



1
00:00:00,690 --> 00:00:05,030

[Music]

2
00:00:10,629 --> 00:00:07,510

welcome to watch this space i'm nasa

3
00:00:12,870 --> 00:00:10,639

administrator jim bridenstine and today

4
00:00:15,910 --> 00:00:12,880

we're going to visit the historic launch

5
00:00:18,230 --> 00:00:15,920

complex 39a where we launched all of our

6
00:00:20,390 --> 00:00:18,240

moon missions and even some space

7
00:00:22,870 --> 00:00:20,400

shuttle missions

8
00:00:26,390 --> 00:00:22,880

today we have a very special guest elon

9
00:00:28,870 --> 00:00:26,400

musk the ceo of spacex

10
00:00:31,269 --> 00:00:28,880

we are at the kennedy space center at

11
00:00:33,910 --> 00:00:31,279

launch complex 39a

12
00:00:35,910 --> 00:00:33,920

which is a very historic

13
00:00:38,549 --> 00:00:35,920

i would say not just launch complex but

14

00:00:41,030 --> 00:00:38,559

a very historic monument for our country

15

00:00:43,190 --> 00:00:41,040

from this launch complex we launched all

16

00:00:45,910 --> 00:00:43,200

of our missions to the moon we also

17

00:00:47,670 --> 00:00:45,920

launched space shuttles and we have a

18

00:00:49,190 --> 00:00:47,680

really exciting event that's happening

19

00:00:51,029 --> 00:00:49,200

tonight which is the reason why we're

20

00:00:53,750 --> 00:00:51,039

here which is tonight we're going to

21

00:00:56,310 --> 00:00:53,760

launch with what we call demo one

22

00:00:59,110 --> 00:00:56,320

which is a mission to the international

23

00:01:02,150 --> 00:00:59,120

space station with crew dragon in other

24

00:01:04,229 --> 00:01:02,160

words uh it's it's not crude but it is a

25

00:01:06,070 --> 00:01:04,239

test flight going all the way to the

26
00:01:09,830 --> 00:01:06,080
international space station now where we

27
00:01:12,710 --> 00:01:09,840
are right now on launch complex 39a

28
00:01:14,469 --> 00:01:12,720
we're on a what we call the crew arm

29
00:01:16,950 --> 00:01:14,479
which is the way the astronauts are

30
00:01:18,710 --> 00:01:16,960
actually going to get to the capsule so

31
00:01:20,149 --> 00:01:18,720
that they can fly to the international

32
00:01:22,390 --> 00:01:20,159
space station now that's not going to

33
00:01:24,710 --> 00:01:22,400
happen tonight but tonight we're going

34
00:01:26,789 --> 00:01:24,720
to test the vehicle all components of

35
00:01:29,350 --> 00:01:26,799
the vehicle and i am thrilled and

36
00:01:32,310 --> 00:01:29,360
honored to be here at this very historic

37
00:01:35,030 --> 00:01:32,320
site with elon musk who has been an

38
00:01:37,749 --> 00:01:35,040

amazing partner for nasa for all of the

39

00:01:39,670 --> 00:01:37,759

years to get us to this point where what

40

00:01:42,550 --> 00:01:39,680

we want to do this year is launch

41

00:01:44,310 --> 00:01:42,560

american astronauts on american rockets

42

00:01:46,230 --> 00:01:44,320

from american soil and getting to this

43

00:01:48,870 --> 00:01:46,240

point as you and i have talked

44

00:01:51,030 --> 00:01:48,880

was not something that came easy

45

00:01:53,109 --> 00:01:51,040

it's not something that came fast

46

00:01:56,310 --> 00:01:53,119

but step by step you have gotten us to

47

00:01:58,389 --> 00:01:56,320

the point where we're ready almost

48

00:02:00,149 --> 00:01:58,399

to take that next step i'd like to start

49

00:02:02,230 --> 00:02:00,159

just by asking you

50

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

the the story that is out there is that

51

00:02:06,149 --> 00:02:04,240

there was a time in your life

52

00:02:08,949 --> 00:02:06,159

when you made a trip to russia your

53

00:02:11,430 --> 00:02:08,959

intent was actually to buy

54

00:02:14,229 --> 00:02:11,440

um i guess an excess

55

00:02:16,790 --> 00:02:14,239

intercontinental ballistic missile yeah

56

00:02:19,110 --> 00:02:16,800

without the new without the new right

57

00:02:20,949 --> 00:02:19,120

that's a good point yeah that's extra

58

00:02:22,390 --> 00:02:20,959

yeah that's actually right so tell me

59

00:02:24,790 --> 00:02:22,400

about why you were there

60

00:02:26,390 --> 00:02:24,800

and ultimately how it resulted in in

61

00:02:29,670 --> 00:02:26,400

this moment right now

62

00:02:33,110 --> 00:02:31,190

originally i was not going to start a

63

00:02:35,190 --> 00:02:33,120

rocket company

64

00:02:37,270 --> 00:02:35,200

i really wanted us to

65

00:02:40,790 --> 00:02:37,280

just become a spacefaring civilization

66

00:02:43,030 --> 00:02:40,800

um and a multi-kind of species and

67

00:02:44,150 --> 00:02:43,040

i i thought

68

00:02:46,710 --> 00:02:44,160

if there's something i could do to get

69

00:02:48,070 --> 00:02:46,720

the public excited about

70

00:02:50,710 --> 00:02:48,080

sending

71

00:02:52,150 --> 00:02:50,720

people to mars um and maybe having a

72

00:02:54,309 --> 00:02:52,160

base equivalent based on the moon i

73

00:02:56,550 --> 00:02:54,319

wanted to do a phone traffic mission uh

74

00:02:58,390 --> 00:02:56,560

to send a small uh greenhouse to service

75

00:03:00,309 --> 00:02:58,400

to bars so you'd have this amazing shot

76
00:03:01,430 --> 00:03:00,319
of green plants and a red background and

77
00:03:03,030 --> 00:03:01,440
i thought that would really inspire the

78
00:03:05,350 --> 00:03:03,040
public and if the public got inspired

79
00:03:07,589 --> 00:03:05,360
about uh about sending life to mars then

80
00:03:09,350 --> 00:03:07,599
they would uh tell their

81
00:03:10,869 --> 00:03:09,360
senators and punishment to uh

82
00:03:12,790 --> 00:03:10,879
appropriate more money for nasa so that

83
00:03:14,710 --> 00:03:12,800
we could do that so my initial goal was

84
00:03:16,390 --> 00:03:14,720
actually just to increase nasa's budget

85
00:03:17,589 --> 00:03:16,400
um and then what i found was that first

86
00:03:19,750 --> 00:03:17,599
of all the russians really started

87
00:03:21,190 --> 00:03:19,760
charging want to charge me way more than

88
00:03:23,589 --> 00:03:21,200

i could afford actually they wanted to

89

00:03:25,750 --> 00:03:23,599

charge more money than i had uh to to do

90

00:03:27,910 --> 00:03:25,760

the philanthropic mission um and so that

91

00:03:30,070 --> 00:03:27,920

was you know not really being an option

92

00:03:30,789 --> 00:03:30,080

um and i thought well is there any way

93

00:03:33,990 --> 00:03:30,799

to

94

00:03:36,949 --> 00:03:34,000

make a lower cost and especially a

95

00:03:38,070 --> 00:03:36,959

reusable rocket system in the u.s

96

00:03:40,710 --> 00:03:38,080

and so

97

00:03:43,110 --> 00:03:40,720

i just read every book i possibly could

98

00:03:44,070 --> 00:03:43,120

on rocket engineering

99

00:03:45,270 --> 00:03:44,080

and

100

00:03:48,869 --> 00:03:45,280

decided to

101
00:03:50,949 --> 00:03:48,879
to try giving it a go essentially to

102
00:03:53,670 --> 00:03:50,959
give nasa uh

103
00:03:55,190 --> 00:03:53,680
uh more options more more more sort of

104
00:03:57,270 --> 00:03:55,200
technology but like more technology

105
00:04:00,149 --> 00:03:57,280
horses in the stable essentially uh to

106
00:04:02,630 --> 00:04:00,159
make people to use in order to get

107
00:04:04,390 --> 00:04:02,640
humanity uh into space and perform

108
00:04:06,470 --> 00:04:04,400
multiple kind of species and you started

109
00:04:07,350 --> 00:04:06,480
with a much smaller rock at the top and

110
00:04:09,750 --> 00:04:07,360
one

111
00:04:11,350 --> 00:04:09,760
and was your goal at that point when you

112
00:04:13,030 --> 00:04:11,360
started with falcon one to get to the

113
00:04:15,190 --> 00:04:13,040

point where we had nine inches from

114

00:04:17,430 --> 00:04:15,200

falcon 9 was that your goal at that time

115

00:04:19,509 --> 00:04:17,440

when i started spacex i i only thought

116

00:04:21,110 --> 00:04:19,519

there was maybe a ten percent chance of

117

00:04:22,710 --> 00:04:21,120

getting felt than one two officers i did

118

00:04:24,870 --> 00:04:22,720

not at all think that this would happen

119

00:04:26,629 --> 00:04:24,880

uh so this is for sure dream come true

120

00:04:28,390 --> 00:04:26,639

um

121

00:04:30,150 --> 00:04:28,400

but i mostly at the time i didn't know

122

00:04:31,830 --> 00:04:30,160

anything about rockets uh and i was you

123

00:04:33,670 --> 00:04:31,840

know i've been the chief engineer of

124

00:04:34,870 --> 00:04:33,680

spacex since day one and i don't really

125

00:04:36,950 --> 00:04:34,880

know anything about rockets which is why

126

00:04:37,990 --> 00:04:36,960

the first three rockets failed right um

127

00:04:40,550 --> 00:04:38,000

and then

128

00:04:42,390 --> 00:04:40,560

so the first three falcon ones for

129

00:04:43,749 --> 00:04:42,400

spacex failures

130

00:04:46,070 --> 00:04:43,759

yes and then

131

00:04:48,469 --> 00:04:46,080

tell me about uh

132

00:04:50,710 --> 00:04:48,479

the fourth one so i had actually only

133

00:04:52,150 --> 00:04:50,720

had enough money for three three flights

134

00:04:53,110 --> 00:04:52,160

um so i had no more money left to

135

00:04:55,670 --> 00:04:53,120

reminisce

136

00:04:57,189 --> 00:04:55,680

so the team sort of rallied and we

137

00:04:59,189 --> 00:04:57,199

managed to put together enough spare

138

00:05:01,270 --> 00:04:59,199

parts to pay to do a fourth launch and

139

00:05:03,029 --> 00:05:01,280

that both launch was successful

140

00:05:04,629 --> 00:05:03,039

um and

141

00:05:07,029 --> 00:05:04,639

uh so what would have happened if it

142

00:05:08,710 --> 00:05:07,039

wasn't successful oh we would spacex for

143

00:05:09,830 --> 00:05:08,720

tonight so we would not be here right

144

00:05:11,990 --> 00:05:09,840

now

145

00:05:14,550 --> 00:05:12,000

at this moment getting ready to launch

146

00:05:17,310 --> 00:05:14,560

crew dragon to the international system

147

00:05:19,670 --> 00:05:17,320

wow that's an amazing story

148

00:05:22,070 --> 00:05:19,680

of taking a risk

149

00:05:25,110 --> 00:05:22,080

and actually coming out on top

150

00:05:27,029 --> 00:05:25,120

and enabling not just you and spacex but

151
00:05:29,430 --> 00:05:27,039
enabling the united states of america to

152
00:05:30,790 --> 00:05:29,440
come to this very critical point in

153
00:05:32,950 --> 00:05:30,800
american history

154
00:05:39,270 --> 00:05:32,960
absolutely and uh i just like to express

155
00:05:43,990 --> 00:05:41,830
spacex owes nasa uh

156
00:05:46,150 --> 00:05:44,000
in developing although the rocket the

157
00:05:48,950 --> 00:05:46,160
rock technology that that we built our

158
00:05:52,150 --> 00:05:48,960
rockets on was developed by nasa uh over

159
00:05:54,870 --> 00:05:52,160
many decades and we without that spacex

160
00:05:56,790 --> 00:05:54,880
would not have been possible um and

161
00:05:59,830 --> 00:05:56,800
uh and shortly after our first success

162
00:06:02,390 --> 00:05:59,840
nasa gave us a critical contract to

163
00:06:03,990 --> 00:06:02,400

resupply the space station with cargo

164

00:06:06,469 --> 00:06:04,000

and that was also fundamental to

165

00:06:08,629 --> 00:06:06,479

spacex's success and without nasa's

166

00:06:09,590 --> 00:06:08,639

support and spacex wouldn't be here so

167

00:06:11,990 --> 00:06:09,600

thank you

168

00:06:14,070 --> 00:06:12,000

well it was long before my time but uh i

169

00:06:15,830 --> 00:06:14,080

think nasa yes thank you thank you

170

00:06:18,150 --> 00:06:15,840

thank the united states of america for

171

00:06:19,430 --> 00:06:18,160

supporting this really amazing absolute

172

00:06:21,350 --> 00:06:19,440

opportunity

173

00:06:23,670 --> 00:06:21,360

well we have now learned the events

174

00:06:26,390 --> 00:06:23,680

surrounding elon musk's decision to

175

00:06:28,469 --> 00:06:26,400

start spacex let's meet some of the

176

00:06:30,550 --> 00:06:28,479

astronauts that will be launching on

177

00:06:33,110 --> 00:06:30,560

commercial crew yes

178

00:06:35,510 --> 00:06:33,120

but that was in 2001 when all that kind

179

00:06:37,350 --> 00:06:35,520

of started materializing and he started

180

00:06:39,670 --> 00:06:37,360

having these these thoughts i wanted to

181

00:06:42,390 --> 00:06:39,680

ask victor who's going to be

182

00:06:43,749 --> 00:06:42,400

one of our one of our pilots of these

183

00:06:46,150 --> 00:06:43,759

crew vehicles

184

00:06:48,550 --> 00:06:46,160

um 2001.

185

00:06:51,270 --> 00:06:48,560

where were you in 2001 i was learning to

186

00:06:55,510 --> 00:06:51,280

fly jets okay and i actually got my

187

00:07:00,469 --> 00:06:58,550

so victor was uh a navy a naval aviator

188

00:07:03,510 --> 00:07:00,479

uh getting his wings what what month was

189

00:07:05,510 --> 00:07:03,520

that 2004 december 2001 okay so you got

190

00:07:08,309 --> 00:07:05,520

yours about five months ahead of me

191

00:07:10,070 --> 00:07:08,319

i was in may of 2001. uh but you

192

00:07:12,550 --> 00:07:10,080

obviously did much better than i did

193

00:07:14,070 --> 00:07:12,560

because i i ended up running a museum

194

00:07:15,350 --> 00:07:14,080

and then becoming a politician and you

195

00:07:18,790 --> 00:07:15,360

went on to become an astronaut i don't

196

00:07:23,110 --> 00:07:20,950

my job is much easier than you if i i

197

00:07:25,270 --> 00:07:23,120

can tell you that of course uh we're so

198

00:07:27,430 --> 00:07:25,280

proud of all of our astronauts you guys

199

00:07:29,270 --> 00:07:27,440

have all made your whole country proud

200

00:07:30,790 --> 00:07:29,280

bob how about you can you remember maybe

201
00:07:32,870 --> 00:07:30,800
2001 where you might have been at that

202
00:07:34,870 --> 00:07:32,880
time i can't back in 2001 i was an

203
00:07:38,309 --> 00:07:34,880
astronaut candidate i was started in the

204
00:07:40,150 --> 00:07:38,319
office back in 2000 in the summer july

205
00:07:42,070 --> 00:07:40,160
so just getting my first chance to come

206
00:07:43,909 --> 00:07:42,080
down here to kennedy and strap crews in

207
00:07:45,830 --> 00:07:43,919
i was just getting started as a crusader

208
00:07:47,510 --> 00:07:45,840
yep one of the astronauts that operated

209
00:07:49,350 --> 00:07:47,520
the space shuttles before the crew came

210
00:07:51,270 --> 00:07:49,360
to shrapnel and collected them after

211
00:07:52,710 --> 00:07:51,280
they landed in the space shuttle so and

212
00:07:54,710 --> 00:07:52,720
your background before that you're an

213
00:07:56,150 --> 00:07:54,720

air force flight test engineer correct

214

00:07:57,749 --> 00:07:56,160

i'm an air force flight test engineer

215

00:08:00,150 --> 00:07:57,759

still active duty in the air force i

216

00:08:02,390 --> 00:08:00,160

worked the f-22 program after test pilot

217

00:08:04,869 --> 00:08:02,400

school and then worked in a research lab

218

00:08:06,469 --> 00:08:04,879

at eglin air force base prior to that

219

00:08:08,309 --> 00:08:06,479

so it's amazing to think about where

220

00:08:10,390 --> 00:08:08,319

everybody was at these different times

221

00:08:14,070 --> 00:08:10,400

and how it all comes together at this

222

00:08:15,270 --> 00:08:14,080

one moment in 2019 we're gonna make it

223

00:08:16,309 --> 00:08:15,280

about i never would have thought this

224

00:08:18,550 --> 00:08:16,319

would have happened i would have given

225

00:08:20,230 --> 00:08:18,560

it less than one percent chance yeah

226

00:08:22,390 --> 00:08:20,240

it is really amazing

227

00:08:24,550 --> 00:08:22,400

how about you in 2001 well i'm a

228

00:08:26,710 --> 00:08:24,560

classmate of bob so we started we were

229

00:08:28,230 --> 00:08:26,720

selected in 2000 as astronauts and so we

230

00:08:30,790 --> 00:08:28,240

were still astronaut candidates just

231

00:08:32,550 --> 00:08:30,800

kind of learning our new trade so

232

00:08:34,310 --> 00:08:32,560

uh kind of hard to believe you just got

233

00:08:36,389 --> 00:08:34,320

your wings and we were already

234

00:08:37,909 --> 00:08:36,399

astronauts by then or at least almost

235

00:08:39,990 --> 00:08:37,919

astronauts were working towards being

236

00:08:41,909 --> 00:08:40,000

the full-fledged

237

00:08:43,589 --> 00:08:41,919

yeah just it's amazing how far we've

238

00:08:45,190 --> 00:08:43,599

come in that short amount of time how

239

00:08:47,670 --> 00:08:45,200

about you mike

240

00:08:49,509 --> 00:08:47,680

2001 that's a long time ago yeah

241

00:08:50,470 --> 00:08:49,519

yeah i was seriously a long time ago it

242

00:08:51,910 --> 00:08:50,480

is yeah

243

00:08:58,550 --> 00:08:51,920

i can remember it well but it was 18

244

00:09:02,150 --> 00:09:00,070

flight test engineer as well in the air

245

00:09:03,910 --> 00:09:02,160

force and it was in canada cold lake

246

00:09:05,590 --> 00:09:03,920

alberta i was on exchange at their

247

00:09:09,269 --> 00:09:05,600

flight test center testing uh the

248

00:09:12,870 --> 00:09:09,279

canadian jets yeah awesome yeah so right

249

00:09:13,750 --> 00:09:12,880

now inside the crew dragon for tonight's

250

00:09:14,630 --> 00:09:13,760

launch

251

00:09:16,630 --> 00:09:14,640

is

252

00:09:18,470 --> 00:09:16,640

uh i don't want to i don't want to call

253

00:09:20,550 --> 00:09:18,480

him or her a number i know i just i'm

254

00:09:33,750 --> 00:09:20,560

trying to avoid the use of a dummy

255

00:09:37,110 --> 00:09:35,829

article i pulled

256

00:09:39,670 --> 00:09:37,120

ripley from

257

00:09:41,110 --> 00:09:39,680

aliens fantastic yeah it's a great

258

00:09:43,430 --> 00:09:41,120

character yeah

259

00:09:45,269 --> 00:09:43,440

one thing that spacex has done really

260

00:09:47,590 --> 00:09:45,279

well is capture the imagination of the

261

00:09:50,070 --> 00:09:47,600

american people through branding and

262

00:09:52,790 --> 00:09:50,080

really exciting things launching for

263

00:09:55,030 --> 00:09:52,800

example a tesla which is still in deep

264

00:09:56,310 --> 00:09:55,040

space uh orbiting amazon yeah i mean

265

00:09:58,949 --> 00:09:56,320

that was a case where like normally we

266

00:10:00,310 --> 00:09:58,959

do like first test flight of a rocket uh

267

00:10:02,150 --> 00:10:00,320

you know

268

00:10:03,829 --> 00:10:02,160

normally like a block of concrete would

269

00:10:05,430 --> 00:10:03,839

be launched right um because you don't

270

00:10:06,870 --> 00:10:05,440

want to watch anything uh valuable that

271

00:10:08,389 --> 00:10:06,880

could get destroyed on on initial

272

00:10:10,630 --> 00:10:08,399

flights and there's a fighter talking

273

00:10:11,670 --> 00:10:10,640

heavy uh routine was reversing against

274

00:10:13,430 --> 00:10:11,680

launch a

275

00:10:15,030 --> 00:10:13,440

block of concrete it's like guys but

276

00:10:17,269 --> 00:10:15,040

it's hard to get the public excited

277

00:10:18,790 --> 00:10:17,279

about a block of concrete okay it just

278

00:10:20,710 --> 00:10:18,800

so like what what's something like you

279

00:10:22,630 --> 00:10:20,720

know that's that's an image that's gonna

280

00:10:25,590 --> 00:10:22,640

really uh stick in people's minds and

281

00:10:27,509 --> 00:10:25,600

resonate um and so uh it's like okay

282

00:10:29,110 --> 00:10:27,519

let's let's put a car in space doesn't

283

00:10:31,269 --> 00:10:29,120

make any sense obviously yeah you can't

284

00:10:33,509 --> 00:10:31,279

drive a car in space uh but at least

285

00:10:34,630 --> 00:10:33,519

it's convertible

286

00:10:36,230 --> 00:10:34,640

even though there's no errors making

287

00:10:38,150 --> 00:10:36,240

sense but and

288

00:10:40,069 --> 00:10:38,160

they're putting um

289

00:10:42,389 --> 00:10:40,079

i guess

290

00:10:43,990 --> 00:10:42,399

anthropomorphic test article in a

291

00:10:45,110 --> 00:10:44,000

spacesuit driving the car through his

292

00:10:46,550 --> 00:10:45,120

face

293

00:10:48,230 --> 00:10:46,560

and then you know it's kind of thing i

294

00:10:49,030 --> 00:10:48,240

think kids can get really excited about

295

00:10:52,470 --> 00:10:49,040

and like

296

00:10:54,630 --> 00:10:52,480

you know uh so i think inspiring um

297

00:10:56,870 --> 00:10:54,640

adults and kids and people of all ages

298

00:10:58,470 --> 00:10:56,880

uh to want to go out there and explore

299

00:11:00,310 --> 00:10:58,480

and become multi-planet species and have

300

00:11:03,030 --> 00:11:00,320

a base on the moon and pull the city on

301
00:11:04,310 --> 00:11:03,040
mars and ultimately uh go to other star

302
00:11:05,910 --> 00:11:04,320
systems

303
00:11:08,389 --> 00:11:05,920
we've got to have inspiring

304
00:11:11,590 --> 00:11:08,399
images things that really

305
00:11:13,910 --> 00:11:11,600
you know have a strong emotional effect

306
00:11:16,790 --> 00:11:13,920
just like make you feel so doug tell me

307
00:11:17,750 --> 00:11:16,800
uh tonight's test flight um what are

308
00:11:20,150 --> 00:11:17,760
some of the things that we're going to

309
00:11:22,389 --> 00:11:20,160
be looking for what are as as as

310
00:11:24,310 --> 00:11:22,399
somebody who's going to be on this

311
00:11:25,269 --> 00:11:24,320
you know the crew flight what are some

312
00:11:27,190 --> 00:11:25,279
of the things you're going to be looking

313
00:11:29,190 --> 00:11:27,200

for it's just kind of an end-to-end test

314

00:11:31,190 --> 00:11:29,200

for the system so we just want to see

315

00:11:32,069 --> 00:11:31,200

the teams work through all the way

316

00:11:34,150 --> 00:11:32,079

through

317

00:11:35,910 --> 00:11:34,160

to launch the ascent and we've got to

318

00:11:37,990 --> 00:11:35,920

get the vehicle activated in orbit and

319

00:11:39,509 --> 00:11:38,000

then work our way through a pond

320

00:11:41,350 --> 00:11:39,519

and then we're trying to get out to

321

00:11:44,230 --> 00:11:41,360

hawthorne actually to see the docking

322

00:11:46,069 --> 00:11:44,240

out there as well and so obviously just

323

00:11:46,949 --> 00:11:46,079

seeing how the teams all work together

324

00:11:49,030 --> 00:11:46,959

and

325

00:11:50,550 --> 00:11:49,040

make this mission you know successful

326

00:11:52,310 --> 00:11:50,560

and then all the way through to the

327

00:11:54,310 --> 00:11:52,320

splashdown so i think we're just trying

328

00:11:56,470 --> 00:11:54,320

really hard just to see every bit of the

329

00:11:58,790 --> 00:11:56,480

system those threat spaces so i like

330

00:12:00,470 --> 00:11:58,800

what you said the words end to end

331

00:12:02,389 --> 00:12:00,480

so all of the systems and all of the

332

00:12:03,910 --> 00:12:02,399

subsystems they've all been tested over

333

00:12:06,150 --> 00:12:03,920

and over again i mean so a lot of

334

00:12:08,550 --> 00:12:06,160

testing yeah um i mean this has really

335

00:12:09,509 --> 00:12:08,560

been a joint joint effort with with nasa

336

00:12:10,629 --> 00:12:09,519

um

337

00:12:11,509 --> 00:12:10,639

we could

338

00:12:18,150 --> 00:12:11,519

this

339

00:12:20,150 --> 00:12:18,160

impact of nasa uh there's been a lot of

340

00:12:22,550 --> 00:12:20,160

nasa health here and thank you for that

341

00:12:24,870 --> 00:12:22,560

well we're very grateful for uh what

342

00:12:26,870 --> 00:12:24,880

you're doing helping us launch american

343

00:12:29,590 --> 00:12:26,880

astronauts from american soil once again

344

00:12:32,389 --> 00:12:29,600

and of course these gentlemen here are

345

00:12:35,590 --> 00:12:32,399

the beneficiaries of that and i can only

346

00:12:38,470 --> 00:12:35,600

uh express uh the the best that i can

347

00:12:39,190 --> 00:12:38,480

how proud all of america is

348

00:12:42,790 --> 00:12:39,200

with

349

00:12:44,710 --> 00:12:42,800

what you represent

350

00:12:46,629 --> 00:12:44,720

the entire world is going to see us

351
00:12:48,310 --> 00:12:46,639
launching again to the international

352
00:12:49,750 --> 00:12:48,320
space station and this time when we do

353
00:12:53,190 --> 00:12:49,760
it

354
00:12:56,150 --> 00:12:53,200
in fact nasa is a customer

355
00:12:58,389 --> 00:12:56,160
and as a customer we become

356
00:13:00,550 --> 00:12:58,399
one of many that will be using this crew

357
00:13:02,550 --> 00:13:00,560
vehicle if all goes according to plan

358
00:13:04,949 --> 00:13:02,560
and we'll have a robust commercial

359
00:13:06,790 --> 00:13:04,959
marketplace for space flight and that

360
00:13:07,750 --> 00:13:06,800
commercial marketplace could be

361
00:13:09,910 --> 00:13:07,760
um

362
00:13:11,829 --> 00:13:09,920
sovereign countries it could be

363
00:13:13,829 --> 00:13:11,839

individuals that want to go maybe on

364

00:13:15,350 --> 00:13:13,839

vacation with space which i know sounds

365

00:13:16,310 --> 00:13:15,360

crazy but i'll tell you and you know

366

00:13:18,150 --> 00:13:16,320

this

367

00:13:19,750 --> 00:13:18,160

those folks are out there and there's a

368

00:13:21,670 --> 00:13:19,760

lot of folks that are ready to do it of

369

00:13:23,910 --> 00:13:21,680

course they have the same dreams and

370

00:13:26,310 --> 00:13:23,920

ambitions that all of you had when you

371

00:13:28,230 --> 00:13:26,320

were coming back so it's an exciting

372

00:13:30,790 --> 00:13:28,240

time i think it's a good this is a good

373

00:13:33,829 --> 00:13:30,800

step it really is getting getting people

374

00:13:35,350 --> 00:13:33,839

back and over yeah

375

00:13:36,470 --> 00:13:35,360

uh

376
00:13:37,829 --> 00:13:36,480
yeah

377
00:13:40,710 --> 00:13:37,839
it's

378
00:13:42,550 --> 00:13:40,720
mean

379
00:13:44,389 --> 00:13:42,560
what i really want to see is

380
00:13:45,829 --> 00:13:44,399
you know permanent face on moon on the

381
00:13:48,870 --> 00:13:45,839
moon permanently

382
00:13:51,670 --> 00:13:48,880
uh occupied human base on the moon and

383
00:13:53,670 --> 00:13:51,680
us building a city on mars that's like

384
00:13:55,670 --> 00:13:53,680
i can see the beginning of that before i

385
00:13:57,829 --> 00:13:55,680
die i'll die happy well the the

386
00:14:00,710 --> 00:13:57,839
president's first space policy directive

387
00:14:02,790 --> 00:14:00,720
to me was go to the moon and the word in

388
00:14:04,870 --> 00:14:02,800

there is sustainable so how do we go we

389

00:14:06,629 --> 00:14:04,880

don't want to recreate the apollo

390

00:14:08,470 --> 00:14:06,639

program exactly we don't want to leave

391

00:14:10,069 --> 00:14:08,480

flags and footprints and not go back we

392

00:14:12,949 --> 00:14:10,079

want to go and want to stay and this

393

00:14:15,990 --> 00:14:12,959

time that means landers rovers robots

394

00:14:17,750 --> 00:14:16,000

and humans yeah in a sustainable return

395

00:14:19,350 --> 00:14:17,760

and does it it doesn't mean at this

396

00:14:22,069 --> 00:14:19,360

point we're ready to have as you

397

00:14:24,870 --> 00:14:22,079

mentioned uh you know a city on the moon

398

00:14:27,910 --> 00:14:24,880

but what it means is we can put together

399

00:14:30,069 --> 00:14:27,920

all of the the components that enable it

400

00:14:32,470 --> 00:14:30,079

to eventually be sustainable and part of

401
00:14:35,430 --> 00:14:32,480
that is reusability tell me reusability

402
00:14:39,110 --> 00:14:35,440
is fundamental um the the

403
00:14:41,590 --> 00:14:39,120
fully reusable vehicle uh will cost

404
00:14:43,350 --> 00:14:41,600
a hundred times less per flight than an

405
00:14:45,590 --> 00:14:43,360
expandable vehicle it kind of makes

406
00:14:48,710 --> 00:14:45,600
sense you think of uh of any other motor

407
00:14:50,949 --> 00:14:48,720
transport it could be like uh you know

408
00:14:54,790 --> 00:14:50,959
jet aircraft or

409
00:14:58,870 --> 00:14:54,800
cars bicycles horses every other mode of

410
00:15:01,430 --> 00:14:58,880
transport boats they're all reusable the

411
00:15:04,230 --> 00:15:01,440
only the weird one that is reusable is

412
00:15:05,990 --> 00:15:04,240
space that's right so um you can imagine

413
00:15:08,150 --> 00:15:06,000

how expensive it would be if every time

414

00:15:09,910 --> 00:15:08,160

you flew in a jet that you had to get a

415

00:15:12,790 --> 00:15:09,920

new jet

416

00:15:14,949 --> 00:15:12,800

as opposed to refuel the jet it would be

417

00:15:16,550 --> 00:15:14,959

insanely expensive to fly a jedi for a

418

00:15:18,550 --> 00:15:16,560

single use there wouldn't be anybody

419

00:15:20,949 --> 00:15:18,560

flying no exactly it'd be like real like

420

00:15:23,350 --> 00:15:20,959

a few research flights

421

00:15:25,030 --> 00:15:23,360

at extreme expense and that's that's all

422

00:15:26,710 --> 00:15:25,040

the flying that would occur

423

00:15:28,710 --> 00:15:26,720

so the absolutely fundamental

424

00:15:32,230 --> 00:15:28,720

breakthrough that's needed is a fully

425

00:15:33,829 --> 00:15:32,240

reusable uh orbit class a rockville

426
00:15:35,269 --> 00:15:33,839
spaceship system

427
00:15:38,629 --> 00:15:35,279
and

428
00:15:41,269 --> 00:15:38,639
reusable

429
00:15:42,710 --> 00:15:41,279
so the cost of reuse must be very low

430
00:15:44,710 --> 00:15:42,720
and it must be able to have a high fly

431
00:15:46,150 --> 00:15:44,720
rate right and then and that's the

432
00:15:47,910 --> 00:15:46,160
fundamental breakthrough needed for

433
00:15:49,910 --> 00:15:47,920
humanity to become a multi-tenant

434
00:15:52,550 --> 00:15:49,920
species and i think one of the key

435
00:15:54,150 --> 00:15:52,560
enablers there was a program we called

436
00:15:56,310 --> 00:15:54,160
commercial crew that went into place

437
00:15:58,710 --> 00:15:56,320
quite a while ago and and and what the

438
00:16:02,069 --> 00:15:58,720

vision was um was that we would have

439

00:16:04,069 --> 00:16:02,079

multiple providers competing on cost and

440

00:16:06,710 --> 00:16:04,079

innovation and of course that has now

441

00:16:08,629 --> 00:16:06,720

taken effect and as as you are competing

442

00:16:10,629 --> 00:16:08,639

against others in this commercial

443

00:16:13,030 --> 00:16:10,639

marketplace right you have a you have a

444

00:16:15,509 --> 00:16:13,040

huge incentive to drive down the cost

445

00:16:18,230 --> 00:16:15,519

and increase the access to space and and

446

00:16:19,430 --> 00:16:18,240

that's materializing here on this crew

447

00:16:20,629 --> 00:16:19,440

dragon that we're going to see launch

448

00:16:22,230 --> 00:16:20,639

tonight

449

00:16:23,670 --> 00:16:22,240

yeah i actually don't care at all about

450

00:16:25,670 --> 00:16:23,680

money at all

451

00:16:27,590 --> 00:16:25,680

um but i do care about us becoming a

452

00:16:29,990 --> 00:16:27,600

space spring civilization yeah and i do

453

00:16:31,990 --> 00:16:30,000

know that uh if we don't uh achieve full

454

00:16:33,910 --> 00:16:32,000

and rapid reusability it will not happen

455

00:16:34,870 --> 00:16:33,920

and so that's why that's the only reason

456

00:16:36,870 --> 00:16:34,880

i actually

457

00:16:38,389 --> 00:16:36,880

want money at all awesome

458

00:16:39,990 --> 00:16:38,399

awesome

459

00:16:41,829 --> 00:16:40,000

well guys thank you for being a part of

460

00:16:42,790 --> 00:16:41,839

this and uh

461

00:16:44,230 --> 00:16:42,800

it's

462

00:16:46,230 --> 00:16:44,240

an exciting night

463

00:16:48,310 --> 00:16:46,240

well thank you for watching watch this

464

00:16:50,790 --> 00:16:48,320

space i'm nasa administrator jim

465

00:16:53,269 --> 00:16:50,800

bridenstine you can follow me on twitter

466

00:16:54,949 --> 00:16:53,279

at jim bridenstine and of course if you

467

00:16:57,030 --> 00:16:54,959

want to watch this again you can do so