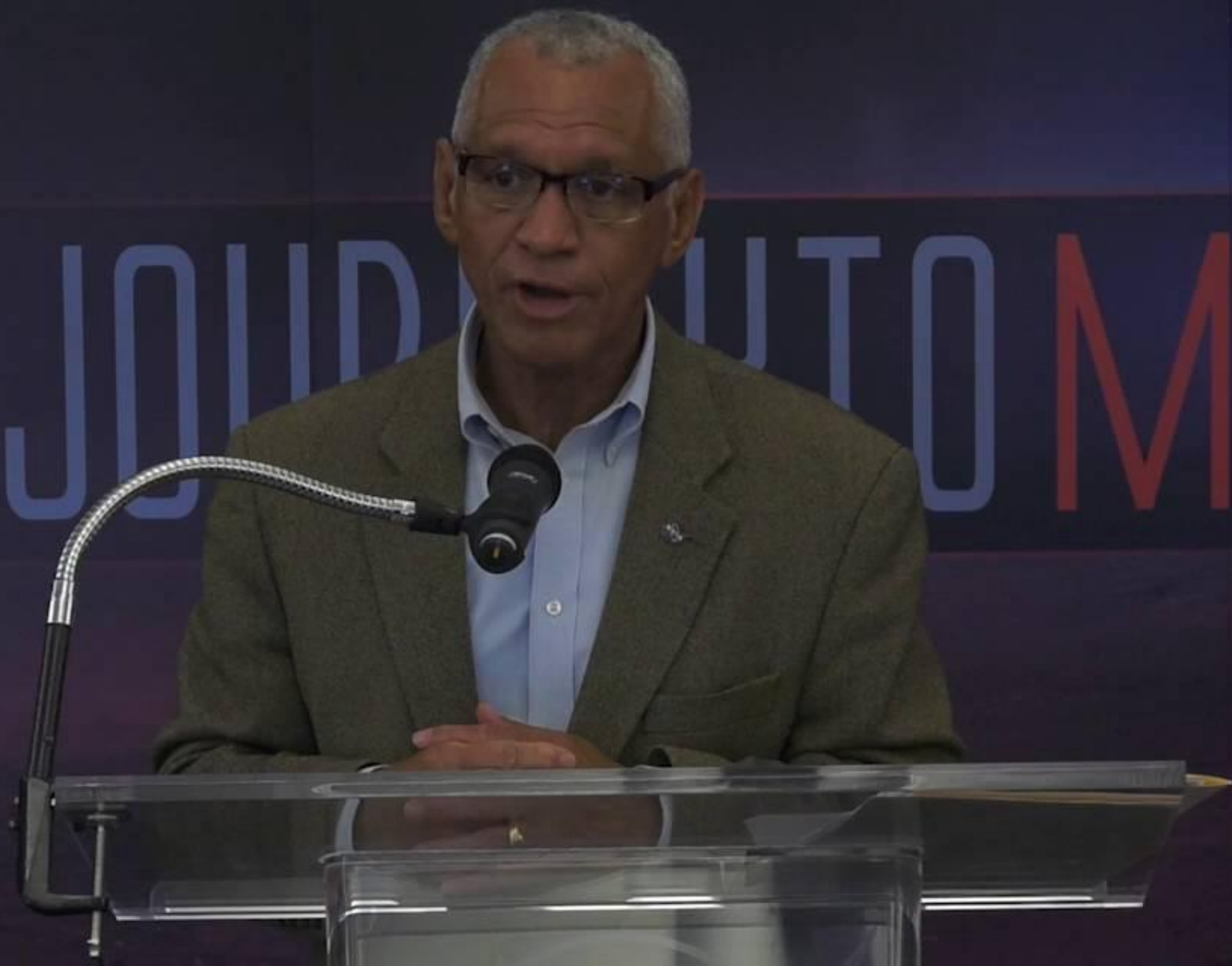


JOURNALISTS TO MARCH



1
00:00:04,430 --> 00:00:02,000
everybody pulls forward where they need

2
00:00:08,720 --> 00:00:04,440
to be after that I yep can everybody

3
00:00:10,280 --> 00:00:08,730
hear hot box good everybody good all

4
00:00:11,480 --> 00:00:10,290
right thank you for staying I know that

5
00:00:14,089 --> 00:00:11,490
was a crowded room with a great

6
00:00:15,560 --> 00:00:14,099
environment a lot of excitement today we

7
00:00:17,750 --> 00:00:15,570
have mr. Charlie Bolden Dale and our

8
00:00:19,340 --> 00:00:17,760
administrator he's going to give a few

9
00:00:22,160 --> 00:00:19,350
words and then we're going to go into a

10
00:00:27,980 --> 00:00:22,170
Q&A so I welcome up the administrator

11
00:00:30,050 --> 00:00:27,990
charlie bolden thank you and I know you

12
00:00:32,229 --> 00:00:30,060
all were here when we made the award but

13
00:00:34,459 --> 00:00:32,239

just just for the benefit of the

14

00:00:37,880 --> 00:00:34,469

hopefully the listening audience let me

15

00:00:40,369 --> 00:00:37,890

just cover a few statements that that I

16

00:00:41,690 --> 00:00:40,379

wanted to make and it's as I say a lot

17

00:00:44,330 --> 00:00:41,700

of times when I come it's always good to

18

00:00:47,270 --> 00:00:44,340

be back in the rocket city I have not

19

00:00:50,389 --> 00:00:47,280

been here and probably a month or two

20

00:00:52,160 --> 00:00:50,399

but so and things are happening so fast

21

00:00:54,560 --> 00:00:52,170

that every time I come back then there's

22

00:00:56,779 --> 00:00:54,570

been some change from the Space Launch

23

00:00:59,810 --> 00:00:56,789

System SLS to the International Space

24

00:01:03,229 --> 00:00:59,820

Station to all the other important work

25

00:01:05,690 --> 00:01:03,239

that goes on here day in and day out to

26

00:01:08,240 --> 00:01:05,700

support businesses large medium and

27

00:01:10,399 --> 00:01:08,250

small there's one very large conclusion

28

00:01:12,320 --> 00:01:10,409

that we can all come come to and I think

29

00:01:14,000 --> 00:01:12,330

I've said this before and that's the

30

00:01:16,190 --> 00:01:14,010

journey to Mars runs through Marshall

31

00:01:20,030 --> 00:01:16,200

you know I think the last time I was

32

00:01:21,530 --> 00:01:20,040

here there was a lot of angst about what

33

00:01:24,770 --> 00:01:21,540

was happening and i had to reemphasize

34

00:01:27,140 --> 00:01:24,780

it for the workforce here that we cannot

35

00:01:29,780 --> 00:01:27,150

think of a path to Mars that doesn't

36

00:01:33,440 --> 00:01:29,790

come through here this is the propulsion

37

00:01:35,390 --> 00:01:33,450

Center for for the space agency of the

38

00:01:37,429 --> 00:01:35,400

United States and so I cannot conceive

39

00:01:39,050 --> 00:01:37,439

of a time that that we would not be

40

00:01:40,850 --> 00:01:39,060

taking a journey who are off the planet

41

00:01:43,160 --> 00:01:40,860

where we didn't come through here so

42

00:01:44,749 --> 00:01:43,170

that's that's really important they say

43

00:01:46,550 --> 00:01:44,759

that small business is the backbone of

44

00:01:49,130 --> 00:01:46,560

America and in many ways it's the

45

00:01:51,590 --> 00:01:49,140

backbone of NASA's journey to Mars take

46

00:01:53,120 --> 00:01:51,600

for example the sls approximately forty

47

00:01:55,850 --> 00:01:53,130

percent of the raw materials and

48

00:01:57,980 --> 00:01:55,860

components used by the prime contractors

49

00:02:00,080 --> 00:01:57,990

to build the SLS rocket are being

50

00:02:01,969 --> 00:02:00,090

produced by small businesses across the

51
00:02:04,090 --> 00:02:01,979
US and I think that's pretty impressive

52
00:02:07,700 --> 00:02:04,100
I don't know about you forty percent

53
00:02:09,619 --> 00:02:07,710
aalto more than 800 small businesses in

54
00:02:11,750 --> 00:02:09,629
43 states around the country are

55
00:02:13,580 --> 00:02:11,760
providing components to develop the

56
00:02:16,009 --> 00:02:13,590
Space Launch System just

57
00:02:18,199 --> 00:02:16,019
think about that for a minute 800 small

58
00:02:21,080 --> 00:02:18,209
businesses across the nation are making

59
00:02:23,809 --> 00:02:21,090
it possible for us to launch the SLS

60
00:02:25,460 --> 00:02:23,819
with Ryan on it to Mars meanwhile

61
00:02:27,740 --> 00:02:25,470
Americans are working at more than a

62
00:02:29,930 --> 00:02:27,750
thousand companies many of them small

63
00:02:33,110 --> 00:02:29,940

businesses across nearly every state on

64

00:02:35,479 --> 00:02:33,120

NASA's Commercial Space initiatives so

65

00:02:38,180 --> 00:02:35,489

small business not only matters to our

66

00:02:41,030 --> 00:02:38,190

economy and our families when it comes

67

00:02:43,240 --> 00:02:41,040

to the journey to Mars yet also vitally

68

00:02:45,440 --> 00:02:43,250

it's vitally important to our future

69

00:02:48,440 --> 00:02:45,450

meanwhile when it comes to empowering

70

00:02:50,860 --> 00:02:48,450

American small businesses the team here

71

00:02:53,180 --> 00:02:50,870

at Marshall has put it together somewhat

72

00:02:54,740 --> 00:02:53,190

put together somewhat of a dynasty and

73

00:02:56,330 --> 00:02:54,750

all you need to do is we were joking

74

00:02:58,160 --> 00:02:56,340

earlier since I'm in the state of

75

00:03:00,229 --> 00:02:58,170

Alabama you all can relate much better

76

00:03:02,869 --> 00:03:00,239

than I can actually it looks like we're

77

00:03:06,080 --> 00:03:02,879

in the Alabama trophy room or something

78

00:03:08,059 --> 00:03:06,090

with all this Cristal you see over the

79

00:03:10,400 --> 00:03:08,069

past eight years nASA has awarded the

80

00:03:12,380 --> 00:03:10,410

Small Business administrators Cup to

81

00:03:16,039 --> 00:03:12,390

this Center that manages the most

82

00:03:17,809 --> 00:03:16,049

effective small business program to 2d

83

00:03:19,670 --> 00:03:17,819

center that has managed the most

84

00:03:21,740 --> 00:03:19,680

effective small business program the

85

00:03:23,840 --> 00:03:21,750

award honors innovative practices that

86

00:03:25,729 --> 00:03:23,850

promote small business participation in

87

00:03:28,250 --> 00:03:25,739

a variety of NASA initiatives

88

00:03:30,650 --> 00:03:28,260

furthermore it recognizes significant

89

00:03:34,280 --> 00:03:30,660

contributions to our agency's small

90

00:03:36,259 --> 00:03:34,290

business programs for five of the past

91

00:03:39,140 --> 00:03:36,269

eight years this award has been claimed

92

00:03:41,750 --> 00:03:39,150

by Marshall five of the past eight years

93

00:03:44,030 --> 00:03:41,760

that means you are the only one

94

00:03:46,220 --> 00:03:44,040

championship ring away from matching

95

00:03:49,729 --> 00:03:46,230

michael jordan chicago bulls with a

96

00:03:51,229 --> 00:03:49,739

three-peat glendale and so since we

97

00:03:53,150 --> 00:03:51,239

broke the precedent the unwritten

98

00:03:55,879 --> 00:03:53,160

written rule that a sinner couldn't win

99

00:03:57,259 --> 00:03:55,889

two years on the road and I don't know

100

00:03:59,629 --> 00:03:57,269

that we have a rule that says you can't

101
00:04:01,819 --> 00:03:59,639
win three years in a row so we don't

102
00:04:03,379 --> 00:04:01,829
have to worry about that Glen Delgado

103
00:04:05,599 --> 00:04:03,389
who is sitting here and who heads our

104
00:04:07,940 --> 00:04:05,609
office of small business programs came

105
00:04:09,650 --> 00:04:07,950
from Washington with me this morning to

106
00:04:11,479 --> 00:04:09,660
present the award to Todd the center

107
00:04:13,339 --> 00:04:11,489
director and a David Brock in his

108
00:04:16,370 --> 00:04:13,349
dedicated team of employees here at

109
00:04:18,229 --> 00:04:16,380
Marshall that made this happen David's

110
00:04:20,690 --> 00:04:18,239
leadership in supporting small business

111
00:04:22,310 --> 00:04:20,700
is second to none you often hear me

112
00:04:23,930 --> 00:04:22,320
refer to him and I said it just a little

113
00:04:27,200 --> 00:04:23,940

while ago as a national treasure and

114

00:04:29,689 --> 00:04:27,210

that's because he is marshal leadership

115

00:04:31,400 --> 00:04:29,699

at the top has remained noteworthy

116

00:04:34,100 --> 00:04:31,410

during my tenure as the NASA

117

00:04:35,930 --> 00:04:34,110

Administrator starting with Robert

118

00:04:38,809 --> 00:04:35,940

Lightfoot going to Patrick Sherman and

119

00:04:40,939 --> 00:04:38,819

now to Todd me but there has been one

120

00:04:42,559 --> 00:04:40,949

constant throughout all of these changes

121

00:04:46,339 --> 00:04:42,569

in leadership and that's been David

122

00:04:47,600 --> 00:04:46,349

Brock in fiscal year 2015 Marshall

123

00:04:51,080 --> 00:04:47,610

procurement dollars amounted to

124

00:04:53,659 --> 00:04:51,090

approximately 1.9 billion of this amount

125

00:04:57,379 --> 00:04:53,669

small businesses received 270 million

126
00:04:58,790 --> 00:04:57,389
indirect dollars and another 285 million

127
00:05:01,640 --> 00:04:58,800
through the prime contractor

128
00:05:03,320 --> 00:05:01,650
subcontracting programs this included

129
00:05:06,260 --> 00:05:03,330
work that supported missions to other

130
00:05:08,659 --> 00:05:06,270
planets major human spaceflight programs

131
00:05:12,020 --> 00:05:08,669
and development of new technologies that

132
00:05:14,240 --> 00:05:12,030
led to new discoveries in short we are

133
00:05:16,400 --> 00:05:14,250
creating jobs and fueling economic

134
00:05:18,740 --> 00:05:16,410
growth here on earth at the very same

135
00:05:20,839 --> 00:05:18,750
time we move closer to our goal of

136
00:05:23,600 --> 00:05:20,849
sending American astronauts first to an

137
00:05:25,249 --> 00:05:23,610
asteroid and then on to Mars and that's

138
00:05:27,860 --> 00:05:25,259

something for which we can all be very

139

00:05:30,020 --> 00:05:27,870

very proud thank you all for joining us

140

00:05:31,460 --> 00:05:30,030

today and congratulations to the women

141

00:05:34,010 --> 00:05:31,470

and men of the Marshall Space Flight

142

00:05:35,870 --> 00:05:34,020

Center Huntsville and the broader North

143

00:05:37,760 --> 00:05:35,880

Alabama community so I think with that

144

00:05:40,909 --> 00:05:37,770

I'm going to turn it back over and I

145

00:05:43,879 --> 00:05:40,919

think we'll get there administrator

146

00:05:46,430 --> 00:05:43,889

Bolden now we'll take questions from the

147

00:05:48,620 --> 00:05:46,440

reporters in the room please state your

148

00:05:50,540 --> 00:05:48,630

name and media affiliation and we'll go

149

00:06:03,390 --> 00:05:50,550

around the room anybody got a question

150

00:06:20,340 --> 00:06:18,270

I don't I look at it it's absolutely

151
00:06:24,060 --> 00:06:20,350
wrong because I don't consider Mars to

152
00:06:26,749 --> 00:06:24,070
be nowhere Mars is the most ambitious

153
00:06:29,640 --> 00:06:26,759
destination that humanity has ever

154
00:06:32,090 --> 00:06:29,650
accepted and because President Obama has

155
00:06:35,070 --> 00:06:32,100
said that as the ultimate goal for NASA

156
00:06:37,170 --> 00:06:35,080
as early as 2010 when he went down to

157
00:06:38,640 --> 00:06:37,180
the Kennedy spacer and and delivered you

158
00:06:40,800 --> 00:06:38,650
all have gotten a customer hearing me

159
00:06:43,740 --> 00:06:40,810
now say it was what I consider to be a

160
00:06:45,990 --> 00:06:43,750
major space policy address not like John

161
00:06:47,640 --> 00:06:46,000
Kennedy at Rice or before Congress when

162
00:06:50,879 --> 00:06:47,650
he said we're going to the moon but

163
00:06:52,500 --> 00:06:50,889

still not in no small way you know

164

00:06:54,689 --> 00:06:52,510

should be trip should be considered

165

00:06:58,050 --> 00:06:54,699

trivial he said two goals for us one was

166

00:06:59,180 --> 00:06:58,060

to put humans on asteroids by 2025 we're

167

00:07:01,350 --> 00:06:59,190

not doing it the way that people

168

00:07:03,600 --> 00:07:01,360

classically think of going to the main

169

00:07:05,279 --> 00:07:03,610

asteroid belt that's beyond Mars so

170

00:07:07,080 --> 00:07:05,289

that's that's for another time but we

171

00:07:08,610 --> 00:07:07,090

still believe that with the asteroid

172

00:07:11,189 --> 00:07:08,620

redirect mission where we're intending

173

00:07:13,680 --> 00:07:11,199

to redirect a large boulder from an

174

00:07:14,879 --> 00:07:13,690

asteroid to orbit around stable orbit

175

00:07:17,400 --> 00:07:14,889

around the moon and then let our

176

00:07:19,710 --> 00:07:17,410

astronauts travel there on sls and orion

177

00:07:22,020 --> 00:07:19,720

that that we're going to fulfill the

178

00:07:25,080 --> 00:07:22,030

intent of that challenge the second

179

00:07:26,339 --> 00:07:25,090

challenge was to put humans on Mars or

180

00:07:29,129 --> 00:07:26,349

in the Martian environment with the

181

00:07:31,200 --> 00:07:29,139

intent of landing in the 2030s and we're

182

00:07:32,909 --> 00:07:31,210

well on the way to doing that if you

183

00:07:34,560 --> 00:07:32,919

look at the plan that we have in place

184

00:07:37,129 --> 00:07:34,570

right now and people say yeah but you

185

00:07:39,990 --> 00:07:37,139

don't have a concrete plan yes we do

186

00:07:42,920 --> 00:07:40,000

when you think about the way that that

187

00:07:45,779 --> 00:07:42,930

systems are developed you set a goal and

188

00:07:48,330 --> 00:07:45,789

then you walk back from that goal saying

189

00:07:49,800 --> 00:07:48,340

what things do I need to do in order to

190

00:07:52,920 --> 00:07:49,810

make that go and so the president told

191

00:07:55,950 --> 00:07:52,930

us Mars in 20 30 and we believe that by

192

00:07:59,490 --> 00:07:55,960

flying SLS and Orion integrated in 2018

193

00:08:01,020 --> 00:07:59,500

and then coming back and and in 2023 or

194

00:08:03,779 --> 00:08:01,030

maybe as early as twenty twenty-one

195

00:08:06,270 --> 00:08:03,789

depending on how our funding goes with

196

00:08:08,159 --> 00:08:06,280

the first crude flight and then spending

197

00:08:10,439 --> 00:08:08,169

about a ten year period of time and what

198

00:08:12,930 --> 00:08:10,449

we call the proving ground of the

199

00:08:15,180 --> 00:08:12,940

vicinity of the moon we're going to

200

00:08:16,890 --> 00:08:15,190

reach Mars in 20-30 so anybody who

201

00:08:19,170 --> 00:08:16,900

doesn't feel that Mars is

202

00:08:22,280 --> 00:08:19,180

good destination or wants to consider it

203

00:08:24,510 --> 00:08:22,290

nowhere then I tell them have at it but

204

00:08:26,879 --> 00:08:24,520

anyone will tell you if we're going to

205

00:08:30,499 --> 00:08:26,889

put humans on any other planet it takes

206

00:08:38,490 --> 00:08:30,509

a lot of lift capability and that's SLS

207

00:08:39,959 --> 00:08:38,500

yeah yeah I really do any I get asked

208

00:08:42,930 --> 00:08:39,969

like one of the things I try to tell our

209

00:08:44,880 --> 00:08:42,940

employees Lee is um you know you know

210

00:08:46,110 --> 00:08:44,890

what you do and you know how to do it we

211

00:08:49,230 --> 00:08:46,120

do it better than anybody else in the

212

00:08:52,680 --> 00:08:49,240

world I challenge anyone who can put up

213

00:08:55,260 --> 00:08:52,690

a space organization anywhere that can

214

00:08:57,900 --> 00:08:55,270

match what we do and that that goes for

215

00:08:59,910 --> 00:08:57,910

the national security apparatus and that

216

00:09:01,680 --> 00:08:59,920

may be a bold statement to make but they

217

00:09:04,199 --> 00:09:01,690

focus on one thing and that's national

218

00:09:05,579 --> 00:09:04,209

security when you look at NASA and what

219

00:09:07,620 --> 00:09:05,589

the what the National Aeronautics and

220

00:09:09,660 --> 00:09:07,630

Space Administration does you can look

221

00:09:12,960 --> 00:09:09,670

across this room we're with you when you

222

00:09:14,730 --> 00:09:12,970

fly on airplanes we're doing innovation

223

00:09:18,180 --> 00:09:14,740

and technology development that goes

224

00:09:22,500 --> 00:09:18,190

across the planet to be quite honest we

225

00:09:25,980 --> 00:09:22,510

just released some some what do we call

226

00:09:30,480 --> 00:09:25,990

these things no no no not cube sets but

227

00:09:31,710 --> 00:09:30,490

patents for availability of anybody that

228

00:09:34,170 --> 00:09:31,720

wants to take them and that's because

229

00:09:36,930 --> 00:09:34,180

NASA can do that because everything we

230

00:09:39,269 --> 00:09:36,940

do is in the public domain we very we

231

00:09:41,820 --> 00:09:39,279

don't do anything in house that's

232

00:09:44,010 --> 00:09:41,830

classified now sometimes because we're

233

00:09:45,990 --> 00:09:44,020

supporting other agencies that work is

234

00:09:48,030 --> 00:09:46,000

but that's there's NASA doesn't do

235

00:09:50,340 --> 00:09:48,040

anything that's not in the public domain

236

00:09:51,810 --> 00:09:50,350

and we do that better than any other

237

00:09:56,280 --> 00:09:51,820

organization on the face of the planet

238

00:09:59,910 --> 00:09:56,290

today so Todd now we're talking about it

239

00:10:02,730 --> 00:09:59,920

I tell people just imagine you're the

240

00:10:04,710 --> 00:10:02,740

next president and you sit down in the

241

00:10:07,230 --> 00:10:04,720

Oval Office on day one you know you come

242

00:10:09,600 --> 00:10:07,240

you finally get into the into the Oval

243

00:10:11,519 --> 00:10:09,610

Office after that long inauguration

244

00:10:13,860 --> 00:10:11,529

parade because you can't just go up to

245

00:10:15,720 --> 00:10:13,870

the quarters and lay down and say boy

246

00:10:19,470 --> 00:10:15,730

what a day you're going to go sit at the

247

00:10:22,500 --> 00:10:19,480

desk and if you allow yourself to think

248

00:10:24,300 --> 00:10:22,510

that person him or her to think okay

249

00:10:25,440 --> 00:10:24,310

what's going to happen everybody that

250

00:10:27,660 --> 00:10:25,450

talks about a hundred days what's going

251
00:10:29,920 --> 00:10:27,670
to happen in my first turn if I don't do

252
00:10:34,570 --> 00:10:29,930
anything if I do absolutely nothing

253
00:10:37,660 --> 00:10:34,580
we are going to launch SLS and Orion we

254
00:10:39,880 --> 00:10:37,670
are actually going to have to commercial

255
00:10:41,950 --> 00:10:39,890
providers carry a mass American

256
00:10:45,430 --> 00:10:41,960
astronauts from the Kennedy Space Center

257
00:10:46,690 --> 00:10:45,440
in the and the Cape Canaveral complex to

258
00:10:50,590 --> 00:10:46,700
the International Space Station

259
00:10:53,050 --> 00:10:50,600
unheralded never been done before Juno

260
00:10:56,079 --> 00:10:53,060
will have already entered Martian orbit

261
00:10:58,990 --> 00:10:56,089
entered Jupiter orbit we are going to

262
00:11:01,930 --> 00:10:59,000
land the Mars 2020 rover on the surface

263
00:11:03,880 --> 00:11:01,940

of Mars that for the first time in human

264

00:11:06,550 --> 00:11:03,890

history or history that anybody knows

265

00:11:08,769 --> 00:11:06,560

we're going to intake some carbon

266

00:11:11,860 --> 00:11:08,779

dioxide from the atmosphere of Mars and

267

00:11:13,600 --> 00:11:11,870

we're going to output oxygen and that

268

00:11:16,900 --> 00:11:13,610

means we are going to be able to produce

269

00:11:19,600 --> 00:11:16,910

on the surface of another planet an

270

00:11:22,060 --> 00:11:19,610

element that can be used to propel

271

00:11:24,850 --> 00:11:22,070

vehicles that can be used to keep humans

272

00:11:26,500 --> 00:11:24,860

alive that is unprecedented and that's

273

00:11:30,070 --> 00:11:26,510

those are just a few things that the

274

00:11:33,250 --> 00:11:30,080

president can sit rock back fold his or

275

00:11:36,010 --> 00:11:33,260

her arms and say man I'm doing this

276

00:11:39,130 --> 00:11:36,020

stuff and in any president that doesn't

277

00:11:42,100 --> 00:11:39,140

take credit for it you know on day one

278

00:11:44,079 --> 00:11:42,110

because it's going to be his or hers so

279

00:11:45,610 --> 00:11:44,089

I think that when people look at the

280

00:11:46,930 --> 00:11:45,620

totality of what we've done over these

281

00:11:50,610 --> 00:11:46,940

years and that doesn't even mention

282

00:11:53,380 --> 00:11:50,620

explains in the field of aeronautics

283

00:11:55,960 --> 00:11:53,390

again because of we're hoping that when

284

00:11:57,850 --> 00:11:55,970

when the Congress the House and Senate

285

00:11:59,320 --> 00:11:57,860

come together in conference we're going

286

00:12:01,269 --> 00:11:59,330

to get a pretty substantial increase in

287

00:12:03,190 --> 00:12:01,279

our aeronautics budget and that's going

288

00:12:05,800 --> 00:12:03,200

to allow us to begin to build explains

289

00:12:08,140 --> 00:12:05,810

again something that the old NACA used

290

00:12:10,240 --> 00:12:08,150

to do and and we kind of faded away from

291

00:12:11,949 --> 00:12:10,250

it when we started focusing really on

292

00:12:13,120 --> 00:12:11,959

just human spaceflight but we're going

293

00:12:15,610 --> 00:12:13,130

to build explains we're going to build

294

00:12:17,019 --> 00:12:15,620

demonstrators that are going to keep the

295

00:12:18,850 --> 00:12:17,029

United States ahead of every other

296

00:12:26,489 --> 00:12:18,860

nation in aeronautics so I'm i feel

297

00:12:38,939 --> 00:12:34,949

yeah well nobody at Lockheed Martin his

298

00:12:41,279 --> 00:12:38,949

and this is not a snitty answer this is

299

00:12:43,889 --> 00:12:41,289

a NASA vehicle belongs to me right now

300

00:12:48,179 --> 00:12:43,899

and nobody there has talked to me about

301

00:12:50,699 --> 00:12:48,189

borrowing it you know in 2021 I just

302

00:12:52,409 --> 00:12:50,709

told you what we plan to do in 2018

303

00:12:54,029 --> 00:12:52,419

we're going to fly SLS and Orion and

304

00:12:56,209 --> 00:12:54,039

that's going to be an uncrewed mission

305

00:12:58,529 --> 00:12:56,219

and it's going to go out around the moon

306

00:13:01,019 --> 00:12:58,539

much in the form of what we did in the

307

00:13:03,539 --> 00:13:01,029

in the early Apollo program and then in

308

00:13:05,609 --> 00:13:03,549

2023 or 20 21 if everything works well

309

00:13:09,209 --> 00:13:05,619

we're going to have a NASA crew that's

310

00:13:10,919 --> 00:13:09,219

going to fly into space around the moon

311

00:13:13,139 --> 00:13:10,929

and that will be the beginning of what

312

00:13:15,149 --> 00:13:13,149

we call the proving ground period of

313

00:13:16,169 --> 00:13:15,159

time and that's really important there

314

00:13:18,149 --> 00:13:16,179

are a lot of people who believe that

315

00:13:20,909 --> 00:13:18,159

they can do things in certain periods of

316

00:13:22,949 --> 00:13:20,919

time we have a plan and that plan is

317

00:13:25,319 --> 00:13:22,959

backed up by funding from the Congress

318

00:13:27,239 --> 00:13:25,329

and it's backed up by agreement between

319

00:13:30,269 --> 00:13:27,249

the Congress and the administration that

320

00:13:31,859 --> 00:13:30,279

Mars is our goal is our ultimate goal we

321

00:13:34,379 --> 00:13:31,869

need our commercial partners to help us

322

00:13:37,589 --> 00:13:34,389

do that some of you know that we sign an

323

00:13:40,469 --> 00:13:37,599

agreement recently with SpaceX to help

324

00:13:42,419 --> 00:13:40,479

them in their attempt to get an uncrewed

325

00:13:45,269 --> 00:13:42,429

vehicle to Mars you know can they do it

326

00:13:48,479 --> 00:13:45,279

I don't know but am I am i hoping they

327

00:13:51,269 --> 00:13:48,489

can I sure do because at some point for

328

00:13:53,539 --> 00:13:51,279

us to land a human on Mars we're going

329

00:13:57,299 --> 00:13:53,549

to have to understand things like like

330

00:13:59,279 --> 00:13:57,309

supersonic retro propulsion somebody's

331

00:14:01,859 --> 00:13:59,289

going to have to test that if we can get

332

00:14:04,229 --> 00:14:01,869

a commercial partner to invest their

333

00:14:06,869 --> 00:14:04,239

money and do the test and we get the

334

00:14:10,349 --> 00:14:06,879

data I'm all-in you remember how we flew

335

00:14:12,239 --> 00:14:10,359

as Orion the first time because we had

336

00:14:14,699 --> 00:14:12,249

not bought the vehicle yet from Lockheed

337

00:14:17,159 --> 00:14:14,709

Martin they wanted to test it we agreed

338

00:14:21,239 --> 00:14:17,169

so we launched they contracted with

339

00:14:23,969 --> 00:14:21,249

themselves and and launched Orion on on

340

00:14:26,939 --> 00:14:23,979

a delta heavy and we got all that data

341

00:14:28,769 --> 00:14:26,949

so that's that's a series of tests that

342

00:14:31,349 --> 00:14:28,779

NASA did not have to do we were a

343

00:14:34,649 --> 00:14:31,359

partner with Lockheed Martin doing that

344

00:14:36,929 --> 00:14:34,659

test but I'm very satisfied with the

345

00:14:39,590 --> 00:14:36,939

work that the team is doing contractor

346

00:14:41,449 --> 00:14:39,600

and NASA and I can't speak to a contract

347

00:14:55,639 --> 00:14:41,459

plans for things that they're going to

348

00:14:57,379 --> 00:14:55,649

do down the road yeah yeah well i think

349

00:15:00,170 --> 00:14:57,389

i mentioned to you that when we go into

350

00:15:01,970 --> 00:15:00,180

con conference i should go back remember

351

00:15:04,430 --> 00:15:01,980

there are two houses of Congress there's

352

00:15:05,930 --> 00:15:04,440

the senate and there's the house now i'm

353

00:15:08,420 --> 00:15:05,940

getting in trouble here because i am not

354

00:15:11,749 --> 00:15:08,430

a legislative expert but I've learned a

355

00:15:15,860 --> 00:15:11,759

lot in my seven years and so both of

356

00:15:18,019 --> 00:15:15,870

them markup and as we always see the

357

00:15:20,749 --> 00:15:18,029

Senate has things they like the house

358

00:15:22,129 --> 00:15:20,759

has things they like and sometimes they

359

00:15:24,230 --> 00:15:22,139

play games with each other and that's

360

00:15:26,240 --> 00:15:24,240

okay as long as in the end we get a

361

00:15:28,970 --> 00:15:26,250

stable program and that's what we've

362

00:15:30,410 --> 00:15:28,980

gotten from Congress pretty much routine

363

00:15:31,850 --> 00:15:30,420

Ian what what I think you're going to

364

00:15:34,040 --> 00:15:31,860

see when they go into conference is

365

00:15:35,840 --> 00:15:34,050

where the house put in significant

366

00:15:39,139 --> 00:15:35,850

increases for space technology and

367

00:15:41,900 --> 00:15:39,149

Aeronautics and planetary science and

368

00:15:43,850 --> 00:15:41,910

the Senate put in significant increases

369

00:15:46,040 --> 00:15:43,860

for SLS and Orion when they come

370

00:15:47,870 --> 00:15:46,050

together in Congress it all evens out

371

00:15:49,730 --> 00:15:47,880

and we end up with significant increases

372

00:15:52,220 --> 00:15:49,740

across the board because the house

373

00:15:56,360 --> 00:15:52,230

number if I remember correctly was 19 5

374

00:15:58,280 --> 00:15:56,370

and the Senate number was 19 3 so even

375

00:16:01,009 --> 00:15:58,290

if we get if they meet each other

376

00:16:03,079 --> 00:16:01,019

halfway and we get 19 for that's a

377

00:16:06,050 --> 00:16:03,089

that's a that's an increase in what we

378

00:16:19,550 --> 00:16:06,060

have 4 2016 so I'm the eternal optimist

379

00:16:44,850 --> 00:16:42,870

yeah yeah yeah well let me at the risk

380

00:16:47,280 --> 00:16:44,860

of getting in trouble here Liz let me

381

00:16:49,889 --> 00:16:47,290

try to take you back there the big

382

00:16:53,400 --> 00:16:49,899

difference is at the time that we came

383

00:16:56,430 --> 00:16:53,410

that I came into my office constellation

384

00:16:58,710 --> 00:16:56,440

had not flown and in fact constellation

385

00:17:00,570 --> 00:16:58,720

was still some of it was under

386

00:17:02,820 --> 00:17:00,580

construction not the heavy-lift launch

387

00:17:04,710 --> 00:17:02,830

vehicle we were we were we were

388

00:17:08,490 --> 00:17:04,720

beginning to build the components for

389

00:17:10,169 --> 00:17:08,500

Aries one but if you remember and i do

390

00:17:11,850 --> 00:17:10,179

because i was on the aerospace safety

391

00:17:14,189 --> 00:17:11,860

advisory panel we were running into

392

00:17:17,370 --> 00:17:14,199

significant problems design problems

393

00:17:19,590 --> 00:17:17,380

with Erie's one in the vehicle orion for

394

00:17:22,169 --> 00:17:19,600

the crew and ares one and a lot of

395

00:17:24,150 --> 00:17:22,179

vibration we were having and and it from

396

00:17:25,890 --> 00:17:24,160

a technical perspective you have a

397

00:17:28,439 --> 00:17:25,900

building here at Marshall by the way a

398

00:17:30,480 --> 00:17:28,449

test a test structure where it has a

399

00:17:32,520 --> 00:17:30,490

huge attenuator on it asked Todd to take

400

00:17:35,130 --> 00:17:32,530

you out there sometime and you will see

401
00:17:37,380 --> 00:17:35,140
the lengths to which we were going to

402
00:17:42,290 --> 00:17:37,390
try to solve this problem that we had

403
00:17:47,120 --> 00:17:42,300
with vibration in the Orion series 1

404
00:17:49,290 --> 00:17:47,130
matchup we you know so we decided I

405
00:17:51,419 --> 00:17:49,300
consulting with the president decided

406
00:17:53,310 --> 00:17:51,429
that it was just it was a bridge too far

407
00:17:54,840 --> 00:17:53,320
to hope that we could bring the

408
00:17:57,930 --> 00:17:54,850
constellation program from where it was

409
00:17:59,580 --> 00:17:57,940
to an operational programme and so we

410
00:18:02,280 --> 00:17:59,590
said okay let's stop where we are and

411
00:18:04,200 --> 00:18:02,290
it's counter cut our losses that's press

412
00:18:06,960 --> 00:18:04,210
with a couple of things let's phase out

413
00:18:08,730 --> 00:18:06,970

of the shuttle over a reasonable period

414

00:18:10,770 --> 00:18:08,740

of time and let's put some investment in

415

00:18:12,540 --> 00:18:10,780

the commercial space in addition to

416

00:18:14,210 --> 00:18:12,550

cargo let's let's get an American

417

00:18:16,350 --> 00:18:14,220

capability to launch cruise in

418

00:18:18,330 --> 00:18:16,360

commercially and so that's what we

419

00:18:20,430 --> 00:18:18,340

undertook and as I said when I was out

420

00:18:22,820 --> 00:18:20,440

at the National Space symposium who

421

00:18:25,830 --> 00:18:22,830

would have ever thought five years ago

422

00:18:28,320 --> 00:18:25,840

that we'd be standing here today I'd be

423

00:18:29,020 --> 00:18:28,330

talking to you and we would have SpaceX

424

00:18:31,660 --> 00:18:29,030

and

425

00:18:33,310 --> 00:18:31,670

ATK as the prime providers for

426

00:18:34,750 --> 00:18:33,320

transportation of cargo to the

427

00:18:36,580 --> 00:18:34,760

International Space Station who would

428

00:18:38,440 --> 00:18:36,590

have ever thought that who would have

429

00:18:40,810 --> 00:18:38,450

ever thought that we'd be a year year

430

00:18:45,480 --> 00:18:40,820

and a half away from having SpaceX and

431

00:18:48,400 --> 00:18:45,490

Boeing actually launched to two column

432

00:18:51,850 --> 00:18:48,410

distinctly different crew vehicles from

433

00:18:53,860 --> 00:18:51,860

the space Cole's first uncrewed but then

434

00:18:56,440 --> 00:18:53,870

the second flight with American

435

00:18:57,820 --> 00:18:56,450

astronauts eventually getting to the

436

00:19:00,370 --> 00:18:57,830

International Space Station we should

437

00:19:02,050 --> 00:19:00,380

have that operational in 2018 so that's

438

00:19:04,060 --> 00:19:02,060

less than two years away who would have

439

00:19:06,850 --> 00:19:04,070

ever dreamed that I mean it was it was

440

00:19:09,070 --> 00:19:06,860

folly five years ago too many people

441

00:19:11,650 --> 00:19:09,080

outside of NASA but we as I said earlier

442

00:19:14,380 --> 00:19:11,660

we had faith in industry we had faith in

443

00:19:15,700 --> 00:19:14,390

small business we had smade's faith and

444

00:19:18,310 --> 00:19:15,710

our partners who had helped us build

445

00:19:20,770 --> 00:19:18,320

every spacecraft up until now and

446

00:19:22,150 --> 00:19:20,780

continue to do it and so we were we were

447

00:19:24,310 --> 00:19:22,160

confident we could do that we had

448

00:19:26,580 --> 00:19:24,320

confidence that we could design and

449

00:19:29,080 --> 00:19:26,590

build a heavy-lift launch vehicle and

450

00:19:30,520 --> 00:19:29,090

you can talk to anybody you want no

451
00:19:32,740 --> 00:19:30,530
matter who it is that's going to Mars

452
00:19:35,020 --> 00:19:32,750
and ask them what's it going to take to

453
00:19:36,250 --> 00:19:35,030
get humans on the planet and they're

454
00:19:38,350 --> 00:19:36,260
going to take it's going to take a lot

455
00:19:40,450 --> 00:19:38,360
of lift and it's got to take a lot of

456
00:19:43,900 --> 00:19:40,460
stuff and it's going to take something

457
00:19:46,270 --> 00:19:43,910
like SLS or a lot of littler things than

458
00:19:48,220 --> 00:19:46,280
SLS and and that's how we got to this

459
00:19:49,810 --> 00:19:48,230
design it's going to take off multiple

460
00:19:53,530 --> 00:19:49,820
launches of this vehicle to put humans

461
00:19:56,710 --> 00:19:53,540
on Mars but we went for not the perfect

462
00:19:58,540 --> 00:19:56,720
vehicle but the optimal vehicle

463
00:20:00,850 --> 00:19:58,550

considering where our technology was

464

00:20:03,340 --> 00:20:00,860

today but making it adaptable to

465

00:20:06,940 --> 00:20:03,350

emerging technologies so you know what

466

00:20:09,370 --> 00:20:06,950

we take to Mars with human will not even

467

00:20:12,040 --> 00:20:09,380

have solid rocket boosters that we

468

00:20:14,560 --> 00:20:12,050

haven't even gotten to to the selection

469

00:20:17,710 --> 00:20:14,570

of the advanced booster yet that could

470

00:20:20,740 --> 00:20:17,720

be a liquid booster who knows but we're

471

00:20:22,390 --> 00:20:20,750

taking it one step at a time it's a

472

00:20:24,850 --> 00:20:22,400

step-by-step progression and we'll get

473

00:20:27,190 --> 00:20:24,860

there and that's not being the eternal

474

00:20:29,830 --> 00:20:27,200

optimist that's just that's just the the

475

00:20:31,920 --> 00:20:29,840

the fledgling wanted to be engineer in

476
00:20:34,510 --> 00:20:31,930
me that says you got to do all the stuff

477
00:20:37,870 --> 00:20:34,520
it's a I think it's a protected program

478
00:20:39,730 --> 00:20:37,880
it is protected because the Congress you

479
00:20:42,820 --> 00:20:39,740
know in our system of government the

480
00:20:47,610 --> 00:20:42,830
president proposes and the Congress

481
00:20:50,230 --> 00:20:47,620
disposes Congress roundly opposed

482
00:20:52,480 --> 00:20:50,240
termination of constellation but what

483
00:20:53,919 --> 00:20:52,490
President Obama allowed us to do was

484
00:20:56,019 --> 00:20:53,929
come back to the Congress and the nation

485
00:20:58,870 --> 00:20:56,029
and say okay we're not going to do

486
00:21:02,169 --> 00:20:58,880
constellation but we are still focused

487
00:21:04,029 --> 00:21:02,179
on deep space exploration and we're

488
00:21:07,450 --> 00:21:04,039

going to go back I always say we're

489

00:21:10,779 --> 00:21:07,460

going back to the future STS the space

490

00:21:13,509 --> 00:21:10,789

transportation system that was presented

491

00:21:15,759 --> 00:21:13,519

to President Nixon back in the late 60s

492

00:21:18,190 --> 00:21:15,769

actually and probably talked a little

493

00:21:20,769 --> 00:21:18,200

bit to presidents before that but the

494

00:21:23,409 --> 00:21:20,779

STS the space transportation system was

495

00:21:25,870 --> 00:21:23,419

designed to do three things provide

496

00:21:28,480 --> 00:21:25,880

routine access to low-earth orbit to get

497

00:21:30,909 --> 00:21:28,490

to an orbiting space station one or more

498

00:21:32,590 --> 00:21:30,919

that we could use to build rockets and

499

00:21:35,320 --> 00:21:32,600

build telescopes and do other stuff and

500

00:21:38,440 --> 00:21:35,330

do science that would enable us to use a

501
00:21:41,289 --> 00:21:38,450
subsequent transfer vehicle that would

502
00:21:43,690 --> 00:21:41,299
take us from Earth orbit to lunar orbit

503
00:21:46,659 --> 00:21:43,700
and eventually out to Mars that was the

504
00:21:48,789 --> 00:21:46,669
space transportation system and you know

505
00:21:50,860 --> 00:21:48,799
we when you're given a limited amount of

506
00:21:52,870 --> 00:21:50,870
money you say what do we need first we

507
00:21:55,389 --> 00:21:52,880
need shuttle so let's build a shuttle

508
00:21:58,210 --> 00:21:55,399
and let's make it good and we flew it

509
00:22:01,060 --> 00:21:58,220
for 30 absolutely incredible years so

510
00:22:03,730 --> 00:22:01,070
that's that's why I'm I think it's a

511
00:22:06,730 --> 00:22:03,740
protected program because we are way

512
00:22:08,710 --> 00:22:06,740
farther down the road today than we ever

513
00:22:11,169 --> 00:22:08,720

would have been with constellation if

514

00:22:13,870 --> 00:22:11,179

you go to miss you we're building barrel

515

00:22:17,649 --> 00:22:13,880

sections we're assembling a vehicle we

516

00:22:18,909 --> 00:22:17,659

have tested we have flown Orion it's not

517

00:22:20,590 --> 00:22:18,919

something that we're talking about

518

00:22:23,110 --> 00:22:20,600

pulling off the drawing board it has

519

00:22:25,240 --> 00:22:23,120

been father in space than any other

520

00:22:28,560 --> 00:22:25,250

vehicle intended to carry humans had

521

00:22:31,570 --> 00:22:28,570

been at a time ated flew two years ago

522

00:22:32,860 --> 00:22:31,580

you know that's just that's just an

523

00:22:34,779 --> 00:22:32,870

accomplishment i'm not talking about

524

00:22:36,460 --> 00:22:34,789

things i'm dreaming about i'm talking

525

00:23:10,620 --> 00:22:36,470

about the accomplishments oh yeah i

526

00:23:16,840 --> 00:23:14,530

no I can tell you that won't happen you

527

00:23:19,180 --> 00:23:16,850

know it what the only thing that could

528

00:23:21,730 --> 00:23:19,190

happen that would require any future

529

00:23:23,800 --> 00:23:21,740

administrator they have to write many

530

00:23:25,960 --> 00:23:23,810

more checks to the Russians and six is

531

00:23:29,620 --> 00:23:25,970

out of the question would be for

532

00:23:32,530 --> 00:23:29,630

commercial crew to completely fail which

533

00:23:34,570 --> 00:23:32,540

I just I don't see that happening with

534

00:23:36,280 --> 00:23:34,580

American industry I you know American

535

00:23:39,550 --> 00:23:36,290

industry would have to say okay it was a

536

00:23:42,000 --> 00:23:39,560

good try we quit that that's what it

537

00:23:47,470 --> 00:23:42,010

would take we quit you have already seen

538

00:23:50,130 --> 00:23:47,480

SpaceX and orbital ATK suffer a failure

539

00:23:52,300 --> 00:23:50,140

each of them with commercial cargo a

540

00:23:54,990 --> 00:23:52,310

lesser group of people would have said

541

00:23:59,170 --> 00:23:55,000

that's enough we quit this is hard

542

00:24:00,670 --> 00:23:59,180

SpaceX got to work and they have now

543

00:24:03,340 --> 00:24:00,680

reef lone their vehicle a number of

544

00:24:06,060 --> 00:24:03,350

times have also come back and landed on

545

00:24:10,510 --> 00:24:06,070

a barge and landed on land demonstrating

546

00:24:12,670 --> 00:24:10,520

reusable technology orbital ATK did

547

00:24:14,920 --> 00:24:12,680

something else that we bragged about and

548

00:24:16,600 --> 00:24:14,930

that was they showed that their

549

00:24:19,480 --> 00:24:16,610

obligation and NASA was to provide a

550

00:24:21,640 --> 00:24:19,490

service they knew that they did not have

551
00:24:24,640 --> 00:24:21,650
a launch vehicle until they got a new

552
00:24:25,990 --> 00:24:24,650
engine and and got their vehicle

553
00:24:29,920 --> 00:24:26,000
straight but they went to another

554
00:24:32,350 --> 00:24:29,930
provider to ula and used the Atlas 5 and

555
00:24:36,160 --> 00:24:32,360
we have flown tues highly successful

556
00:24:38,260 --> 00:24:36,170
missions on an upgraded Cygnus it was by

557
00:24:40,090 --> 00:24:38,270
going to the Atlas 5 for two flights

558
00:24:44,140 --> 00:24:40,100
they were able to upgrade the Cygnus and

559
00:24:46,660 --> 00:24:44,150
send more cargo mass to orbit than we

560
00:24:48,910 --> 00:24:46,670
had ever done before and so they've

561
00:24:50,680 --> 00:24:48,920
demonstrated resilience they've

562
00:24:54,940 --> 00:24:50,690
demonstrated the validity of our

563
00:24:56,980 --> 00:24:54,950

proposal that we have redundant you know

564

00:24:58,419 --> 00:24:56,990

reliance on industry to provide a

565

00:25:01,029 --> 00:24:58,429

service not

566

00:25:02,499 --> 00:25:01,039

vehicle so you know they they went out

567

00:25:14,230 --> 00:25:02,509

and got a little bit different vehicle

568

00:25:17,889 --> 00:25:14,240

than we originally were flying you know

569

00:25:20,950 --> 00:25:17,899

I we may have signed another contract to

570

00:25:22,989 --> 00:25:20,960

to take care of 2019 if we went into

571

00:25:24,909 --> 00:25:22,999

that but the way that the Commercial

572

00:25:28,239 --> 00:25:24,919

Crew program works is that once we're

573

00:25:30,999 --> 00:25:28,249

flying on an american-built spacecraft

574

00:25:33,310 --> 00:25:31,009

we will continue to use sai youths and

575

00:25:35,080 --> 00:25:33,320

the but the Russians will begin to fly

576

00:25:36,970 --> 00:25:35,090

on our spacecraft and then we go into

577

00:25:38,200 --> 00:25:36,980

the same arranged arrangement we have

578

00:25:40,930 --> 00:25:38,210

with all of our international partners

579

00:25:44,379 --> 00:25:40,940

and there's no exchange of funds so it's

580

00:25:47,710 --> 00:25:44,389

a there's a word for it it's not quid

581

00:25:50,379 --> 00:25:47,720

pro quo it's don't even think about it

582

00:25:52,330 --> 00:25:50,389

there's no exchange of fun so so I think

583

00:25:54,159 --> 00:25:52,340

that's probably the last contract that

584

00:25:57,330 --> 00:25:54,169

you're going to see anybody sign for a

585

00:25:59,830 --> 00:25:57,340

ace i use vehicle for a crew because

586

00:26:05,710 --> 00:25:59,840

when we fly on each other's vehicles

587

00:26:08,710 --> 00:26:05,720

it'll just be you know one for one I do

588

00:26:17,440 --> 00:26:08,720

not but we can we can try to find it for

589

00:26:35,740 --> 00:26:33,669

I could but I'm gonna call on Todd in

590

00:26:39,129 --> 00:26:35,750

fact I'm gonna call on Todd and and

591

00:26:42,580 --> 00:26:39,139

David Brock because this is their show

592

00:26:44,350 --> 00:26:42,590

their trophy and and it would be you

593

00:26:45,970 --> 00:26:44,360

know presumptuous of me to try to tell

594

00:26:54,909 --> 00:26:45,980

you about local business when I've got

595

00:26:57,970 --> 00:26:54,919

the two pros here who can talk about so

596

00:27:00,430 --> 00:26:57,980

I'll say a few words here you heard

597

00:27:02,169 --> 00:27:00,440

Charlie say it earlier that the small

598

00:27:04,840 --> 00:27:02,179

business is the backbone of American

599

00:27:06,639 --> 00:27:04,850

economy but you know we're building the

600

00:27:08,620 --> 00:27:06,649

world's most powerful rocket here and

601
00:27:11,769 --> 00:27:08,630
you realize you heard some of the

602
00:27:14,980 --> 00:27:11,779
numbers they're almost gaudy of about

603
00:27:17,649 --> 00:27:14,990
1.9 billion dollars in terms of straight

604
00:27:19,779 --> 00:27:17,659
to subcontractors and through the primes

605
00:27:22,000 --> 00:27:19,789
almost five hundred million dollars a

606
00:27:23,350 --> 00:27:22,010
year is going to the small businesses

607
00:27:25,539 --> 00:27:23,360
and those are the ones that are

608
00:27:27,370 --> 00:27:25,549
critically important they in a lot of

609
00:27:29,230 --> 00:27:27,380
cases they have the secret sauce of what

610
00:27:31,659 --> 00:27:29,240
it takes to actually get this rocket

611
00:27:33,430 --> 00:27:31,669
bill and so it is critically important

612
00:27:36,220 --> 00:27:33,440
and a lot of those companies are right

613
00:27:37,600 --> 00:27:36,230

here in the North Alabama region so with

614

00:27:42,090 --> 00:27:37,610

that I'll turn it over to David rock and

615

00:27:46,659 --> 00:27:44,830

yeah and and I would follow on what todd

616

00:27:48,909 --> 00:27:46,669

has said the small business community

617

00:27:50,769 --> 00:27:48,919

many of the companies that we work with

618

00:27:52,600 --> 00:27:50,779

day in and day out they reside right

619

00:27:54,340 --> 00:27:52,610

here in the huntsville marketplace in

620

00:27:56,950 --> 00:27:54,350

fact if you look at our top 20 prime

621

00:27:59,440 --> 00:27:56,960

contractors nine of those are going to

622

00:28:01,750 --> 00:27:59,450

be small businesses and all nine of

623

00:28:04,149 --> 00:28:01,760

those small businesses they have offices

624

00:28:06,730 --> 00:28:04,159

right here in Huntsville and many of the

625

00:28:09,310 --> 00:28:06,740

contractor employees that are employed

626

00:28:11,980 --> 00:28:09,320

here at Marshall work on-site are near

627

00:28:15,430 --> 00:28:11,990

the center many of them work for small

628

00:28:18,129 --> 00:28:15,440

companies so yes they have a major

629

00:28:20,680 --> 00:28:18,139

impact on our economy not only from the

630

00:28:21,970 --> 00:28:20,690

standpoint of you know at Marshall but

631

00:28:25,440 --> 00:28:21,980

you know from the hospital community

632

00:28:27,880 --> 00:28:25,450

abroad and continuing to grow and expand

633

00:28:29,500 --> 00:28:27,890

that concludes our

634

00:28:30,910 --> 00:28:29,510

conference today I want to thank you

635

00:28:33,250 --> 00:28:30,920

guys for coming out it's always great to

636

00:28:34,810 --> 00:28:33,260

have administrator Bolden and Glenn here

637

00:28:36,940 --> 00:28:34,820

today it's just a great they are always

638

00:28:38,320 --> 00:28:36,950

bring a lot of energy if you didn't get

639

00:28:39,760 --> 00:28:38,330

your questions answered or you need