 00:43:25,119

that where there's some critical

1064
00:43:30,470 --> 00:43:28,240
contingency kinds of activities where

1065
00:43:31,910 --> 00:43:30,480
as big as the space station is there's

1066
00:43:33,910 --> 00:43:31,920
there's some very tight quarters in

1067
00:43:35,750 --> 00:43:33,920
certain areas so to have a suit that's

1068
00:43:36,710 --> 00:43:35,760
compatible with that kind of environment

1069
00:43:38,710 --> 00:43:36,720
i think

1070
00:43:41,510 --> 00:43:38,720
is really important but foundationally

1071
00:43:43,589 --> 00:43:41,520
the approach is part and parcel with um

1072
00:43:45,510 --> 00:43:43,599
with the path that the xcmu laid for us

1073
00:43:47,430 --> 00:43:45,520
and it's it's great to know that testbed

1074
00:43:48,790 --> 00:43:47,440
is available going forward as well and

1075
00:43:50,230 --> 00:43:48,800
it's great to know the resources that

1076
00:43:51,910 --> 00:43:50,240
have worked on it are available to

1077
00:43:53,030 --> 00:43:51,920
partner with us so we're very excited

1078
00:43:55,190 --> 00:43:53,040
about that

1079
00:43:57,030 --> 00:43:55,200
so the what i'd added that a couple

1080
00:43:59,109 --> 00:43:57,040
things one is we have some requirements

1081
00:44:01,510 --> 00:43:59,119
ourselves of course that has to be

1082
00:44:03,750 --> 00:44:01,520
accommodated uh by the suit that we have

1083
00:44:05,670 --> 00:44:03,760
to design in the other thing is

1084
00:44:08,069 --> 00:44:05,680
this has been fantastic work done by

1085
00:44:10,470 --> 00:44:08,079
nasa and and of course we utilize it to

1086
00:44:13,109 --> 00:44:10,480
the maximum extent possible as dan said

1087
00:44:15,270 --> 00:44:13,119
but each company has to own the design

1088
00:44:18,150 --> 00:44:15,280

uh and own the integrated performance

1089
00:44:21,349 --> 00:44:18,160
and own the integrated safety of it so

1090
00:44:23,349 --> 00:44:21,359
so with this concept that that has been

1091
00:44:25,510 --> 00:44:23,359
evolved to the point it is is very

1092
00:44:28,230 --> 00:44:25,520
capable suit we like it a lot

1093
00:44:29,670 --> 00:44:28,240
um we have to now go back and certify it

1094
00:44:31,190 --> 00:44:29,680
under our own conditions and make sure

1095
00:44:33,109 --> 00:44:31,200
the integrated suit once we put all the

1096
00:44:35,670 --> 00:44:33,119
pieces together actually

1097
00:44:38,309 --> 00:44:35,680
perform as one piece so dan said exactly

1098
00:44:40,950 --> 00:44:38,319
right this is a great foundation

1099
00:44:44,470 --> 00:44:40,960
it informed a lot of decisions about how

1100
00:44:46,710 --> 00:44:44,480
you enter the suit mobility

1101
00:44:49,510 --> 00:44:46,720
some of the system designs are really

1102
00:44:51,109 --> 00:44:49,520
amazing compared to to the suit not the

1103
00:44:52,150 --> 00:44:51,119
suit that exists today it's not a great

1104
00:44:54,470 --> 00:44:52,160
suit but

1105
00:44:56,390 --> 00:44:54,480
uh you know evolution is important uh

1106
00:44:57,910 --> 00:44:56,400
and so all of that's very critically

1107
00:45:00,390 --> 00:44:57,920
important so some of those are

1108
00:45:01,910 --> 00:45:00,400
components we can go by

1109
00:45:03,589 --> 00:45:01,920
some of those are components we have to

1110
00:45:04,950 --> 00:45:03,599
build some of those will look at that

1111
00:45:07,430 --> 00:45:04,960
and say hey we'll do this a little bit

1112
00:45:09,670 --> 00:45:07,440
differently because it saves mass saves

1113
00:45:11,109 --> 00:45:09,680

uh some other cost or or is just a

1114
00:45:12,790 --> 00:45:11,119
better way to do it

1115
00:45:14,710 --> 00:45:12,800
and then you have to do the engineering

1116
00:45:16,950 --> 00:45:14,720
to integrate that all together as one

1117
00:45:18,710 --> 00:45:16,960
certified design so that's that's the

1118
00:45:20,870 --> 00:45:18,720
job ahead of us

1119
00:45:25,670 --> 00:45:20,880
uh but the ex

1120
00:45:29,750 --> 00:45:27,349
all right let's go back to the phone we

1121
00:45:32,550 --> 00:45:29,760
have zach albert with the launch pad

1122
00:45:34,790 --> 00:45:32,560
news

1123
00:45:37,190 --> 00:45:34,800
yeah thank you so much congratulations

1124
00:45:39,349 --> 00:45:37,200
both back to him and collins for the

1125
00:45:41,510 --> 00:45:39,359
nasa representatives with two companies

1126
00:45:43,430 --> 00:45:41,520
being selected this is similar to what

1127
00:45:46,069 --> 00:45:43,440
we saw with the commercial crew vehicles

1128
00:45:48,309 --> 00:45:46,079
is this for redundancy or it could be

1129
00:45:50,550 --> 00:45:48,319
seen after actually using two different

1130
00:45:52,470 --> 00:45:50,560
suits at the same time or is it one

1131
00:45:54,470 --> 00:45:52,480
universal kind of option you're looking

1132
00:45:56,150 --> 00:45:54,480
for and for the company representatives

1133
00:45:58,630 --> 00:45:56,160
how far along into development were you

1134
00:46:00,390 --> 00:45:58,640
when nasa started this kind of contract

1135
00:46:03,829 --> 00:46:00,400
process or did you start after it was

1136
00:46:10,150 --> 00:46:07,270
yes i think it's fair to say that you

1137
00:46:11,910 --> 00:46:10,160
know especially as we start

1138
00:46:14,630 --> 00:46:11,920

there's a benefit to having two

1139
00:46:17,589 --> 00:46:14,640
companies i do think it provides us some

1140
00:46:20,150 --> 00:46:17,599
redundancy as we go forward again we

1141
00:46:21,670 --> 00:46:20,160
talked about the task orders that we

1142
00:46:22,710 --> 00:46:21,680
have yet to compete and we'll see how

1143
00:46:28,230 --> 00:46:22,720
those

1144
00:46:31,430 --> 00:46:28,240
again it keeps competition in our system

1145
00:46:33,510 --> 00:46:31,440
which was also a goal so i think between

1146
00:46:36,550 --> 00:46:33,520
um the competition to help drive cost

1147
00:46:38,790 --> 00:46:36,560
down and also the redundancy those are

1148
00:46:41,270 --> 00:46:38,800
those were a couple of the major goals

1149
00:46:45,510 --> 00:46:42,870
say also say laura mentioned it earlier

1150
00:46:48,630 --> 00:46:45,520
that you know these were really good

1151
00:46:50,710 --> 00:46:48,640
proposals you know we're very um pleased

1152
00:46:53,349 --> 00:46:50,720
that we have an industry

1153
00:46:56,470 --> 00:46:53,359
that is uh capable and able to make

1154
00:46:58,950 --> 00:46:56,480
these kinds of submittals so we're

1155
00:47:00,230 --> 00:46:58,960
we're very pleased by that

1156
00:47:01,829 --> 00:47:00,240
i think the last question was like how

1157
00:47:05,030 --> 00:47:01,839
long have we been in development prior

1158
00:47:07,589 --> 00:47:05,040
to the this contract announcement the

1159
00:47:09,510 --> 00:47:07,599
final rfp and its current version so i i

1160
00:47:10,470 --> 00:47:09,520
would say that that spacesuit

1161
00:47:12,390 --> 00:47:10,480
evolution

1162
00:47:15,670 --> 00:47:12,400
work had been ongoing for quite a few

1163
00:47:18,790 --> 00:47:15,680

years before that and and it focused in

1164
00:47:22,390 --> 00:47:18,800
on a on a on a more specific way

1165
00:47:24,390 --> 00:47:22,400
after the xevas you know proposal itself

1166
00:47:27,190 --> 00:47:24,400
but but the need for a space suit and

1167
00:47:29,430 --> 00:47:27,200
need for a low mass low volume modular

1168
00:47:31,430 --> 00:47:29,440
open system architecture you know

1169
00:47:32,790 --> 00:47:31,440
enabled suit that had been something

1170
00:47:35,510 --> 00:47:32,800
we've been working on for quite a while

1171
00:47:39,990 --> 00:47:38,390
our part you know our team as uh as

1172
00:47:41,670 --> 00:47:40,000
we've talked about before we've been

1173
00:47:43,109 --> 00:47:41,680
utilizing uh

1174
00:47:45,910 --> 00:47:43,119
the x

1175
00:47:47,589 --> 00:47:45,920
uh eba suit um

1176
00:47:49,109 --> 00:47:47,599
for for a while that development's going

1177
00:47:51,589 --> 00:47:49,119
on and many of our team members have

1178
00:47:53,910 --> 00:47:51,599
been involved in that along the way as

1179
00:47:55,270 --> 00:47:53,920
well so that it really starts

1180
00:47:56,950 --> 00:47:55,280
fairly

1181
00:47:58,710 --> 00:47:56,960
a few years back

1182
00:48:00,390 --> 00:47:58,720
that's informed the design that we're

1183
00:48:03,750 --> 00:48:00,400
that we propose and ultimately are in

1184
00:48:09,990 --> 00:48:06,069
all right next we have micah maydenberg

1185
00:48:14,069 --> 00:48:12,390
hey everybody um just want to make sure

1186
00:48:16,630 --> 00:48:14,079
i got this right about the contract

1187
00:48:18,950 --> 00:48:16,640
structure maybe this is from laura is it

1188
00:48:21,990 --> 00:48:18,960

possible just given the way that task

1189
00:48:23,190 --> 00:48:22,000
orders work that one company could win

1190
00:48:24,230 --> 00:48:23,200
all of them

1191
00:48:25,750 --> 00:48:24,240
um

1192
00:48:27,510 --> 00:48:25,760
you know

1193
00:48:29,109 --> 00:48:27,520
that's one and then dan i just wanted to

1194
00:48:31,430 --> 00:48:29,119
ask you real quick you know mike has

1195
00:48:34,870 --> 00:48:31,440
talked about other customers uh outside

1196
00:48:36,950 --> 00:48:34,880
of nasa does collins have any plans

1197
00:48:37,910 --> 00:48:36,960
for customer development for these dukes

1198
00:48:41,109 --> 00:48:37,920
um

1199
00:48:44,230 --> 00:48:41,119
you know beyond the agency thanks

1200
00:48:46,790 --> 00:48:44,240
yeah so contract structure wise you are

1201
00:48:48,470 --> 00:48:46,800
correct theoretically one company could

1202
00:48:50,230 --> 00:48:48,480
win all of them

1203
00:48:52,150 --> 00:48:50,240
so we will

1204
00:48:54,870 --> 00:48:52,160
put the task orders out we will compete

1205
00:48:57,349 --> 00:48:54,880
them we'll evaluate them we have to also

1206
00:48:58,870 --> 00:48:57,359
understand what our funding availability

1207
00:49:01,030 --> 00:48:58,880
looks like

1208
00:49:02,390 --> 00:49:01,040
that's actually the great thing about

1209
00:49:03,990 --> 00:49:02,400
this contract

1210
00:49:06,309 --> 00:49:04,000
and the team that put it together is

1211
00:49:08,230 --> 00:49:06,319
that it is incredibly flexible

1212
00:49:11,190 --> 00:49:08,240
so it allows us

1213
00:49:13,670 --> 00:49:11,200

decision making going ahead as we you

1214
00:49:14,630 --> 00:49:13,680
know see how the the teams are doing how

1215
00:49:15,910 --> 00:49:14,640
they're

1216
00:49:17,829 --> 00:49:15,920
are they meeting their milestones are

1217
00:49:19,349 --> 00:49:17,839
they not meeting their milestones what

1218
00:49:21,030 --> 00:49:19,359
kind of um

1219
00:49:22,069 --> 00:49:21,040
funding availability we have we can

1220
00:49:25,910 --> 00:49:22,079
actually

1221
00:49:27,990 --> 00:49:25,920
um make decisions to to put nasa uh you

1222
00:49:30,150 --> 00:49:28,000
know in the best posture for supporting

1223
00:49:32,630 --> 00:49:30,160
both space station and artemis so so

1224
00:49:35,510 --> 00:49:32,640
it's difficult to say today exactly how

1225
00:49:36,710 --> 00:49:35,520
this contract is going to execute

1226
00:49:38,710 --> 00:49:36,720
but that was

1227
00:49:40,710 --> 00:49:38,720
on purpose and by design

1228
00:49:43,270 --> 00:49:40,720
because we want the flexibility to be

1229
00:49:47,109 --> 00:49:43,280
able to make those decisions as we see

1230
00:49:48,790 --> 00:49:47,119
how the how these companies perform

1231
00:49:50,230 --> 00:49:48,800
and the question for for collins you

1232
00:49:51,510 --> 00:49:50,240
know we've already engaged with several

1233
00:49:54,150 --> 00:49:51,520
other

1234
00:49:56,390 --> 00:49:54,160
uh companies for

1235
00:49:58,470 --> 00:49:56,400
interest and for inputs on the design

1236
00:50:00,069 --> 00:49:58,480
the intent would be for the spacesuit to

1237
00:50:02,069 --> 00:50:00,079
enable more and more people to

1238
00:50:04,069 --> 00:50:02,079

experience space that the the actual

1239
00:50:06,549 --> 00:50:04,079
environment of space we think it's uh

1240
00:50:08,390 --> 00:50:06,559
it's you know to sustain a space station

1241
00:50:10,150 --> 00:50:08,400
like international space station or

1242
00:50:12,470 --> 00:50:10,160
commercial space stations certainly to

1243
00:50:15,430 --> 00:50:12,480
do surface operations i think anything

1244
00:50:17,349 --> 00:50:15,440
short of a spacewalk wouldn't meet the

1245
00:50:19,349 --> 00:50:17,359
need both from a systematic standpoint

1246
00:50:20,790 --> 00:50:19,359
and also for all the other customers

1247
00:50:22,710 --> 00:50:20,800
that are out there that really you know

1248
00:50:24,230 --> 00:50:22,720
you would want humanity

1249
00:50:26,549 --> 00:50:24,240
and a much greater number of people to

1250
00:50:29,670 --> 00:50:26,559
be able to experience space so the the

1251
00:50:31,910 --> 00:50:29,680
challenge then becomes to accommodate

1252
00:50:34,069 --> 00:50:31,920
the various potential customers that you

1253
00:50:35,510 --> 00:50:34,079
have beyond nasa

1254
00:50:37,109 --> 00:50:35,520
to accommodate the different

1255
00:50:38,470 --> 00:50:37,119
environments and to accommodate the

1256
00:50:40,230 --> 00:50:38,480
different kinds of

1257
00:50:41,990 --> 00:50:40,240
vehicles and systems that the space suit

1258
00:50:44,390 --> 00:50:42,000
has to interface with

1259
00:50:45,829 --> 00:50:44,400
just the nature of of systems

1260
00:50:47,670 --> 00:50:45,839
engineering in this day and age the

1261
00:50:49,109 --> 00:50:47,680
nature of modularity that you can build

1262
00:50:50,950 --> 00:50:49,119
into systems and the amount of

1263
00:50:53,349 --> 00:50:50,960

capability you can have at the component

1264
00:50:55,510 --> 00:50:53,359
level and the availability accessibility

1265
00:50:58,069 --> 00:50:55,520
for the rest of the spacesuit systems

1266
00:50:59,829 --> 00:50:58,079
means you don't have to have a single

1267
00:51:02,549 --> 00:50:59,839
bespoke system that's only going to

1268
00:51:05,430 --> 00:51:02,559
serve one one you know particular use

1269
00:51:07,670 --> 00:51:05,440
case and so the ability to have a waste

1270
00:51:09,829 --> 00:51:07,680
entry version of the suit similar to the

1271
00:51:11,589 --> 00:51:09,839
existing spacesuit the ability to have a

1272
00:51:13,990 --> 00:51:11,599
rear entry version of the suit the

1273
00:51:16,309 --> 00:51:14,000
ability to remove you know to get easy

1274
00:51:18,870 --> 00:51:16,319
access to components there to be able to

1275
00:51:20,549 --> 00:51:18,880
essentially enable block upgrades and

1276
00:51:22,069 --> 00:51:20,559
adapt to different

1277
00:51:23,829 --> 00:51:22,079
to different customer needs i think is

1278
00:51:27,030 --> 00:51:23,839
really important so our goal is to make

1279
00:51:29,190 --> 00:51:27,040
a suit that really can do with uh with

1280
00:51:31,430 --> 00:51:29,200
minor modifications can accommodate lots

1281
00:51:32,390 --> 00:51:31,440
and lots of other customers so

1282
00:51:33,829 --> 00:51:32,400
yeah

1283
00:51:37,349 --> 00:51:33,839
all right very good let's uh let's go to

1284
00:51:39,430 --> 00:51:37,359
the room uh and we'll go to mark grove

1285
00:51:41,750 --> 00:51:39,440
uh thank you mark caro from aviation

1286
00:51:43,430 --> 00:51:41,760
week again um you know i was reading

1287
00:51:45,109 --> 00:51:43,440
through some of the solicitation

1288
00:51:46,630 --> 00:51:45,119

materials and i sort of had the

1289
00:51:47,829 --> 00:51:46,640
understanding

1290
00:51:49,990 --> 00:51:47,839
that

1291
00:51:52,710 --> 00:51:50,000
when these task orders or contract

1292
00:51:54,710 --> 00:51:52,720
agreements go forward the the companies

1293
00:51:56,630 --> 00:51:54,720
selected will also

1294
00:51:58,470 --> 00:51:56,640
stay with the suits in terms of doing

1295
00:52:01,270 --> 00:51:58,480
maintenance and maybe even be part of

1296
00:52:04,950 --> 00:52:01,280
the control teams

1297
00:52:06,630 --> 00:52:04,960
that provide operational support so

1298
00:52:08,549 --> 00:52:06,640
if i understood correctly i'm just kind

1299
00:52:09,829 --> 00:52:08,559
of checking here this is

1300
00:52:14,069 --> 00:52:09,839
more than

1301
00:52:16,549 --> 00:52:14,079
tailoring a suit for the prom it's uh

1302
00:52:21,030 --> 00:52:16,559
it's more about how to wash it and iron

1303
00:52:23,510 --> 00:52:21,829
train

1304
00:52:24,950 --> 00:52:23,520
for it as well yeah

1305
00:52:27,270 --> 00:52:24,960
so that's that's my understanding as

1306
00:52:29,990 --> 00:52:27,280
well mark so you know the the idea would

1307
00:52:32,150 --> 00:52:30,000
be you're providing eva capability to

1308
00:52:33,589 --> 00:52:32,160
your customers and you own the assets

1309
00:52:36,470 --> 00:52:33,599
you own the development design

1310
00:52:38,790 --> 00:52:36,480
development test eval crew training on

1311
00:52:39,670 --> 00:52:38,800
orbit operations that piece you know our

1312
00:52:41,589 --> 00:52:39,680
team

1313
00:52:43,190 --> 00:52:41,599

i feel like we're in a pretty good space

1314
00:52:44,870 --> 00:52:43,200
in in that area because we do do

1315
00:52:47,190 --> 00:52:44,880
real-time operation support for all the

1316
00:52:49,910 --> 00:52:47,200
spacewalks that we have on on station

1317
00:52:52,470 --> 00:52:49,920
but but it is another level of

1318
00:52:54,230 --> 00:52:52,480
engagement by by by us as a service

1319
00:52:55,829 --> 00:52:54,240
provider for sure

1320
00:52:58,790 --> 00:52:55,839
yeah

1321
00:53:00,390 --> 00:52:58,800
so we i might follow up on that we um

1322
00:53:02,870 --> 00:53:00,400
we wrote the contract such that these

1323
00:53:05,270 --> 00:53:02,880
guys like dan mentioned they you know

1324
00:53:06,950 --> 00:53:05,280
they they own the suits they provide the

1325
00:53:08,470 --> 00:53:06,960
service the eva service but they are

1326
00:53:11,349 --> 00:53:08,480
part of the overall

1327
00:53:13,750 --> 00:53:11,359
fod control team here at nasa johnson so

1328
00:53:15,589 --> 00:53:13,760
at the end of the day the mission

1329
00:53:18,630 --> 00:53:15,599
is still a

1330
00:53:21,750 --> 00:53:18,640
fod responsibility mission risk is still

1331
00:53:23,829 --> 00:53:21,760
a nasa responsibility

1332
00:53:25,510 --> 00:53:23,839
these guys are operating it we've

1333
00:53:27,109 --> 00:53:25,520
envisioned them in a back room

1334
00:53:29,190 --> 00:53:27,119
supporting you know the front room

1335
00:53:31,030 --> 00:53:29,200
mission control kind of thing

1336
00:53:33,270 --> 00:53:31,040
so you know there's a lot of definitions

1337
00:53:34,870 --> 00:53:33,280
of operate what that means i mean

1338
00:53:36,950 --> 00:53:34,880

clearly they will be there supporting

1339
00:53:39,030 --> 00:53:36,960
the suits during a mission but but it's

1340
00:53:41,990 --> 00:53:39,040
the nasa flight control team

1341
00:53:45,349 --> 00:53:42,000
um in mission control that is actually

1342
00:53:47,270 --> 00:53:45,359
you know making the risk uh based

1343
00:53:49,589 --> 00:53:47,280
i'd say authority decisions during an

1344
00:53:51,430 --> 00:53:49,599
eva

1345
00:53:52,790 --> 00:53:51,440
okay we'll stay in the room here let's

1346
00:53:55,109 --> 00:53:52,800
start with uh

1347
00:53:57,670 --> 00:53:55,119
go ahead you can go first uh gina

1348
00:54:00,230 --> 00:53:57,680
cinceri abc news so your consumers for

1349
00:54:02,230 --> 00:54:00,240
this are the astronauts going out on

1350
00:54:03,270 --> 00:54:02,240
spacewalks are they sending you wish

1351
00:54:05,190 --> 00:54:03,280
lists

1352
00:54:08,470 --> 00:54:05,200
for what they would like in their next

1353
00:54:10,069 --> 00:54:08,480
spacesuit and what's on that wish list

1354
00:54:11,750 --> 00:54:10,079
that's a great point and

1355
00:54:13,349 --> 00:54:11,760
we have a saying if you want three

1356
00:54:15,270 --> 00:54:13,359
opinions asked to astronauts or some

1357
00:54:17,270 --> 00:54:15,280
equivalent of that so so you have to be

1358
00:54:19,190 --> 00:54:17,280
a little so so there's a process by

1359
00:54:20,950 --> 00:54:19,200
which the astronaut office would develop

1360
00:54:22,630 --> 00:54:20,960
a crew consensus report so you'd have a

1361
00:54:24,950 --> 00:54:22,640
robust robust

1362
00:54:26,710 --> 00:54:24,960
testing campaign that would incorporate

1363
00:54:28,710 --> 00:54:26,720

a number of test points and you would

1364
00:54:30,710 --> 00:54:28,720
get you know lots of

1365
00:54:32,630 --> 00:54:30,720
objective data that might be video that

1366
00:54:33,910 --> 00:54:32,640
might be you know data from the suits

1367
00:54:35,750 --> 00:54:33,920
and so forth but then you would get a

1368
00:54:37,190 --> 00:54:35,760
lot of um

1369
00:54:39,670 --> 00:54:37,200
information from the crew in the way of

1370
00:54:42,150 --> 00:54:39,680
surveys in the way of workload and those

1371
00:54:42,950 --> 00:54:42,160
kinds of things so so so far we have

1372
00:54:44,230 --> 00:54:42,960
been

1373
00:54:45,589 --> 00:54:44,240
you know there's three of us that have

1374
00:54:46,950 --> 00:54:45,599
been deeply involved in all the

1375
00:54:48,789 --> 00:54:46,960
development to this point we're very

1376
00:54:50,789 --> 00:54:48,799
excited by the award because that means

1377
00:54:53,510 --> 00:54:50,799
now we have the ability to engage the

1378
00:54:55,270 --> 00:54:53,520
rest of the end user community on a very

1379
00:54:57,990 --> 00:54:55,280
rapid cadence and and i think that's a

1380
00:55:00,150 --> 00:54:58,000
very important part of this too but

1381
00:55:01,670 --> 00:55:00,160
we don't everybody doesn't get a vote so

1382
00:55:04,789 --> 00:55:01,680
that wouldn't be practical but but there

1383
00:55:06,150 --> 00:55:04,799
is a way to with the crew consensus

1384
00:55:07,589 --> 00:55:06,160
process and that kind of a testing

1385
00:55:09,109 --> 00:55:07,599
process to to come up with a good

1386
00:55:11,270 --> 00:55:09,119
solution and it's not really just the

1387
00:55:12,789 --> 00:55:11,280
end users it's also the flight control

1388
00:55:16,069 --> 00:55:12,799

community as well in the engineering

1389
00:55:18,870 --> 00:55:16,079
community so yeah it's a great community

1390
00:55:19,750 --> 00:55:18,880
i think though the one thing to add is

1391
00:55:21,270 --> 00:55:19,760
that

1392
00:55:23,750 --> 00:55:21,280
a part of the

1393
00:55:24,950 --> 00:55:23,760
contracts would be the availability of

1394
00:55:32,470 --> 00:55:24,960
the

1395
00:55:34,789 --> 00:55:32,480
engineers

1396
00:55:37,510 --> 00:55:34,799
we have a a way to do that via

1397
00:55:39,510 --> 00:55:37,520
collaboration agreements and so um we

1398
00:55:42,150 --> 00:55:39,520
will make that available to to both of

1399
00:55:43,990 --> 00:55:42,160
them as well as facilities that we have

1400
00:55:45,589 --> 00:55:44,000
here that are unique as well

1401
00:55:47,829 --> 00:55:45,599
so the um

1402
00:55:50,470 --> 00:55:47,839
natural balancing

1403
00:55:53,270 --> 00:55:50,480
buoyancy laboratory nbl will be made

1404
00:55:54,789 --> 00:55:53,280
available to them as well

1405
00:55:57,589 --> 00:55:54,799
all right let me pulse the room real

1406
00:55:59,910 --> 00:55:57,599
quick go ahead eric

1407
00:56:01,589 --> 00:55:59,920
hi uh eric berger with rs technica a

1408
00:56:02,789 --> 00:56:01,599
couple questions for lindsay or laura i

1409
00:56:05,030 --> 00:56:02,799
think i just want to make sure i

1410
00:56:06,870 --> 00:56:05,040
understand the contracting mechanism it

1411
00:56:08,309 --> 00:56:06,880
sounds similar to clips in that the

1412
00:56:09,829 --> 00:56:08,319
providers are paid only when they

1413
00:56:12,230 --> 00:56:09,839

provide services i just hope you can

1414
00:56:14,309 --> 00:56:12,240
clarify that and i want the contract

1415
00:56:16,549 --> 00:56:14,319
award was 3.5 billion i think through

1416
00:56:18,710 --> 00:56:16,559
2034.

1417
00:56:20,150 --> 00:56:18,720
for all the potential task orders and

1418
00:56:22,150 --> 00:56:20,160
that's that's a few hundred million

1419
00:56:23,910 --> 00:56:22,160
dollars more than the first hls award

1420
00:56:26,230 --> 00:56:23,920
that nasa gave and so i'm just wondering

1421
00:56:28,950 --> 00:56:26,240
like in terms of cost it seems like a

1422
00:56:30,630 --> 00:56:28,960
lunar lander is a more complex system

1423
00:56:31,910 --> 00:56:30,640
than a spacesuit and i realize this is a

1424
00:56:33,589 --> 00:56:31,920
longer period of time you're providing

1425
00:56:35,990 --> 00:56:33,599
services for but maybe you could just

1426
00:56:38,150 --> 00:56:36,000
talk about the value of that

1427
00:56:40,390 --> 00:56:38,160
those task orders and and why it is so

1428
00:56:42,069 --> 00:56:40,400
much more than the lunar lander so two

1429
00:56:45,109 --> 00:56:42,079
questions on the contracting mechanism

1430
00:56:47,670 --> 00:56:45,119
and the cost thank you

1431
00:56:49,910 --> 00:56:47,680
yeah so so again

1432
00:56:52,549 --> 00:56:49,920
i might like you know to find phone a

1433
00:56:54,549 --> 00:56:52,559
friend for my like source board friends

1434
00:56:56,390 --> 00:56:54,559
here on the cost but um

1435
00:57:01,310 --> 00:56:56,400
so a little different than the clips

1436
00:57:04,230 --> 00:57:02,710
[Music]

1437
00:57:05,829 --> 00:57:04,240
yeah you're good okay a little different

1438
00:57:07,270 --> 00:57:05,839

than the clips contract the eclipse

1439
00:57:08,870 --> 00:57:07,280
contract is where the agency's taking

1440
00:57:10,230 --> 00:57:08,880
high risk and not really necessarily

1441
00:57:12,390 --> 00:57:10,240
investing in the development the same

1442
00:57:15,190 --> 00:57:12,400
way so this is definitely different the

1443
00:57:16,710 --> 00:57:15,200
3.5 billion is a total contract ceiling

1444
00:57:18,630 --> 00:57:16,720
over the life of the contract that is

1445
00:57:20,549 --> 00:57:18,640
not the awarded amount we guaranteed

1446
00:57:22,950 --> 00:57:20,559
them an amount to make sure we could get

1447
00:57:24,470 --> 00:57:22,960
them going and they had skin in the game

1448
00:57:25,990 --> 00:57:24,480
but and we're going to be careful to

1449
00:57:28,390 --> 00:57:26,000
protect that these are commercial

1450
00:57:30,150 --> 00:57:28,400
companies working on commercial systems

1451
00:57:32,870 --> 00:57:30,160
for other users so nasa can be one

1452
00:57:33,910 --> 00:57:32,880
customer from many so so so there's a

1453
00:57:37,030 --> 00:57:33,920
little bit different not apples to

1454
00:57:39,750 --> 00:57:37,040
oranges there with hls and an xevas so

1455
00:57:41,510 --> 00:57:39,760
so the 3.5 billion is a ceiling and this

1456
00:57:43,190 --> 00:57:41,520
is a we've got a development piece and

1457
00:57:45,270 --> 00:57:43,200
then a reoccurring services piece that

1458
00:57:47,270 --> 00:57:45,280
are components of this overall contract

1459
00:57:50,069 --> 00:57:47,280
yeah i think mark is the the hls was

1460
00:57:51,829 --> 00:57:50,079
just for that one demo piece as well

1461
00:57:55,430 --> 00:57:51,839
the hls contract is focused on

1462
00:57:56,710 --> 00:57:55,440
development right now yeah

1463
00:57:58,150 --> 00:57:56,720

okay very good let's see if we can

1464
00:57:59,990 --> 00:57:58,160
squeeze in one more from the phone

1465
00:58:04,230 --> 00:58:00,000
bridge um let's do

1466
00:58:08,870 --> 00:58:06,390
hi thank you so much um i'm just

1467
00:58:10,789 --> 00:58:08,880
wondering given the report from

1468
00:58:13,589 --> 00:58:10,799
nasa's inspector general last year on

1469
00:58:15,430 --> 00:58:13,599
the problems and delays with the xcmu

1470
00:58:17,430 --> 00:58:15,440
how confident are you that transitioning

1471
00:58:19,829 --> 00:58:17,440
to this commercial approach at this

1472
00:58:21,430 --> 00:58:19,839
stage was just three years to go will

1473
00:58:23,670 --> 00:58:21,440
guarantee the spacesuits will be ready

1474
00:58:25,750 --> 00:58:23,680
by the 2025 landing deadline i guess

1475
00:58:28,630 --> 00:58:25,760
what i mean is how does moving to a

1476
00:58:33,109 --> 00:58:28,640
private approach make that or facilitate

1477
00:58:37,910 --> 00:58:34,789
yeah so i think we've talked several

1478
00:58:39,430 --> 00:58:37,920
times about all of the xcmu data that's

1479
00:58:40,470 --> 00:58:39,440
being made available and i think you've

1480
00:58:42,309 --> 00:58:40,480
heard

1481
00:58:45,270 --> 00:58:42,319
both dan and mike talk about how that's

1482
00:58:47,990 --> 00:58:45,280
being utilized so i really believe all

1483
00:58:51,030 --> 00:58:48,000
of that data is helping to reduce the

1484
00:58:51,990 --> 00:58:51,040
risk and speed that transition process

1485
00:58:54,150 --> 00:58:52,000
up to

1486
00:58:57,349 --> 00:58:54,160
the contractor community

1487
00:59:00,390 --> 00:58:57,359
i also feel like though like mike said

1488
00:59:02,789 --> 00:59:00,400

getting it in their hands sooner i think

1489
00:59:04,390 --> 00:59:02,799
is better because they take ownership of

1490
00:59:06,309 --> 00:59:04,400
it sooner

1491
00:59:09,190 --> 00:59:06,319
and so they start to run

1492
00:59:10,950 --> 00:59:09,200
on that path to to hitting a deadline so

1493
00:59:12,710 --> 00:59:10,960
i think actually we were at a great

1494
00:59:16,710 --> 00:59:12,720
place to transition just because of how

1495
00:59:18,630 --> 00:59:16,720
mature the xcmu was at the time

1496
00:59:22,549 --> 00:59:18,640
and i think getting it to these guys

1497
00:59:24,549 --> 00:59:22,559
sooner allows them to to run

1498
00:59:26,470 --> 00:59:24,559
all right very good now before we close

1499
00:59:28,549 --> 00:59:26,480
today i did want to talk to vanessa

1500
00:59:30,789 --> 00:59:28,559
weiss for some closing remarks oh thank

1501
00:59:33,510 --> 00:59:30,799
you gary so again we just want to thank

1502
00:59:35,910 --> 00:59:33,520
everyone for being here today as i said

1503
00:59:38,549 --> 00:59:35,920
at the beginning we're all very super

1504
00:59:41,030 --> 00:59:38,559
excited about this you know

1505
00:59:43,030 --> 00:59:41,040
this capability is something

1506
00:59:44,630 --> 00:59:43,040
as we talked about from the

1507
00:59:47,030 --> 00:59:44,640
the previous suit

1508
00:59:48,470 --> 00:59:47,040
for 40 years has been the workhorse and

1509
00:59:51,349 --> 00:59:48,480
it is continuing and it will move

1510
00:59:53,349 --> 00:59:51,359
forward likewise these capabilities we

1511
00:59:56,150 --> 00:59:53,359
see are going to be what's going to take

1512
00:59:59,030 --> 00:59:56,160
us and continue with iss will allow us

1513
01:00:01,589 --> 00:59:59,040

to do artemis and continue on to the

1514
01:00:03,510 --> 01:00:01,599
mars campaign in terms of the technology

1515
01:00:05,670 --> 01:00:03,520
demonstrations that we will learn

1516
01:00:09,270 --> 01:00:05,680
from this particular suit i want to

1517
01:00:11,270 --> 01:00:09,280
again thank all of our teams for

1518
01:00:13,430 --> 01:00:11,280
all the hard work that they put in and

1519
01:00:16,150 --> 01:00:13,440
also this would not be possible without

1520
01:00:18,390 --> 01:00:16,160
the support that we get from both our

1521
01:00:19,510 --> 01:00:18,400
administration and our congressional

1522
01:00:21,430 --> 01:00:19,520
members

1523
01:00:23,829 --> 01:00:21,440
we're very fortunate to get great

1524
01:00:25,589 --> 01:00:23,839
bipartisan support and we think we're

1525
01:00:30,150 --> 01:00:25,599
very thankful for that

1526
01:00:32,870 --> 01:00:30,160
i just also want to say to to both team

1527
01:00:36,309 --> 01:00:32,880
axiom and to both team collins

1528
01:00:38,950 --> 01:00:36,319
congratulations and we look forward to

1529
01:00:41,670 --> 01:00:38,960
collaborating and partnering with you as

1530
01:00:43,430 --> 01:00:41,680
we go forward and we return to the moon

1531
01:00:45,910 --> 01:00:43,440
and we can continue on the international

1532
01:00:47,430 --> 01:00:45,920
space station thank you all right very

1533
01:00:49,109 --> 01:00:47,440
good thank you vanessa and thanks to all

1534
01:00:51,430 --> 01:00:49,119
of our briefers for taking the time to

1535
01:00:52,950 --> 01:00:51,440
answer a lot of the questions today

1536
01:00:54,870 --> 01:00:52,960
and of course thanks to all who are able

1537
01:00:56,390 --> 01:00:54,880
to participate in today's press

1538
01:00:57,990 --> 01:00:56,400

conference you can follow along with

1539
01:01:01,190 --> 01:00:58,000
some of the prague progress on this

1540
01:01:02,870 --> 01:01:01,200
award at nasa.gov suit up thanks again

1541
01:01:14,070 --> 01:01:02,880
for joining us that will wrap up today's