

1

00:00:00,000 --> 00:00:04,000

MUSIC

2

00:00:04,000 --> 00:00:08,000

MUSIC

3

00:00:08,000 --> 00:00:12,000

MUSIC

4

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

MUSIC

5

00:00:16,000 --> 00:00:20,000

MUSIC

6

00:00:20,000 --> 00:00:24,000

MUSIC

7

00:00:24,000 --> 00:00:28,000

MUSIC

8

00:00:28,000 --> 00:00:32,000

MUSIC

9

00:00:32,000 --> 00:00:36,000

MUSIC

10

00:00:36,000 --> 00:00:40,000

MUSIC

11

00:00:40,000 --> 00:00:44,000

MUSIC

12

00:00:44,000 --> 00:00:48,000

Sorry about that. These things are a little tricky to fly.

13

00:00:48,000 --> 00:00:53,000

Yeah, well, I swear with a slightly larger one you could do some genuine damage.

14

00:00:53,000 --> 00:00:57,000

Like maybe even kill somebody. Wait a minute.

15

00:00:57,000 --> 00:01:01,000

T-t-t-t-t.

16

00:01:01,000 --> 00:01:03,000

Let's start the show.

17

00:01:03,000 --> 00:01:08,000

MUSIC

18

00:01:08,000 --> 00:01:12,000

MUSIC

19

00:01:12,000 --> 00:01:17,000

MUSIC

20

00:01:17,000 --> 00:01:22,000

MUSIC

21

00:01:22,000 --> 00:01:26,000

MUSIC

22

00:01:26,000 --> 00:01:30,000

MUSIC

23

00:01:30,000 --> 00:01:32,000

I'm guessing this story is about drones.

24

00:01:32,000 --> 00:01:35,000

It is. In fact, we have two awesome flying stories in this episode.

25

00:01:35,000 --> 00:01:37,000

One of them is about these guys.

26

00:01:37,000 --> 00:01:40,000

But first up we have a totally amazing story. Let me ask you.

27

00:01:40,000 --> 00:01:42,000

Do the words dragon lady mean anything to you?

28

00:01:42,000 --> 00:01:44,000

I don't want to talk about it.

29

00:01:44,000 --> 00:01:46,000

Okay, I think we're probably thinking of different things.

30

00:01:46,000 --> 00:01:53,000

Because dragon lady is in fact the nickname for the legendary high altitude single seater U2 reconnaissance plane

31

00:01:53,000 --> 00:01:55,000

in use by the Air Force since the late 50s.

32

00:01:55,000 --> 00:01:58,000

MUSIC

33

00:01:58,000 --> 00:02:00,000

Okay, what about it?

34

00:02:00,000 --> 00:02:02,000

MUSIC

35

00:02:02,000 --> 00:02:08,000

Well, there is a myth that the U2 plane is the toughest plane to fly and to land of any other plane.

36

00:02:08,000 --> 00:02:11,000

MUSIC

37

00:02:11,000 --> 00:02:13,000

I think we should take a close look at that.

38

00:02:13,000 --> 00:02:15,000

MUSIC

39

00:02:15,000 --> 00:02:18,000

The Air Force isn't going to let us get anywhere near something like that.

40

00:02:18,000 --> 00:02:21,000

MUSIC

41

00:02:21,000 --> 00:02:27,000

I thought the same thing, but amazingly they have agreed to let you and I have a close up first person look

42

00:02:27,000 --> 00:02:31,000

at their U2 program and see just how tough those planes are to operate.

43

00:02:31,000 --> 00:02:38,000

MUSIC

44

00:02:38,000 --> 00:02:40,000

Cool. What are we waiting for?

45

00:02:40,000 --> 00:02:42,000

I have the slightest idea. Let's do this.

46

00:02:42,000 --> 00:02:46,000

MUSIC

47

00:02:46,000 --> 00:02:50,000

It takes off straight up and looks something like a jet propelled four-poster.

48

00:02:50,000 --> 00:02:58,000

The history of aviation is littered with oxymoronic aerodynamics, finicky flyers and design dots.

49

00:02:58,000 --> 00:03:00,000

MUSIC

50

00:03:00,000 --> 00:03:09,000

So is it possible that one of the most long-lived and highly valued U.S. Air Force vehicles is also the toughest to fly?

51

00:03:09,000 --> 00:03:13,000

To open this investigation, there's only one destination.

52

00:03:13,000 --> 00:03:19,000

MUSIC

53

00:03:19,000 --> 00:03:33,000

...

54

00:03:33,000 --> 00:03:40,000

MUSIC

55

00:03:40,000 --> 00:03:44,900

Well, when you've got questions about the U-2 plane, they will get answered here.

56

00:03:44,900 --> 00:03:47,340

I'm standing at the home of the U-2 program.

57

00:03:47,340 --> 00:03:49,140

This is where the planes are serviced.

58

00:03:49,140 --> 00:03:53,800

This is where the pilots train before flying to every corner of the globe to do their jobs.

59

00:03:53,800 --> 00:03:58,400

We should totally be able to get to the bottom of this myth here, and we might even get a

60

00:03:58,400 --> 00:04:00,300

flight.

61

00:04:00,300 --> 00:04:05,900

To begin to understand just how hard it is to manage this marvel of aviation engineering...

62

00:04:06,400 --> 00:04:11,900

Well, Adam, Jamie, this is the infamous and venerable U-2 Dragon Lady.

63

00:04:11,900 --> 00:04:17,800

Major Bartholomew, who has more U-2 flying hours than any Air Force pilot in history,

64

00:04:17,800 --> 00:04:20,100

runs the guys through the specs.

65

00:04:20,100 --> 00:04:22,600

The original design dates from the mid-fifties.

66

00:04:22,600 --> 00:04:27,800

Single engine, high altitude, long wingspan, lots of thrust, lots of lift.

67

00:04:27,800 --> 00:04:32,000

We can take a heavy payload up to a great altitude and loiter for a long time.

68

00:04:32,100 --> 00:04:36,900

The challenges this aircraft presents its pilots are numerous and significant.

69

00:04:36,900 --> 00:04:38,900

All the fuel is kept in the wing.

70

00:04:38,900 --> 00:04:43,900

First up, the plane can't even support its own massive wingspan when it's taking off.

71

00:04:43,900 --> 00:04:47,900

When the wing develops lift, the pogo falls away.

72

00:04:47,900 --> 00:04:52,800

Next, recon missions can be lengthy and are carried out at very high altitudes, which

73

00:04:52,800 --> 00:04:58,100

requires complex pressure suit technologies and extreme safety features.

74

00:04:58,200 --> 00:05:02,200

Everything is so thin and so light and just strong enough.

75

00:05:02,200 --> 00:05:04,200

And then, there's the landing.

76

00:05:04,200 --> 00:05:08,200

It has quite a heavy footprint because there's just the one main gear carrying all the load.

77

00:05:10,200 --> 00:05:15,200

The wheels are along the centerline of the fuselage, so it's like trying to land a bicycle.

78

00:05:16,200 --> 00:05:21,200

When the airplane does tip over, these skids protect the wing tip.

79

00:05:21,200 --> 00:05:25,200

And we'll see later, but on an approach, the pilot can't even see the runway.

80

00:05:25,300 --> 00:05:27,300

Three, two...

81

00:05:27,300 --> 00:05:30,300

Yes, he got it down by a pilot in a chase car.

82

00:05:30,300 --> 00:05:32,300

Two, hold it one, and...

83

00:05:32,300 --> 00:05:35,300

So far, it's looking pretty good for the myth.

84

00:05:36,300 --> 00:05:40,300

It's an impressive checklist of piloting challenges, but where next?

85

00:05:40,300 --> 00:05:44,300

Well, we need to get a look at this baby in action.

86

00:05:44,300 --> 00:05:49,300

To that end, Jamie and I have been given the go-ahead to hitch a ride to the edge of space

87

00:05:49,300 --> 00:05:53,300

and we will now embark on a week-long training program.

88

00:05:53,400 --> 00:05:57,400

Yep, it takes a week just to learn how to be a passenger.

89

00:05:57,400 --> 00:06:02,400

The problem is, there is only room for one of us.

90

00:06:05,400 --> 00:06:08,400

Please, please, please let it be me.

91

00:06:12,400 --> 00:06:15,400

So the next story is deadly drones.

92

00:06:15,400 --> 00:06:20,400

Indeed it is. If the press is to be believed, drones are totally in our future delivering our packages

93

00:06:20,500 --> 00:06:25,500

and maybe even our pizzas, but there are those who think that they are a deadly danger hiding in plain sight.

94

00:06:25,500 --> 00:06:31,500

That a simple gust of wind could send a drone into you and the propellers could slice your throat and kill you.

95

00:06:31,500 --> 00:06:34,500

That sounds like it's custom-made for us.

96

00:06:34,500 --> 00:06:37,500

That's exactly what I was thinking. Let's get to testing.

97

00:06:40,500 --> 00:06:43,500

But testing the myth with what?

98

00:06:43,500 --> 00:06:48,500

First up, Adam and Jamie take a tour of the full range of drone technology.

99

00:06:48,600 --> 00:06:50,600

Starting with the SuperSight.

100

00:06:50,600 --> 00:06:55,600

Allow me to introduce our high-tech custom-built camera platform.

101

00:06:55,600 --> 00:06:59,600

It's got eight motors totaling 2,800 watts of power.

102

00:06:59,600 --> 00:07:04,600

It carries a self-stabilized, high-definition, 3-pound camera.

103

00:07:04,600 --> 00:07:06,600

Pretty cool, huh?

104

00:07:10,600 --> 00:07:12,600

And at the other end of the scale...

105

00:07:12,600 --> 00:07:15,600

This is your basic consumer-level multi-rotor.

106

00:07:15,700 --> 00:07:19,700

It's on the small side but it has all the features that the large ones don't.

107

00:07:19,700 --> 00:07:21,700

Propellers, motors, that...

108

00:07:25,700 --> 00:07:29,700

Well, as in any new technology, there can be casualties.

109

00:07:31,700 --> 00:07:35,700

But as per the myth, would one of those casualties ever be human?

110

00:07:35,700 --> 00:07:37,700

Could a drone really be deadly?

111

00:07:39,700 --> 00:07:42,700

To begin their quest in earnest, it's back to the shop.

112

00:07:42,800 --> 00:07:47,800

Where Adam has two mid-range models, most likely to be used in a commercial delivery.

113

00:07:49,800 --> 00:07:53,800

On the left here is a fly-at right out of the box small model.

114

00:07:53,800 --> 00:07:56,800

Slightly larger is a intermediate kit-level model,

115

00:07:56,800 --> 00:07:58,800

which comes with all the pieces you need to fly.

116

00:07:58,800 --> 00:08:00,800

You just have to assemble them.

117

00:08:00,800 --> 00:08:03,800

This one's apparently ready to fly, so I'm gonna give it a shot.

118

00:08:03,800 --> 00:08:05,800

See how easy it actually is.

119

00:08:05,900 --> 00:08:07,900

Oh! Ha ha!

120

00:08:11,900 --> 00:08:13,900

Really easy to fly.

121

00:08:15,900 --> 00:08:17,900

While the damage done so far is enlightening,

122

00:08:17,900 --> 00:08:20,900

a proof of concept is required.

123

00:08:20,900 --> 00:08:23,900

Ew, it dripped juice on me.

124

00:08:23,900 --> 00:08:28,900

To find out if a multi-rotor propeller could ever cause a flesh wound,

125

00:08:28,900 --> 00:08:33,900

Adam and Jamie have a standard-sized blade spinning at flight speed on a stick

126

00:08:34,000 --> 00:08:36,000

and a chicken.

127

00:08:36,000 --> 00:08:39,000

I think today's lesson is gonna be fairly self-explanatory

128

00:08:39,000 --> 00:08:41,000

whenever you're ready, sir.

129

00:08:49,000 --> 00:08:52,000

Yeah! There we go!

130

00:08:57,000 --> 00:08:59,000

Yeah!

131

00:08:59,000 --> 00:09:01,000

Check that out.

132

00:09:01,000 --> 00:09:03,000

That right there, my friends, that's an injury.

133

00:09:04,000 --> 00:09:07,000

But let's face it, we're not just talking about an injury,

134

00:09:07,000 --> 00:09:09,000

we're talking about lethality.

135

00:09:09,000 --> 00:09:13,000

Which means we're really talking about this vein right here, the jugular.

136

00:09:13,000 --> 00:09:15,000

Yeah! I think if we're gonna continue testing,

137

00:09:15,000 --> 00:09:18,000

we need to make a neck as a testing platform

138

00:09:18,000 --> 00:09:21,000

that we can run our multi-rotors into.

139

00:09:22,000 --> 00:09:24,000

Coming up on Mythbusters...

140

00:09:24,000 --> 00:09:26,000

Someone give me a Band-Aid.

141

00:09:26,000 --> 00:09:29,000

...Adams up to his neck in the gory story of a deadly drone.

142

00:09:29,000 --> 00:09:31,000

And...

143

00:09:31,000 --> 00:09:33,000

Bail out, bail out, bail out.

144

00:09:33,100 --> 00:09:36,100

And now, the guys prepare for the flight of a lifetime.

145

00:09:36,100 --> 00:09:38,100

Complex and terrifying.

146

00:09:44,100 --> 00:09:47,100

Could a drone delivery ever be deadly?

147

00:09:50,100 --> 00:09:53,100

Adam and Jamie have a promising proof of concept.

148

00:09:53,100 --> 00:09:55,100

Yeah! There we go!

149

00:09:55,100 --> 00:09:57,100

Now, to cut a little deeper.

150

00:09:57,200 --> 00:09:59,200

Now, if we're going to be testing whether one of these

151

00:09:59,200 --> 00:10:02,200

can slice through one of these,

152

00:10:02,200 --> 00:10:04,200

we're gonna need one of each.

153

00:10:04,200 --> 00:10:06,200

And these are easy to buy at the store,

154

00:10:06,200 --> 00:10:08,200

but these, well, they're a little harder to come by.

155

00:10:08,200 --> 00:10:10,200

We're gonna have to make our own.

156

00:10:10,200 --> 00:10:12,200

And to do that, I'm gonna use a lot of this.

157

00:10:12,200 --> 00:10:14,200

And this guy right here.

158

00:10:14,200 --> 00:10:16,200

And it's going to spurt blood

159

00:10:16,200 --> 00:10:18,200

if it actually gets cut.

160

00:10:18,200 --> 00:10:20,200

It'll be awesome.

161

00:10:20,200 --> 00:10:23,200

Yep, Adams manufacturing a mortal mannequin

162

00:10:23,200 --> 00:10:25,200

that will react accurately to a deadly drone.

163

00:10:25,300 --> 00:10:27,300

And the basic gist of what I'm gonna be doing

164

00:10:27,300 --> 00:10:29,300

is casting a neck out of ballistics gelatin.

165

00:10:29,300 --> 00:10:31,300

How tall is this neck?

166

00:10:31,300 --> 00:10:33,300

Who were these men?

167

00:10:33,300 --> 00:10:35,300

With holes in it

168

00:10:35,300 --> 00:10:37,300

that I can fill with blood

169

00:10:37,300 --> 00:10:39,300

that will be blue for televisual purposes.

170

00:10:39,300 --> 00:10:41,300

It needs to be really close

171

00:10:41,300 --> 00:10:43,300

to the edge of the skin.

172

00:10:43,300 --> 00:10:45,300

So, I'm gonna effectively mold those veins

173

00:10:45,300 --> 00:10:47,300

using these brass rods

174

00:10:47,300 --> 00:10:49,300

in here.

175

00:10:49,300 --> 00:10:51,300

It's sort of like thinking inside out and backwards.

176

00:10:51,300 --> 00:10:53,300

And it's gonna be a little harder

177

00:10:53,400 --> 00:10:55,400

to think inside out and backwards.

178

00:11:00,400 --> 00:11:03,400

With the negative mold of the blood vessels in place

179

00:11:03,400 --> 00:11:05,400

it's time to prepare the fake flesh.

180

00:11:05,400 --> 00:11:07,400

As Jamie and I have discovered

181

00:11:07,400 --> 00:11:09,400

this stuff reacts to a bullet

182

00:11:09,400 --> 00:11:11,400

similar to human flesh

183

00:11:11,400 --> 00:11:13,400

but to get the tenacity of skin and muscle

184

00:11:13,400 --> 00:11:15,400

we need to add this fiberglass filler

185

00:11:15,400 --> 00:11:17,400

to the ballistics gel

186

00:11:17,400 --> 00:11:19,400

as we're casting it into my mold.

187

00:11:19,400 --> 00:11:21,400

Oh, beauty.

188

00:11:21,500 --> 00:11:23,500

Oh, I'm very pleased with how this is going so far.

189

00:11:23,500 --> 00:11:25,500

Based on nothing.

190

00:11:25,500 --> 00:11:27,500

One set, it's simply a case

191

00:11:27,500 --> 00:11:29,500

of easing the fleshy throat

192

00:11:29,500 --> 00:11:31,500

free of the mold.

193

00:11:31,500 --> 00:11:33,500

Almost.

194

00:11:33,500 --> 00:11:35,500

Come on.

195

00:11:35,500 --> 00:11:37,500

F***.

196

00:11:37,500 --> 00:11:39,500

F***.

197

00:11:39,500 --> 00:11:41,500

F***.

198

00:11:41,500 --> 00:11:43,500

All right.

199

00:11:43,500 --> 00:11:45,500

That's it. All right.

200

00:11:45,500 --> 00:11:47,500

Thank you.

201

00:11:47,500 --> 00:11:49,500

Then Adam plums the system

202

00:11:49,600 --> 00:11:51,600

with blue blood

203

00:11:51,600 --> 00:11:53,600

Nice.

204

00:11:53,600 --> 00:11:55,600

and tests his anatomically accurate jugular.

205

00:11:55,600 --> 00:11:57,600

It's at the right depth

206

00:11:57,600 --> 00:11:59,600

beneath the flesh.

207

00:11:59,600 --> 00:12:01,600

That is a bleeding neck.

208

00:12:01,600 --> 00:12:03,600

and requires the same force

209

00:12:03,600 --> 00:12:05,600

to slice.

210

00:12:05,600 --> 00:12:07,600

All right, could someone give me a bandaid?

211

00:12:07,600 --> 00:12:09,600

Allow me to introduce you

212

00:12:09,600 --> 00:12:11,600

to the analog bursting jugular

213

00:12:11,600 --> 00:12:13,600

vein multi-rotor testing neck rig.

214

00:12:13,600 --> 00:12:15,600

Yeah, it rolls right off the tongue.

215

00:12:15,600 --> 00:12:17,600

It is basically a rig

216

00:12:17,700 --> 00:12:19,700

for bleeding when it senses

217

00:12:19,700 --> 00:12:21,700

a lethal injury.

218

00:12:21,700 --> 00:12:23,700

Now, I have more than two veins in this rig

219

00:12:23,700 --> 00:12:25,700

even though we have only two in our neck

220

00:12:25,700 --> 00:12:27,700

because we can test multiple

221

00:12:27,700 --> 00:12:29,700

times just by turning the neck.

222

00:12:29,700 --> 00:12:31,700

Yeah, it's like that versatile.

223

00:12:31,700 --> 00:12:33,700

So we can test as much as we want

224

00:12:33,700 --> 00:12:35,700

and watch bursting blue blood

225

00:12:35,700 --> 00:12:37,700

blue blood, blue blood

226

00:12:37,700 --> 00:12:39,700

fly out of the veins.

227

00:12:39,700 --> 00:12:41,700

I'm gonna stop talking.

228

00:12:43,700 --> 00:12:45,700

But before Adam's blue blood dummy

229

00:12:45,800 --> 00:12:47,800

is deployed in the drone firing line

230

00:12:47,800 --> 00:12:49,800

it's

231

00:12:49,800 --> 00:12:51,800

back to

232

00:12:51,800 --> 00:12:53,800

Beale Air Force Base

233

00:12:53,800 --> 00:12:55,800

to tackle the myth that the U2

234

00:12:55,800 --> 00:12:57,800

is the world's toughest plane

235

00:12:57,800 --> 00:12:59,800

to piloting.

236

00:12:59,800 --> 00:13:01,800

Welcome to

237

00:13:01,800 --> 00:13:03,800

Pile Institute Physiology

238

00:13:03,800 --> 00:13:05,800

and Full Precious Seat Orientation.

239

00:13:05,800 --> 00:13:07,800

Adam and Jamie are both in training

240

00:13:07,800 --> 00:13:09,800

for an in-flight investigation.

241

00:13:09,800 --> 00:13:11,800

One will fly, one will be on standby.

242

00:13:11,800 --> 00:13:13,800

Pop your helmet off just like that.

243

00:13:13,900 --> 00:13:15,900

And they're starting with several

244

00:13:15,900 --> 00:13:17,900

not-so-brief briefings.

245

00:13:17,900 --> 00:13:19,900

We're gonna have a suit controller like this.

246

00:13:19,900 --> 00:13:21,900

About the safety equivalent

247

00:13:21,900 --> 00:13:23,900

It acts as a backup pressurization system

248

00:13:23,900 --> 00:13:25,900

and emergency procedures.

249

00:13:25,900 --> 00:13:27,900

We're gonna teach you how to parachute

250

00:13:27,900 --> 00:13:29,900

safely to the ground.

251

00:13:29,900 --> 00:13:31,900

These are no minute-long demonstrations

252

00:13:31,900 --> 00:13:33,900

from a flight attendant.

253

00:13:33,900 --> 00:13:35,900

Primarily it's to prevent decompression sickness.

254

00:13:35,900 --> 00:13:37,900

And a clear indication

255

00:13:37,900 --> 00:13:39,900

of the enormity of the endeavor.

256

00:13:39,900 --> 00:13:41,900

If you lose cabin pressure

257

00:13:42,000 --> 00:13:44,000

If you are in contests, there are inflators inside.

258

00:13:44,000 --> 00:13:46,000

During this time your visor is gonna

259

00:13:46,000 --> 00:13:48,000

freeze over, you will not be able to see.

260

00:13:48,000 --> 00:13:50,000

The plate so if you have to cut yourself down from something

261

00:13:50,000 --> 00:13:52,000

Now we're nowhere near getting into

262

00:13:52,000 --> 00:13:54,000

one of these planes yet, but

263

00:13:54,000 --> 00:13:56,000

already we've got all this stuff that we have to

264

00:13:56,000 --> 00:13:58,000

know how to deal with.

265

00:13:58,000 --> 00:14:00,000

The good news is you have an ejection seat.

266

00:14:00,000 --> 00:14:02,000

The bad news is you actually have to pull your own

267

00:14:02,000 --> 00:14:04,000

ejection handle to get out of the aircraft.

268

00:14:06,000 --> 00:14:08,000

Even something like peeing

269

00:14:08,000 --> 00:14:10,000

seems like it's kind of a

270

00:14:10,100 --> 00:14:12,100

complicated ordeal.

271

00:14:12,100 --> 00:14:14,100

Push down, lock it to the side

272

00:14:14,100 --> 00:14:16,100

and you can begin your slow, controlled

273

00:14:16,100 --> 00:14:18,100

urination.

274

00:14:18,100 --> 00:14:20,100

I don't think that I want to

275

00:14:20,100 --> 00:14:22,100

be pushing or pulling buttons without really

276

00:14:22,100 --> 00:14:24,100

knowing exactly what they do.

277

00:14:26,100 --> 00:14:28,100

So it's gonna take a little practice.

278

00:14:28,100 --> 00:14:30,100

So why all of this complex

279

00:14:30,100 --> 00:14:32,100

equipment? Why is the YouTube

280

00:14:32,100 --> 00:14:34,100

program the only program besides NASA?

281

00:14:34,100 --> 00:14:36,100

Absolutely unreal.

282

00:14:36,100 --> 00:14:38,100

And the space program that

283

00:14:38,200 --> 00:14:40,200

utilizes a full pressure suit.

284

00:14:40,200 --> 00:14:42,200

The primary purpose of wearing this

285

00:14:42,200 --> 00:14:44,200

full pressure suit is to prevent hypoxia.

286

00:14:44,200 --> 00:14:46,200

Well, one is of course

287

00:14:46,200 --> 00:14:48,200

because it flies higher than any

288

00:14:48,200 --> 00:14:50,200

other normal airplane into what they call

289

00:14:50,200 --> 00:14:52,200

the space equivalent zone above

290

00:14:52,200 --> 00:14:54,200

50,000 feet. But more primarily is what happens

291

00:14:54,200 --> 00:14:56,200

to us when we go to that height.

292

00:14:56,200 --> 00:14:58,200

Our bodies have evolved to

293

00:14:58,200 --> 00:15:00,200

process oxygen properly

294

00:15:00,200 --> 00:15:02,200

from sea level to 10,000 feet.

295

00:15:02,200 --> 00:15:04,200

How much is 8 minus 3?

296

00:15:04,200 --> 00:15:06,200

8 minus 3 is 4.

297

00:15:06,300 --> 00:15:08,300

When we go above that

298

00:15:08,300 --> 00:15:10,300

we cease being able

299

00:15:10,300 --> 00:15:12,300

to functionally take in oxygen.

300

00:15:12,300 --> 00:15:14,300

Put up the switches.

301

00:15:14,300 --> 00:15:16,300

We will die.

302

00:15:16,300 --> 00:15:18,300

Put up the switches.

303

00:15:18,300 --> 00:15:20,300

Let's go.

304

00:15:20,300 --> 00:15:22,300

Therefore, the

305

00:15:22,300 --> 00:15:24,300

suit and the cabin of the plane

306

00:15:24,300 --> 00:15:26,300

have to artificially induce

307

00:15:26,300 --> 00:15:28,300

the conditions of atmospheric pressure

308

00:15:28,300 --> 00:15:30,300

in order so that the pilots stay alive.

309

00:15:30,300 --> 00:15:32,300

That is a significant amount of

310

00:15:32,300 --> 00:15:34,300

technology to solve that one problem.

311

00:15:34,400 --> 00:15:36,400

Let's pull down on the red lanyard.

312

00:15:36,400 --> 00:15:38,400

It potentially could whack in the face.

313

00:15:38,400 --> 00:15:40,400

It releases a hook on the inside of your harness.

314

00:15:40,400 --> 00:15:42,400

After a full day of intense

315

00:15:42,400 --> 00:15:44,400

information acquisition

316

00:15:44,400 --> 00:15:46,400

day three dawns

317

00:15:46,400 --> 00:15:47,400

and our raw recruits

318

00:15:47,400 --> 00:15:49,400

time to start training

319

00:15:49,400 --> 00:15:51,400

are getting physical.

320

00:15:51,400 --> 00:15:53,400

Want to see the coolest part?

321

00:15:53,400 --> 00:15:55,400

Look at that.

322

00:15:55,400 --> 00:15:57,400

With a crash course

323

00:15:57,400 --> 00:15:59,400

in what to do if the plane crashes.

324

00:15:59,400 --> 00:16:01,400

That's three weeks of

325

00:16:01,500 --> 00:16:03,500

training right there.

326

00:16:03,500 --> 00:16:05,500

That's all you do.

327

00:16:05,500 --> 00:16:07,500

This is pretty cool.

328

00:16:07,500 --> 00:16:09,500

We've just gotten walked through

329

00:16:09,500 --> 00:16:11,500

all of the different contingencies that could happen

330

00:16:11,500 --> 00:16:13,500

if we have to bail out of

331

00:16:13,500 --> 00:16:15,500

the plane at altitude.

332

00:16:15,500 --> 00:16:17,500

This is very cool.

333

00:16:17,500 --> 00:16:19,500

What happens when the parachute lands?

334

00:16:19,500 --> 00:16:21,500

How to land?

335

00:16:21,500 --> 00:16:23,500

It's easy to land like so.

336

00:16:23,500 --> 00:16:25,500

Something's broken.

337

00:16:25,500 --> 00:16:27,500

And most specifically,

338

00:16:27,500 --> 00:16:29,500

I just learned

339

00:16:29,600 --> 00:16:31,600

how to actually lower myself

340

00:16:31,600 --> 00:16:33,600

if I end up landing in a tree

341

00:16:33,600 --> 00:16:35,600

and I'm like hanging above the ground.

342

00:16:35,600 --> 00:16:37,600

Oh!

343

00:16:37,600 --> 00:16:39,600

Ah!

344

00:16:39,600 --> 00:16:41,600

There we go.

345

00:16:41,600 --> 00:16:43,600

And then lowering myself safely down to the ground.

346

00:16:43,600 --> 00:16:45,600

Lower myself down.

347

00:16:45,600 --> 00:16:47,600

Very nice.

348

00:16:47,600 --> 00:16:49,600

All of this is stuff that I hope

349

00:16:49,600 --> 00:16:51,600

I only ever have to try

350

00:16:51,600 --> 00:16:53,600

here in the safety of this room.

351

00:16:53,600 --> 00:16:56,600

It's been a long and exhausting day.

352

00:16:56,600 --> 00:16:58,600

Bail out, bail out, bail out.

353

00:16:58,700 --> 00:17:00,700

And the sheer scale of the task,

354

00:17:00,700 --> 00:17:02,700

technology and expertise

355

00:17:02,700 --> 00:17:04,700

required to fly at the edge of space

356

00:17:04,700 --> 00:17:06,700

could not be more apparent.

357

00:17:06,700 --> 00:17:08,700

Two words come to mind

358

00:17:08,700 --> 00:17:10,700

during all this complex

359

00:17:10,700 --> 00:17:12,700

and terrifying.

360

00:17:12,700 --> 00:17:14,700

3 days of information overload.

361

00:17:14,700 --> 00:17:16,700

The ejection seat we have

362

00:17:16,700 --> 00:17:18,700

was also used in the first four flights

363

00:17:18,700 --> 00:17:20,700

of the Spatial of Columbia.

364

00:17:20,700 --> 00:17:22,700

And the rigors of the air

365

00:17:22,700 --> 00:17:24,700

were used to make the landing

366

00:17:24,700 --> 00:17:26,700

possible.

367

00:17:26,800 --> 00:17:28,800

And the rigors of flying

368

00:17:28,800 --> 00:17:30,800

the Dragon Lady are evident.

369

00:17:30,800 --> 00:17:32,800

But is it the hardest plane

370

00:17:32,800 --> 00:17:34,800

to pilot?

371

00:17:34,800 --> 00:17:36,800

To find out, the mythbusters are being

372

00:17:36,800 --> 00:17:38,800

prepped to fly to the edge of space.

373

00:17:38,800 --> 00:17:40,800

These are like my space jammies.

374

00:17:40,800 --> 00:17:42,800

And despite the high spirits

375

00:17:42,800 --> 00:17:44,800

...

376

00:17:44,800 --> 00:17:46,800

...

377

00:17:46,800 --> 00:17:48,800

...

378

00:17:48,800 --> 00:17:50,800

...

379

00:17:50,800 --> 00:17:52,800

...

380

00:17:52,800 --> 00:17:54,800

...

381

00:17:54,900 --> 00:17:56,900

Jamie and Adam have one final stage

382

00:17:56,900 --> 00:17:58,900

of training to be past as fit

383

00:17:58,900 --> 00:17:59,900

to fly

384

00:17:59,900 --> 00:18:01,900

...

385

00:18:01,900 --> 00:18:04,020

Oh, that's

386

00:18:04,020 --> 00:18:06,020

different.

387

00:18:06,020 --> 00:18:08,020

The fact that doesn't feel very good.

388

00:18:10,640 --> 00:18:12,640

Ow.

389

00:18:15,580 --> 00:18:17,480

I can see somebody

390

00:18:17,500 --> 00:18:19,420

feeling like panicking.

391

00:18:19,980 --> 00:18:21,980

It's just a lot

392

00:18:22,000 --> 00:18:24,000

of stuff to process.

393

00:18:24,000 --> 00:18:26,960

Each have a full systems check in the pressure suit,

394

00:18:26,960 --> 00:18:30,440

followed by a high altitude emergency simulation.

395

00:18:30,440 --> 00:18:32,440

Right now, Jamie is getting pitted

396

00:18:32,440 --> 00:18:36,320

into this high altitude pressure chamber.

397

00:18:36,320 --> 00:18:38,240

Right and left gloves are integrated in lock.

398

00:18:38,240 --> 00:18:40,960

It will replicate the lack of pressures

399

00:18:40,960 --> 00:18:44,000

that he might experience under different circumstances

400

00:18:44,000 --> 00:18:45,320

in that very suit.

401

00:18:45,320 --> 00:18:47,440

The environment inside the chamber

402

00:18:47,440 --> 00:18:50,280

will simulate the flight plan of a U2.

403

00:18:50,280 --> 00:18:51,400

So Jamie, what we're going to do now

404

00:18:51,400 --> 00:18:53,800

is bring the chamber up to 5,000 feet.

405

00:18:53,800 --> 00:18:56,800

Check the gears and sinuses and make sure they're clear and OK.

406

00:18:56,800 --> 00:18:59,880

If the cabin pressure of the U2 was to fail...

407

00:18:59,880 --> 00:19:02,200

How you feeling right now?

408

00:19:02,200 --> 00:19:03,600

I feel fine.

409

00:19:03,600 --> 00:19:06,240

Jamie needs to prove he can operate the suit

410

00:19:06,240 --> 00:19:08,240

and emergency systems.

411

00:19:08,240 --> 00:19:10,080

So right now, we're just doing a slowest stand-up

412

00:19:10,080 --> 00:19:12,480

to 5,400.

413

00:19:12,480 --> 00:19:14,640

As they approach cruising altitude,

414

00:19:14,640 --> 00:19:19,680

there's a startling reminder of the dangers involved.

415

00:19:19,680 --> 00:19:20,720

Oh, there we go.

416

00:19:20,720 --> 00:19:25,640

A beaker of water at body temperature begins to boil.

417

00:19:25,640 --> 00:19:27,680

If Jamie's suit were to fail,

418

00:19:27,680 --> 00:19:31,320

that's what the liquids in his body would do.

419

00:19:31,320 --> 00:19:34,040

All right, let's go ahead and try to reach that ejection handle.

420

00:19:34,040 --> 00:19:37,400

With that thought in mind and at maximum altitude,

421

00:19:37,400 --> 00:19:40,160

Jamie has a few tasks to complete.

422

00:19:40,160 --> 00:19:42,240

Down by your right buttocks there,

423

00:19:42,240 --> 00:19:43,600

that's the scramble handle.

424

00:19:43,600 --> 00:19:45,840

Pull it up towards your chin just a little bit.

425

00:19:45,840 --> 00:19:47,600

That's good.

426

00:19:47,600 --> 00:19:50,360

The final, being the suit's automated response

427

00:19:50,400 --> 00:19:52,920

to a sudden cabin pressure failure.

428

00:19:52,920 --> 00:19:56,760

Three, two, one.

429

00:19:56,760 --> 00:20:00,920

And go ahead and pull that helmet hold down.

430

00:20:00,920 --> 00:20:01,920

That was something else.

431

00:20:01,920 --> 00:20:04,440

It's kind of scary, actually.

432

00:20:04,440 --> 00:20:06,120

One.

433

00:20:06,120 --> 00:20:07,560

There's a lot of force.

434

00:20:07,560 --> 00:20:14,120

And when they decompress rapidly, it's just like, whoa.

435

00:20:14,120 --> 00:20:17,800

You're sort of feeling like popcorn.

436

00:20:17,840 --> 00:20:20,680

While Jamie clearly didn't enjoy the experience,

437

00:20:20,680 --> 00:20:22,040

he did pass muster.

438

00:20:26,040 --> 00:20:27,480

Oh, awesome.

439

00:20:27,480 --> 00:20:29,800

Q Fanboy Savage.

440

00:20:29,800 --> 00:20:32,520

Oh, the gloves.

441

00:20:32,520 --> 00:20:36,240

The coolest thing about this is I'm not just wearing a suit.

442

00:20:36,240 --> 00:20:38,400

I'm not even wearing a machine.

443

00:20:38,400 --> 00:20:40,480

Wow.

444

00:20:40,480 --> 00:20:42,080

Oh, man, that's far out.

445

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

Whoo.

446

00:20:45,080 --> 00:20:51,360

I'm wearing the apex of decades of tens of thousands of people

447

00:20:51,360 --> 00:20:55,360

problem-solving how to survive in hostile conditions.

448

00:20:55,360 --> 00:20:58,360

And I can feel that technology.

449

00:20:58,360 --> 00:21:00,360

Whoa.

450

00:21:00,360 --> 00:21:02,360

Ha, ha, ha.

451

00:21:02,360 --> 00:21:04,080

I can feel how reliable they've made

452

00:21:04,080 --> 00:21:07,080

things to touch and to understand with your hands.

453

00:21:07,080 --> 00:21:09,080

All of this born by hard experience,

454

00:21:09,080 --> 00:21:12,080

lots of people gave their lives so that this suit could

455

00:21:12,080 --> 00:21:13,080

protect these pilots.

456

00:21:13,080 --> 00:21:15,080

Are you good to go?

457

00:21:15,080 --> 00:21:17,080

I am good to go.

458

00:21:17,080 --> 00:21:21,080

Honestly, everything about this kind of astounds me

459

00:21:21,080 --> 00:21:23,080

that people do this every single day.

460

00:21:23,080 --> 00:21:26,080

Starting from the 5,000, eat it 5,000, keep from it.

461

00:21:26,080 --> 00:21:29,080

It takes a team of people to put me in this suit correctly.

462

00:21:29,080 --> 00:21:31,080

How's your comfort level?

463

00:21:31,080 --> 00:21:32,080

Well, I'm far enough to storm.

464

00:21:32,080 --> 00:21:35,080

But more than that, one tub was under the simulated

465

00:21:35,080 --> 00:21:37,080

depressurization.

466

00:21:37,080 --> 00:21:38,080

There we go.

467

00:21:38,080 --> 00:21:39,080

Wow.

468

00:21:39,080 --> 00:21:42,080

Where the suit would inflate, it gets incredibly tiring.

469

00:21:42,080 --> 00:21:45,080

Locate the ejection handle in between your legs.

470

00:21:45,080 --> 00:21:46,080

There you go.

471

00:21:46,080 --> 00:21:47,080

So your fingers around it.

472

00:21:47,080 --> 00:21:48,080

Yeah, there we go.

473

00:21:48,080 --> 00:21:49,080

OK.

474

00:21:49,080 --> 00:21:52,080

These guys have to be in incredible shape because I was

475

00:21:52,080 --> 00:21:54,080

just sitting in a chair being tested.

476

00:21:54,080 --> 00:21:57,080

These guys are actually potentially flying planes

477

00:21:57,080 --> 00:21:58,080

under these conditions.

478

00:21:58,080 --> 00:22:02,080

Three, two, one.

479

00:22:02,080 --> 00:22:04,080

Go ahead and pull that green lanyard.

480

00:22:04,080 --> 00:22:05,080

Use the mirror.

481

00:22:05,080 --> 00:22:06,080

OK.

482

00:22:06,080 --> 00:22:09,080

So our training is done and we are ready to fly.

483

00:22:09,080 --> 00:22:10,080

Excellent.

484

00:22:10,080 --> 00:22:11,080

Welcome.

485

00:22:11,080 --> 00:22:12,080

Welcome, everyone.

486

00:22:12,080 --> 00:22:15,080

Remember, we went through all of that just to be

487

00:22:15,080 --> 00:22:17,080

passengers on the U2.

488

00:22:17,080 --> 00:22:18,080

Now we've got to do two things.

489

00:22:18,080 --> 00:22:20,080

One, we've got to figure out which one of us is going to

490

00:22:20,080 --> 00:22:21,080

fly, me or Jamie.

491

00:22:21,080 --> 00:22:24,080

And two, we've got to let these professionals figure out

492

00:22:24,080 --> 00:22:26,080

the logistics of their flight plan.

493

00:22:26,080 --> 00:22:28,080

Just a little bit of waiting.

494

00:22:28,080 --> 00:22:31,080

While Adam and Jamie wait for flight clearance,

495

00:22:31,080 --> 00:22:34,080

the guys de-camp to the perfect location for

496

00:22:34,080 --> 00:22:36,080

a protected precision flying.

497

00:22:36,080 --> 00:22:38,080

We are testing the myth that multi-rotors can

498

00:22:38,080 --> 00:22:39,080

possibly be lethal.

499

00:22:39,080 --> 00:22:41,080

So this is our multi-rotor.

500

00:22:41,080 --> 00:22:43,080

This is our multi-rotor pilot, James Franklin Heineman.

501

00:22:43,080 --> 00:22:46,080

And this is our potential victim with veins filled with

502

00:22:46,080 --> 00:22:50,080

blue blood, clearly a Vulcan who we're going to steer

503

00:22:50,080 --> 00:22:51,080

this thing right into.

504

00:22:51,080 --> 00:22:52,080

You ready to fly?

505

00:22:52,080 --> 00:22:53,080

Sure.

506

00:22:56,080 --> 00:22:57,080

OK, here we go.

507

00:22:57,080 --> 00:22:58,080

All right.

508

00:23:01,080 --> 00:23:03,080

For this first test, we're going to get our little

509

00:23:03,080 --> 00:23:05,080

copter up about this high.

510

00:23:05,080 --> 00:23:07,080

I wouldn't want this thing flying at me.

511

00:23:07,080 --> 00:23:11,080

Sounds like a swarm of angry bees.

512

00:23:11,080 --> 00:23:14,080

And then drag it right into the neck of our dummy.

513

00:23:14,080 --> 00:23:17,080

And we'll see what happens at that speed with those

514

00:23:17,080 --> 00:23:18,080

propellers.

515

00:23:22,080 --> 00:23:24,080

Oh!

516

00:23:24,080 --> 00:23:26,080

That was a perfect hit.

517

00:23:26,080 --> 00:23:29,080

And it was going pretty quick.

518

00:23:29,080 --> 00:23:31,080

Oh!

519

00:23:31,080 --> 00:23:34,080

It doesn't seem to me that anything at all happened to

520

00:23:34,080 --> 00:23:35,080

the neck.

521

00:23:35,080 --> 00:23:37,080

Take a look at the high-speed footage of the multi-rotor

522

00:23:37,080 --> 00:23:38,080

hitting the neck.

523

00:23:38,080 --> 00:23:41,080

You can see the props bending right out of the way,

524

00:23:41,080 --> 00:23:45,080

even in the face of something as soft as neck flesh.

525

00:23:45,080 --> 00:23:48,080

Yeah, clearly they were designed to do that.

526

00:23:48,080 --> 00:23:52,080

Yep, the fly it out of the box quadcopter didn't make a

527

00:23:52,080 --> 00:23:53,080

dent.

528

00:23:53,080 --> 00:23:55,080

But next up, the kit model.

529

00:23:55,080 --> 00:23:56,080

Ah-ha!

530

00:23:56,080 --> 00:23:58,080

That was much scarier.

531

00:23:58,080 --> 00:24:01,080

More likely to be used for large deliveries,

532

00:24:01,080 --> 00:24:04,080

it's heavier, has more power, six rotors,

533

00:24:04,080 --> 00:24:06,080

and sturdier propellers.

534

00:24:06,080 --> 00:24:08,080

Let's see what it can do.

535

00:24:08,080 --> 00:24:10,080

Oh!

536

00:24:10,080 --> 00:24:12,080

Oh, that's no good.

537

00:24:12,080 --> 00:24:14,080

Take two.

538

00:24:14,080 --> 00:24:16,080

It's going right for me.

539

00:24:16,080 --> 00:24:17,080

Oh!

540

00:24:17,080 --> 00:24:18,080

Oh!

541

00:24:18,080 --> 00:24:19,080

Oh!

542

00:24:19,080 --> 00:24:20,080

Oh!

543

00:24:20,080 --> 00:24:21,080

Oh!

544

00:24:21,080 --> 00:24:22,080

Oh!

545

00:24:22,080 --> 00:24:23,080

Ha-ha-ha!

546

00:24:23,080 --> 00:24:25,080

Sorry about that.

547

00:24:25,080 --> 00:24:28,080

I'd rather not experiment on each other.

548

00:24:28,080 --> 00:24:32,080

The larger model is proving trickier to handle.

549

00:24:32,080 --> 00:24:33,080

Aww!

550

00:24:33,080 --> 00:24:37,080

But eventually, Jamie gets it going where he wants it.

551

00:24:37,080 --> 00:24:39,080

Yeah, yeah, yeah, yeah, yeah, yeah!

552

00:24:39,080 --> 00:24:40,080

Ah!

553

00:24:40,080 --> 00:24:41,080

Nice!

554

00:24:41,080 --> 00:24:45,080

Well, bigger multi-rotor, bigger propellers,

555

00:24:45,080 --> 00:24:49,080

nice fat hit right here in the main.

556

00:24:49,080 --> 00:24:50,080

Nothing.

557

00:24:50,080 --> 00:24:52,080

No penetration.

558

00:24:53,080 --> 00:24:56,080

I just say that, aside from being amazing pieces of technology,

559

00:24:56,080 --> 00:24:59,080

these multi-rotors are genuinely spooky to be around.

560

00:24:59,080 --> 00:25:01,080

One, they sound like a hive of angry bees.

561

00:25:01,080 --> 00:25:02,080

Oh!

562

00:25:02,080 --> 00:25:06,080

Two, I am genuinely physically afraid of them hitting me,

563

00:25:06,080 --> 00:25:09,080

but apparently that fear is without any reason,

564

00:25:09,080 --> 00:25:11,080

because we've been smacking them into our neck

565

00:25:11,080 --> 00:25:13,080

without any injury whatsoever.

566

00:25:13,080 --> 00:25:15,080

So where does that lead us?

567

00:25:15,080 --> 00:25:17,080

Come on, with the mythbusters.

568

00:25:17,080 --> 00:25:20,080

We're going to sling our camera platform into it.

569

00:25:20,080 --> 00:25:24,080

This has eight rotors, weighs 16 pounds,

570

00:25:24,080 --> 00:25:27,080

and the propellers are not made of plastic

571

00:25:27,080 --> 00:25:28,080

that bends out of the way.

572

00:25:28,080 --> 00:25:31,080

No, they're made of carbon fiber.

573

00:25:31,080 --> 00:25:36,080

I'm genuinely scared about what this is going to do to this neck.

574

00:25:36,080 --> 00:25:38,080

Scared and hopeful.

575

00:25:50,080 --> 00:25:55,080

But the team is dumping the two realistic mid-range models

576

00:25:55,080 --> 00:25:59,080

and going for broke with the mythbusters' own

577

00:25:59,080 --> 00:26:02,080

custom-made camera-carrying behemoth.

578

00:26:02,080 --> 00:26:05,080

I thought the other two multi-rotors were scary.

579

00:26:05,080 --> 00:26:08,080

Cue the team's expert pilot, Duncan,

580

00:26:08,080 --> 00:26:12,080

and this myth's final chance for Gory Glory.

581

00:26:12,080 --> 00:26:13,080

I was wrong.

582

00:26:13,080 --> 00:26:15,080

That thing is terrifying.

583

00:26:15,080 --> 00:26:17,080

This large multi-rotor is a different beast

584

00:26:17,080 --> 00:26:19,080

than what we've been handling earlier.

585

00:26:19,080 --> 00:26:21,080

All right, shall we do this?

586

00:26:21,080 --> 00:26:22,080

You ready?

587

00:26:22,080 --> 00:26:23,080

Ready.

588

00:26:23,080 --> 00:26:25,080

It's much bigger and heavier.

589

00:26:25,080 --> 00:26:28,080

Once it starts to move into the neck,

590

00:26:28,080 --> 00:26:32,080

it doesn't want to just bounce off because it's so heavy.

591

00:26:32,080 --> 00:26:36,080

So I think this is going to actually do something to our neck,

592

00:26:36,080 --> 00:26:38,080

something bad.

593

00:26:38,080 --> 00:26:39,080

Bad.

594

00:26:48,080 --> 00:26:50,080

Look at that!

595

00:26:50,080 --> 00:26:51,080

It's bleeding.

596

00:26:51,080 --> 00:26:53,080

That's bad!

597

00:26:53,080 --> 00:26:55,080

Dude!

598

00:27:03,080 --> 00:27:05,080

There you have it, kids.

599

00:27:05,080 --> 00:27:09,080

It's all fun and games until someone loses an eye or a vein.

600

00:27:14,080 --> 00:27:16,080

You put your finger there, you'll be fine.

601

00:27:16,080 --> 00:27:18,080

I'm not sure.

602

00:27:20,080 --> 00:27:22,080

So what have we proven after all this mayhem?

603

00:27:22,080 --> 00:27:24,080

I think we've actually proven two different things.

604

00:27:24,080 --> 00:27:27,080

On one hand, the smaller multi-rotors you can buy at the store

605

00:27:27,080 --> 00:27:30,080

are pretty darn safe and they're designed to be that way.

606

00:27:30,080 --> 00:27:32,080

But this is a new hobby,

607

00:27:32,080 --> 00:27:35,080

and there are lots of people building larger and larger multi-rotors

608

00:27:35,080 --> 00:27:37,080

to handle bigger and bigger payloads.

609

00:27:37,080 --> 00:27:39,080

And when those multi-rotors get bigger,

610

00:27:39,080 --> 00:27:42,080

the dangers they present are absolutely real.

611

00:27:42,080 --> 00:27:44,080

I know we've been looking at a worst-case scenario,

612

00:27:44,080 --> 00:27:46,080

but I think we've got to call this thing plausible.

613

00:27:46,080 --> 00:27:47,080

You agree?

614

00:27:47,080 --> 00:27:48,080

I agree.

615

00:27:48,080 --> 00:27:50,080

You know, as a general rule,

616

00:27:50,080 --> 00:27:54,080

I always try not to put my neck near large, heavy, fast-moving objects

617

00:27:54,080 --> 00:27:56,080

with spinning blades on them.

618

00:27:56,080 --> 00:27:58,080

I think that's a good general rule.

619

00:27:58,080 --> 00:28:00,080

Let's get out of here.

620

00:28:02,080 --> 00:28:04,080

Let's go.

621

00:28:12,080 --> 00:28:15,080

Back at Beale, the guys are ready to carry out the final test

622

00:28:15,080 --> 00:28:18,080

on the mythically difficult to fly U2.

623

00:28:21,080 --> 00:28:23,080

But only one of them gets to go.

624

00:28:23,080 --> 00:28:27,080

Well, you know, for crying out loud,

625

00:28:27,080 --> 00:28:29,080

you're a fanatic about this stuff.

626

00:28:29,080 --> 00:28:31,080

You collect these things.

627

00:28:31,080 --> 00:28:32,080

Yeah, I do.

628

00:28:32,080 --> 00:28:36,080

So I can't in good conscience deny you the pleasure

629

00:28:36,080 --> 00:28:38,080

of doing something like that.

630

00:28:38,080 --> 00:28:40,080

I really appreciate that, sir.

631

00:28:40,080 --> 00:28:41,080

Thank you very much.

632

00:28:41,080 --> 00:28:42,080

You owe me one.

633

00:28:42,080 --> 00:28:43,080

Oh, I totally owe you one.

634

00:28:43,080 --> 00:28:45,080

Absolutely.

635

00:28:45,080 --> 00:28:47,080

Yeah!

636

00:28:47,080 --> 00:28:50,080

Jamie, the gentleman steps down.

637

00:28:50,080 --> 00:28:53,080

A very happy Adam steps up.

638

00:28:53,080 --> 00:28:54,080

I'm pretty excited.

639

00:28:54,080 --> 00:28:56,080

Can you tell?

640

00:28:56,080 --> 00:29:00,080

For the defining, not quite hands-on test.

641

00:29:00,080 --> 00:29:03,080

Now it's go time to figure out just how hard this plane will be to fly.

642

00:29:03,080 --> 00:29:04,080

I won't be flying it.

643

00:29:04,080 --> 00:29:05,080

No, no, no.

644

00:29:05,080 --> 00:29:07,080

I'll just be helping to assess that.

645

00:29:25,080 --> 00:29:28,080

It is an unbelievable day here in Northern California.

646

00:29:28,080 --> 00:29:30,080

There is barely a cloud in the sky.

647

00:29:30,080 --> 00:29:32,080

It's incredibly clear.

648

00:29:32,080 --> 00:29:35,080

It is a perfect day for flying.

649

00:29:59,080 --> 00:30:02,080

So Adam, you can hear the engine starting to spool up.

650

00:30:02,080 --> 00:30:03,080

Oh, yeah.

651

00:30:03,080 --> 00:30:05,080

Once that's happened and we have sufficient RPM,

652

00:30:05,080 --> 00:30:08,080

I'll add a little bit of jet fuel here.

653

00:30:10,080 --> 00:30:13,080

Okay, here we go, folks.

654

00:30:13,080 --> 00:30:16,080

Adam's got to be freaking out about now.

655

00:30:16,080 --> 00:30:19,080

I'm not sure if it's going to be a good start for anything.

656

00:30:24,080 --> 00:30:27,080

At this point, you need to make sure that the boost lever is aft

657

00:30:27,080 --> 00:30:31,080

and your T-block there under your left rib cage is one notch open.

658

00:30:31,080 --> 00:30:35,080

Yes, it is currently one notch open.

659

00:30:35,080 --> 00:30:38,080

The boost lever is still aft.

660

00:30:38,080 --> 00:30:40,080

I'll tell you one thing.

661

00:30:40,080 --> 00:30:43,080

This plane is such a unique and problematic thing to fly

662

00:30:43,080 --> 00:30:48,080

that it requires a lot of people to make sure it's all perfect before it takes off.

663

00:30:48,080 --> 00:30:50,080

Alright, the Bogo crew has pulled the pin,

664

00:30:50,080 --> 00:30:52,080

so the Bogos will fall away as we take off.

665

00:30:52,080 --> 00:30:55,080

We're flying Q5, you know, like you're clear flying.

666

00:30:55,080 --> 00:30:57,080

All the checklists have been checked.

667

00:30:57,080 --> 00:31:00,080

We are just seconds away from taking off.

668

00:31:03,080 --> 00:31:04,080

Alright, here we go.

669

00:31:04,080 --> 00:31:06,080

Brake release, full power.

670

00:31:07,080 --> 00:31:09,080

Here we go.

671

00:31:09,080 --> 00:31:12,080

Here we go. We are taking off.

672

00:31:12,080 --> 00:31:16,080

Oh man, that is a lot of horsepower.

673

00:31:16,080 --> 00:31:19,080

That's a... wow, we're already lifting.

674

00:31:19,080 --> 00:31:21,080

That's crazy!

675

00:31:21,080 --> 00:31:23,080

Wow!

676

00:31:25,080 --> 00:31:27,080

Man, that's deep.

677

00:31:27,080 --> 00:31:28,080

Wow!

678

00:31:28,080 --> 00:31:30,080

We are already lifting.

679

00:31:30,080 --> 00:31:32,080

We're back yard to the right.

680

00:31:33,080 --> 00:31:39,080

This is part of a takeoff that keeps the U2 above the base.

681

00:31:39,080 --> 00:31:42,080

We're sort of spiraling straight up.

682

00:31:47,080 --> 00:31:49,080

Holy cow!

683

00:31:51,080 --> 00:31:53,080

That was so fast!

684

00:32:01,080 --> 00:32:06,080

We're turning on a dime as we spiral up into the air,

685

00:32:06,080 --> 00:32:08,080

climbing very rapidly.

686

00:32:10,080 --> 00:32:14,080

After a tricky takeoff and rapid initial ascent,

687

00:32:14,080 --> 00:32:17,080

Oh my God, the view is beautiful.

688

00:32:17,080 --> 00:32:22,080

Major Bartholomew and Adam get a chance to sit back and relax.

689

00:32:22,080 --> 00:32:25,080

Right now we just passed the top of Monteverst.

690

00:32:25,080 --> 00:32:28,080

until they attain cruising altitude.

691

00:32:28,080 --> 00:32:30,080

We're transitioning now from 160 knots,

692

00:32:30,080 --> 00:32:34,080

climb to a .715 mark cruise.

693

00:32:34,080 --> 00:32:37,080

Three quarters of speed of sound.

694

00:32:40,080 --> 00:32:44,080

This is officially the highest off the ground I have ever been.

695

00:32:44,080 --> 00:32:51,080

We're coming up on 60,000 feet, 12 miles above the surface of the Earth.

696

00:32:51,080 --> 00:32:55,080

The sky has gotten to be a very, very dark blue.

697

00:32:55,080 --> 00:32:58,080

What an unbelievably beautiful day.

698

00:33:00,080 --> 00:33:05,080

And from this light, 67,500 feet,

699

00:33:05,080 --> 00:33:10,080

the edge of our planet has a definitive curve to it.

700

00:33:10,080 --> 00:33:15,080

It is more three-dimensional than I have ever seen it.

701

00:33:17,080 --> 00:33:19,080

There we are.

702

00:33:19,080 --> 00:33:22,080

It is in gentlemen 70,000 feet.

703

00:33:26,080 --> 00:33:30,080

At this point, aside from the six astronauts on the space station,

704

00:33:30,080 --> 00:33:34,080

we are the two highest humans off of planet Earth.

705

00:33:35,080 --> 00:33:40,080

More than double the height of a standard commercial airliner.

706

00:33:43,080 --> 00:33:46,080

Oh, and did I mention I'm wearing a pressurized space suit?

707

00:33:46,080 --> 00:33:49,080

Yeah, strapped to a rocket.

708

00:33:49,080 --> 00:33:52,080

This is not a bad way to spend your day.

709

00:33:56,080 --> 00:33:59,080

Jamie, I totally owe you one.

710

00:34:00,080 --> 00:34:06,080

The complex, exhaustive preparations and taxing takeoff seem a world away.

711

00:34:06,080 --> 00:34:12,080

Oh, look at that. Wow. That is San Francisco. That's my home.

712

00:34:12,080 --> 00:34:15,080

But this is exactly what the U-2 is designed to do.

713

00:34:15,080 --> 00:34:20,080

Spend hours up here looking down, gathering intelligence.

714

00:34:20,080 --> 00:34:25,080

The view from a commercial airliner is beautiful. This one is transcendent.

715

00:34:25,080 --> 00:34:30,080

It's the maneuvers at either end of proceedings where the pilots are in the big bucks.

716

00:34:30,080 --> 00:34:33,080

The challenges in landing this plane are unique.

717

00:34:33,080 --> 00:34:37,080

And Adam is about to get a real close look.

718

00:34:38,080 --> 00:34:41,080

We'll be back with our landing after this commercial break.

719

00:34:45,080 --> 00:34:48,080

Hey, Space Boy, how are you doing up there?

720

00:34:48,080 --> 00:34:52,080

I'm doing pretty good, Jamie. The view up here is absolutely astonishing.

721

00:34:52,080 --> 00:34:59,080

Looking up makes you realize that you've left the bulk of the Earth's atmosphere.

722

00:34:59,080 --> 00:35:01,080

That's why it's dark.

723

00:35:01,080 --> 00:35:08,080

You're looking down at this fragile mist that surrounds our globe that allows us to breathe.

724

00:35:08,080 --> 00:35:17,080

What allows me to do so is the ingenuity of thousands and thousands of hard-working men and women

725

00:35:17,080 --> 00:35:24,080

who have sought to harness the raw materials that we dig out of the ground

726

00:35:24,080 --> 00:35:28,080

into things as astonishing as airplanes and pressure suits.

727

00:35:30,080 --> 00:35:32,080

A privilege.

728

00:35:38,080 --> 00:35:41,080

Oh, man. That is a lot of horsepower.

729

00:35:41,080 --> 00:35:46,080

Wow, we're already lifting. That's crazy!

730

00:35:46,080 --> 00:35:48,080

Whoa! Wow!

731

00:35:52,080 --> 00:35:54,080

Oh, my God, the view is beautiful.

732

00:36:01,080 --> 00:36:03,080

Wow, look at that.

733

00:36:04,080 --> 00:36:10,080

There's no doubt the high-altitude U-2 is a beautiful piece of aviation technology.

734

00:36:12,080 --> 00:36:14,080

Captinated apple pie.

735

00:36:14,080 --> 00:36:15,080

Yeah.

736

00:36:15,080 --> 00:36:18,080

But the question yet to be answered is, oh, that's delicious.

737

00:36:18,080 --> 00:36:21,080

Is it the most difficult to fly and land?

738

00:36:21,080 --> 00:36:27,080

These guys fly these planes upwards of 12 to 14 hours at a time.

739

00:36:27,080 --> 00:36:28,080

Hmm.

740

00:36:28,080 --> 00:36:30,080

Yep, and after such mammoth flight times,

741

00:36:30,080 --> 00:36:36,080

you must have some butt-shimming exercises you do to keep yourself from going non-during long flights.

742

00:36:36,080 --> 00:36:39,080

I call it building your ass callus.

743

00:36:40,080 --> 00:36:42,080

Comes the landing.

744

00:36:42,080 --> 00:36:43,080

Ready.

745

00:36:43,080 --> 00:36:45,080

We're ready to begin the descent.

746

00:36:46,080 --> 00:36:49,080

This is where the rubber meets the runway.

747

00:36:49,080 --> 00:36:52,080

You start by dropping the gear so you'll feel a little bit of clunk.

748

00:36:52,080 --> 00:36:57,080

And perhaps the biggest challenge facing any pilot anywhere.

749

00:36:57,080 --> 00:36:58,080

Two gear down and locked.

750

00:36:58,080 --> 00:36:59,080

Now I'm going to bring the throttle back.

751

00:36:59,080 --> 00:37:05,080

The Dragon Lady lands tail wheel first at a speed that practically stalls the wing.

752

00:37:05,080 --> 00:37:10,080

And with only two sets of landing gear in the center of the fuselage,

753

00:37:10,080 --> 00:37:12,080

it's like landing a bicycle.

754

00:37:12,080 --> 00:37:18,080

The pilot has lowered the landing gear and implemented several procedures to add drag

755

00:37:18,080 --> 00:37:23,080

so that it's moving slow enough when we get to the runway that we can actually land.

756

00:37:23,080 --> 00:37:24,080

That's not all.

757

00:37:24,080 --> 00:37:26,080

There's the ground effect.

758

00:37:26,080 --> 00:37:30,080

The U2's high-aspect ratio wings and commensurate uplift

759

00:37:30,080 --> 00:37:37,080

means that on final approach, it tends to float, requiring incredible skill to control.

760

00:37:37,080 --> 00:37:40,080

There's also the issue of runway visibility.

761

00:37:40,080 --> 00:37:44,080

This is the chase car and it's being driven by an actual U2 pilot.

762

00:37:44,080 --> 00:37:48,080

Because the pilot in the plane has such limited visibility

763

00:37:48,080 --> 00:37:52,080

that he can't even see the runway when he's down close to it.

764

00:37:54,080 --> 00:37:58,080

This pilot is going to be talking him down with foot-by-foot instructions

765

00:37:58,080 --> 00:38:02,080

so that he can respond appropriately at the right time.

766

00:38:03,080 --> 00:38:08,080

Here we are at our threshold speed, being under 2,300, down to 2,000.

767

00:38:08,080 --> 00:38:09,080

And now this is the fun part.

768

00:38:09,080 --> 00:38:12,080

This is the part where I earn the big U2 pilot bonus money.

769

00:38:21,080 --> 00:38:24,080

Alright, so we have one guy rolling out on final ahead of us.

770

00:38:26,080 --> 00:38:27,080

Yee-haw!

771

00:38:27,080 --> 00:38:31,080

We are gear down, flaps full, speed breaks out, stalls fixed to flight,

772

00:38:31,080 --> 00:38:34,080

lights on and spoilers in the landing position.

773

00:38:35,080 --> 00:38:37,080

Configured and ready for landing.

774

00:38:41,080 --> 00:38:43,080

40 to T.

775

00:38:44,080 --> 00:38:46,080

Look at that.

776

00:38:47,080 --> 00:38:59,080

15, 12, 10, 8, 7, 6, 5, 4, 3, let it down a little at 4, 3, 2, hold at 1, inches.

777

00:39:01,080 --> 00:39:03,080

Ha ha ha ha!

778

00:39:07,080 --> 00:39:08,080

Wow.

779

00:39:08,080 --> 00:39:09,080

Very nice.

780

00:39:09,080 --> 00:39:10,080

Welcome back, gentlemen.

781

00:39:11,080 --> 00:39:15,080

He's required by tradition to say very nice whether it is or not.

782

00:39:15,080 --> 00:39:16,080

Oh, okay.

783

00:39:17,080 --> 00:39:18,080

It's been a lot of fun.

784

00:39:18,080 --> 00:39:19,080

Thanks, Adam.

785

00:39:20,080 --> 00:39:22,080

Now there's our big old reception committee.

786

00:39:23,080 --> 00:39:25,080

Alright, try it a lot.

787

00:39:25,080 --> 00:39:27,080

Alright, editors, if you could give us a little montage

788

00:39:27,080 --> 00:39:31,080

of some of the astonishing things we've gotten to do in the course of doing Mythbusters.

789

00:39:32,080 --> 00:39:33,080

Welcome back.

790

00:39:33,080 --> 00:39:36,080

I'm thinking flying a rocket car across the desert.

791

00:39:38,080 --> 00:39:42,080

Watching a rocket sled accelerate to the speed of sound and hit the immovable wall.

792

00:39:44,080 --> 00:39:45,080

That was awesome!

793

00:39:47,080 --> 00:39:51,080

Sliding down a 200 foot water slide 70 feet through the air into a target.

794

00:39:53,080 --> 00:39:54,080

Ah, yeah!

795

00:39:57,080 --> 00:40:00,080

This tops all of those by a factor of two.

796

00:40:02,080 --> 00:40:04,080

That was unbelievable.

797

00:40:05,080 --> 00:40:06,080

Unrepeatable.

798

00:40:07,080 --> 00:40:08,080

Incredible.

799

00:40:09,080 --> 00:40:10,080

I'm out of superlatives.

800

00:40:11,080 --> 00:40:22,080

I have just spent the last two hours strapped to a rocket, wearing a space suit, flying to the edge of our Earth's atmosphere and seeing my hometown from a vantage point.

801

00:40:22,080 --> 00:40:24,080

Wow, it's a great view of the bridge.

802

00:40:24,080 --> 00:40:26,080

It is an incredible view.

803

00:40:26,080 --> 00:40:29,080

That was completely unique.

804

00:40:30,080 --> 00:40:33,080

So Adam, how do you figure we're going to call this?

805

00:40:33,080 --> 00:40:39,080

Because, I mean, this is supposed to be the most difficult plane to fly, but we haven't looked at any other planes.

806

00:40:40,080 --> 00:40:41,080

Okay, but we did learn this.

807

00:40:41,080 --> 00:40:46,080

It is a completely unique airframe, purpose built for a completely unique mission.

808

00:40:47,080 --> 00:40:53,080

It requires a more numerous flight crew and a more exhaustive set of protocols than any other plane in the military.

809

00:40:53,080 --> 00:40:58,080

And it is the only airborne endeavor besides going to space that requires the wearing of the space suit.

810

00:40:59,080 --> 00:41:01,080

This is not a bad way to spend your day.

811

00:41:01,080 --> 00:41:04,080

I think that places it in the plausible category.

812

00:41:05,080 --> 00:41:06,080

Okay.

813

00:41:06,080 --> 00:41:09,080

Alright, I think it also places it in the ultra cool category.

814

00:41:09,080 --> 00:41:10,080

Absolutely.

815

00:41:10,080 --> 00:41:11,080

Let's get out of here.

816

00:41:16,080 --> 00:41:19,080

So Adam, do you know why she's called the Dragon Lady?

817

00:41:19,080 --> 00:41:20,080

No, I don't.

818

00:41:20,080 --> 00:41:24,080

Because you don't know whether she's going to land like a dragon or a lady.