

1

00:00:00,000 --> 00:00:02,940

Remember, don't try this at home.

2

00:00:02,940 --> 00:00:05,740

We've got years of experience that keeps us safe.

3

00:00:05,740 --> 00:00:11,680

On this episode of Mythbusters...

4

00:00:11,680 --> 00:00:16,340

In every generation, a myth comes along that does not thrill us.

5

00:00:16,340 --> 00:00:20,020

Adam and Jamie get wrapped up in their biggest build yet.

6

00:00:20,020 --> 00:00:24,980

I don't often say this, but it's looking to be nigh impossible to pull this off.

7

00:00:24,980 --> 00:00:29,980

As they find out that making a flying raft is not all plane sailing...

8

00:00:31,980 --> 00:00:33,480

And speaking of planes...

9

00:00:33,480 --> 00:00:36,980

Do cell phones, cog airplanes to crash.

10

00:00:36,980 --> 00:00:41,980

Carri-Torre and Grant tackle a traveler's tale with a familiar ring.

11

00:00:41,980 --> 00:00:42,980

Needles all over the place.

12

00:00:42,980 --> 00:00:45,980

And three, two, one...

13

00:00:48,480 --> 00:00:50,980

Who are the Mythbusters?

14

00:00:50,980 --> 00:00:51,980

Adam Soutage.

15

00:00:52,980 --> 00:00:55,980

And Jamie Heinemann.

16

00:00:55,980 --> 00:00:56,980

This is gonna kill you.

17

00:00:58,980 --> 00:01:01,980

Between them over 30 years special effects experience.

18

00:01:01,980 --> 00:01:03,980

That's what I'm talking about!

19

00:01:03,980 --> 00:01:05,980

Joining them, Tori Balechi.

20

00:01:05,980 --> 00:01:07,980

Very excited about this.

21

00:01:07,980 --> 00:01:08,980

Cari Byron.

22

00:01:08,980 --> 00:01:10,980

Look, he cracked into his skull.

23

00:01:10,980 --> 00:01:11,980

And Grant Imahara.

24

00:01:11,980 --> 00:01:13,980

Don't say anything.

25

00:01:13,980 --> 00:01:15,980

They don't just tell the Myths.

26

00:01:17,980 --> 00:01:19,980

They put them to the test.

27

00:01:22,980 --> 00:01:28,980

Take one large deserted aircraft hangar.

28

00:01:28,980 --> 00:01:31,980

Add a ridiculous amount of plastic.

29

00:01:31,980 --> 00:01:35,980

And one Mythbuster, trust up like a Christmas turkey.

30

00:01:35,980 --> 00:01:40,980

This wins as the strangest position I've ever been in on the show.

31

00:01:40,980 --> 00:01:43,980

Don't you love how he qualifies it with on this show?

32

00:01:43,980 --> 00:01:47,980

Either the Mythbusters are branching out into performance art,

33

00:01:47,980 --> 00:01:49,980

or something's gone very wrong.

34

00:01:52,980 --> 00:01:55,980

Adam, what myth do we have this time?

35

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

Well, this one is pretty darn simple.

36

00:01:57,980 --> 00:01:59,980

It comes right off the Mythbuster fan site.

37

00:01:59,980 --> 00:02:02,980

And it is simply that if you fill a raft with helium,

38

00:02:02,980 --> 00:02:04,980

that you could actually fly on that raft.

39

00:02:04,980 --> 00:02:06,980

Whoa, whoa, whoa, hold it right there.

40

00:02:06,980 --> 00:02:08,980

What did you say?

41

00:02:08,980 --> 00:02:10,980

That if you fill a raft with helium,

42

00:02:10,980 --> 00:02:12,980

that you could actually fly on that raft.

43

00:02:12,980 --> 00:02:14,980

Hmm, that's what I thought you said.

44

00:02:14,980 --> 00:02:15,980

Hmm.

45

00:02:15,980 --> 00:02:18,980

Well, on the face of it, I'm not so sure about this one,

46

00:02:18,980 --> 00:02:20,980

but there's only one way to find out.

47

00:02:20,980 --> 00:02:22,980

So what is the plan?

48

00:02:22,980 --> 00:02:24,980

Well, I figure we should start small.

49

00:02:24,980 --> 00:02:26,980

We've got a little inflatable dinghy.

50

00:02:26,980 --> 00:02:28,980

Maybe we can fill that up with helium and see what happens.

51

00:02:28,980 --> 00:02:32,980

As we know, helium holds a special place in a Mythbuster's heart.

52

00:02:32,980 --> 00:02:34,980

It helped Adam hover.

53

00:02:34,980 --> 00:02:38,980

Uh, I'd rather just stay under 100 feet. Thank you, over.

54

00:02:38,980 --> 00:02:40,980

And it came wrapped in pigskin

55

00:02:40,980 --> 00:02:43,980

when the guys took a punt on a helium football.

56

00:02:45,980 --> 00:02:49,980

But now they'll use helium to try and make one of their inflatables fly.

57

00:02:49,980 --> 00:02:52,980

And if that doesn't work, this being Mythbusters,

58

00:02:52,980 --> 00:02:56,980

they'll build their own helium-filled flying machine.

59

00:02:58,980 --> 00:02:59,980

Deflation.

60

00:03:00,980 --> 00:03:05,980

And the initial inflatable they're going to try is the Mythbuster's dinghy.

61

00:03:05,980 --> 00:03:10,980

Before any helium hovering happens, the deflated dinghy is first wave.

62

00:03:10,980 --> 00:03:12,980

Take it on up.

63

00:03:13,980 --> 00:03:17,980

Okay, exactly 72. That's what the scale looks like to me.

64

00:03:17,980 --> 00:03:19,980

Then it's filled with air.

65

00:03:19,980 --> 00:03:21,980

Set vacuums to blow.

66

00:03:21,980 --> 00:03:22,980

I love it.

67

00:03:22,980 --> 00:03:26,980

Isn't it great how Adam finds delight in the tiniest thing?

68

00:03:27,980 --> 00:03:28,980

Look at that!

69

00:03:28,980 --> 00:03:30,980

Yeah!

70

00:03:30,980 --> 00:03:33,980

Jamie, however, is a much tougher audience.

71

00:03:36,980 --> 00:03:37,980

This is good.

72

00:03:38,980 --> 00:03:42,980

Next, they work out the volume of the inflated dinghy.

73

00:03:42,980 --> 00:03:43,980

20.5.

74

00:03:43,980 --> 00:03:47,980

Okay, so 20.5 cubic feet.

75

00:03:48,980 --> 00:03:50,980

Then they let the air out.

76

00:03:50,980 --> 00:03:51,980

Alright, here's your helium.

77

00:03:51,980 --> 00:03:52,980

And put the helium in.

78

00:03:52,980 --> 00:03:55,980

Okay, listen, just on the off chance, the very, very off chance,

79

00:03:55,980 --> 00:03:59,980

this thing becomes lighter than air, I'm going to sit in it while we fill it, okay?

80

00:03:59,980 --> 00:04:02,980

With the dinghy fit to burst with helium,

81

00:04:02,980 --> 00:04:06,980

will it turn miraculously into a magic carpet?

82

00:04:06,980 --> 00:04:10,980

I'm going to jump out, but hold onto the line in case it floats.

83

00:04:11,980 --> 00:04:13,980

Alright, here we go.

84

00:04:14,980 --> 00:04:16,980

Oh, it didn't float.

85

00:04:16,980 --> 00:04:17,980

What do you think?

86

00:04:18,980 --> 00:04:21,980

Thanks to the helium, the raft has lost some weight.

87

00:04:21,980 --> 00:04:25,980

I call that about maybe four pounds of buoyancy.

88

00:04:25,980 --> 00:04:28,980

But nowhere near enough to achieve lift off.

89

00:04:28,980 --> 00:04:34,980

Well, our inflatable life raft, it's not remotely enough volume of helium

90

00:04:34,980 --> 00:04:39,980

and it's way too heavy to get even buoyant by itself, let alone lift Jamie or I.

91

00:04:41,980 --> 00:04:45,980

Well, that didn't work very well.

92

00:04:45,980 --> 00:04:49,980

The helium only removed four pounds from its total weight.

93

00:04:49,980 --> 00:04:54,980

Yeah, no, it's obvious that if this is going to work, it has to be a raft that is much, much larger.

94

00:04:54,980 --> 00:04:58,980

It needs the volume of helium and it has to lift one of us.

95

00:04:58,980 --> 00:05:03,980

So they drag out an airline life raft to go through the whole process again.

96

00:05:03,980 --> 00:05:05,980

82 pounds, okay.

97

00:05:05,980 --> 00:05:10,980

This yellow peril is eight times the size of the original dinghy

98

00:05:10,980 --> 00:05:14,980

and filling it with helium reduces its weight by almost a quarter.

99

00:05:15,980 --> 00:05:16,980

It's 60 pounds.

100

00:05:16,980 --> 00:05:19,980

But there's still no closer to lift off.

101

00:05:19,980 --> 00:05:24,980

While the guys ponder their next move, one question needs answering pronto

102

00:05:24,980 --> 00:05:28,980

and that is, what's so special about this helium stuff anyway?

103

00:05:29,980 --> 00:05:35,980

Well, helium is the second lightest element weighing just 0.17 grams per liter.

104

00:05:35,980 --> 00:05:42,980

By contrast, nitrogen, which makes up about 80% of the air we breathe, is 10 times heavier.

105

00:05:42,980 --> 00:05:47,980

But just how much helium do you need to get your average mythbuster airborne?

106

00:05:47,980 --> 00:05:48,980

You know, I'm disappointed.

107

00:05:48,980 --> 00:05:50,980

I had higher hopes for that life raft.

108

00:05:50,980 --> 00:05:57,980

It's 25 feet in diameter and it couldn't even lift itself filled with helium, let alone one of us.

109

00:05:57,980 --> 00:06:03,980

Well, we've got one more larger thing yet to try and that's an escape slide from a commercial airliner.

110

00:06:03,980 --> 00:06:04,980

That's perfect.

111

00:06:04,980 --> 00:06:11,980

When we last saw the escape slide, it was drifting like a leaf towards Earth with Buster on board.

112

00:06:11,980 --> 00:06:12,980

Oh, look at sailing.

113

00:06:12,980 --> 00:06:13,980

Wow.

114

00:06:13,980 --> 00:06:14,980

So far.

115

00:06:15,980 --> 00:06:18,980

It was the smoothest ride he's ever had.

116

00:06:18,980 --> 00:06:19,980

Wow!

117

00:06:19,980 --> 00:06:21,980

Just me, okay.

118

00:06:21,980 --> 00:06:24,980

What we want now is the reverse journey.

119

00:06:24,980 --> 00:06:29,980

Like in the myth, we want it to rise up and fly away.

120

00:06:29,980 --> 00:06:37,980

The slide's volume measures 325 cubic feet, 15 times bigger than the dinghy.

121

00:06:37,980 --> 00:06:39,980

So, let's deflate it and fill it with...

122

00:06:39,980 --> 00:06:40,980

No, no, no.

123

00:06:40,980 --> 00:06:42,980

Let's run it up to the truck and slide down.

124

00:06:45,980 --> 00:06:46,980

Boys will be boys.

125

00:06:46,980 --> 00:06:48,980

Oh, Jamie, you're so cynical.

126

00:06:48,980 --> 00:06:53,980

Adam just wants to demonstrate correct technique when using an escape slide.

127

00:06:56,980 --> 00:06:59,980

And that definitely ain't it.

128

00:06:59,980 --> 00:07:01,980

That is too much fun.

129

00:07:01,980 --> 00:07:03,980

Right, time for answers.

130

00:07:03,980 --> 00:07:11,980

Will 325 cubic feet of helium be enough to make the slide slip its moorings and ride the thermals?

131

00:07:11,980 --> 00:07:12,980

That's good.

132

00:07:13,980 --> 00:07:20,980

I can't help but noticing that even though it's tethered off, it ain't flying.

133

00:07:23,980 --> 00:07:24,980

That's it.

134

00:07:24,980 --> 00:07:25,980

Is that it?

135

00:07:25,980 --> 00:07:26,980

Yeah.

136

00:07:26,980 --> 00:07:28,980

Well, I'm looking at 121 pounds.

137

00:07:28,980 --> 00:07:34,980

That's just about 40 pounds lighter than the dead weight, which is pretty much exactly what the math said it should be.

138

00:07:34,980 --> 00:07:37,980

I think it might be time to pull the plug.

139

00:07:38,980 --> 00:07:39,980

That's fast.

140

00:07:39,980 --> 00:07:41,980

Oh my God, there's a lot of helium in the air.

141

00:07:42,980 --> 00:07:46,980

You know, I'm starting to think that Smith is busted.

142

00:07:46,980 --> 00:07:48,980

But, you know, we can't leave it at that.

143

00:07:48,980 --> 00:07:51,980

In fact, we're just getting to the fun part right about now.

144

00:07:51,980 --> 00:08:00,980

Yeah, it's time to take the math we've gleaned from the rafts that we've filled with helium so far and calculate exactly the size of raft we need.

145

00:08:00,980 --> 00:08:03,980

That is both seaworthy and that can fly you or me.

146

00:08:03,980 --> 00:08:05,980

Yeah, one of us has to get airborne.

147

00:08:05,980 --> 00:08:09,980

Later, the helium raft starts to blow out of all proportions.

148

00:08:09,980 --> 00:08:12,980

I'm not sure what we're going to do with it when we get inside.

149

00:08:12,980 --> 00:08:16,980

And after the break, what does this button do?

150

00:08:16,980 --> 00:08:18,980

Cockpit building for beginners.

151

00:08:18,980 --> 00:08:20,980

We're getting some turbulence going down.

152

00:08:36,980 --> 00:08:39,980

Alright, Grant. Sounds like we have another cell phone myth.

153

00:08:39,980 --> 00:08:41,980

This one is a conspiracy theory.

154

00:08:41,980 --> 00:08:47,980

The reason you can't use your cell phone on an airplane is not because it'll interfere with the in-flight instruments,

155

00:08:47,980 --> 00:08:51,980

but because it forces you to use the in-flight phone in the back of your seat.

156

00:08:51,980 --> 00:08:55,980

Ah, because it's way more expensive to use their phone than your cell phone.

157

00:08:55,980 --> 00:08:58,980

That's brilliant. Sounds like we get to crash a plane.

158

00:08:58,980 --> 00:09:01,980

No, we're not going to crash a plane.

159

00:09:01,980 --> 00:09:05,980

Once upon a time, just being on an airplane was entertainment enough.

160

00:09:05,980 --> 00:09:12,980

These wide-eyed folk would never have guessed that one day, flying would become so routine,

161

00:09:12,980 --> 00:09:19,980

so downright boring, passengers would need a host of electronic gadgets to help make the time fly.

162

00:09:19,980 --> 00:09:25,980

But in the name of safety, cell phone silence must be maintained at all times.

163

00:09:25,980 --> 00:09:30,980

Is it a ruse designed to force you to fork out for the seat phone?

164

00:09:30,980 --> 00:09:34,980

Can a cell phone signal make your flight drop out of the sky?

165

00:09:36,980 --> 00:09:40,980

It seems to me that the biggest challenge you're going to face with this is not technical. It's legal.

166

00:09:40,980 --> 00:09:46,980

Yeah, actually it's illegal for us to take a working, switched-on cell phone into the air.

167

00:09:46,980 --> 00:09:51,980

However, it's not illegal for us to take a cell phone into a working cockpit and work with it on the ground,

168

00:09:51,980 --> 00:09:55,980

but that doesn't guarantee us any success of interference.

169

00:09:55,980 --> 00:10:02,980

So in typical Mythbusters fashion, we're going to make our own cockpit and control all the variables

170

00:10:02,980 --> 00:10:06,980

and then take that to an airport and see what happens to the signal.

171

00:10:06,980 --> 00:10:12,980

With a flight of fancy out of the question, Tari and Grad are going to build their very own working cockpit,

172

00:10:12,980 --> 00:10:17,980

and there's only one place a Mythbuster goes when he needs playing parts.

173

00:10:18,980 --> 00:10:24,980

Faith Aircraft in Sacramento is an Aladdin's cave of aeronautical offcuts.

174

00:10:24,980 --> 00:10:26,980

And dead planes go.

175

00:10:26,980 --> 00:10:31,980

This aircraft cache also includes a load of pre-loved avionics.

176

00:10:31,980 --> 00:10:36,980

These are exactly what the guys will need to test the cell phone Myth.

177

00:10:36,980 --> 00:10:41,980

Okay, well here's the list, and most of these instruments are communication and navigation,

178

00:10:41,980 --> 00:10:46,980

things that were identified as something that a cell phone might interfere with.

179

00:10:46,980 --> 00:10:51,980

Jairus Stabilized Magnetic Compass System, VHF Communications Transmission,

180

00:10:51,980 --> 00:10:53,980

flight receiver and VOR and local...

181

00:10:53,980 --> 00:10:57,980

Grant's got a flight deck shopping list to rival the Pentagon.

182

00:10:57,980 --> 00:10:58,980

GPS.

183

00:10:58,980 --> 00:11:03,980

But luckily, this second-hand supermarkets got the lot.

184

00:11:04,980 --> 00:11:08,980

These bits and pieces form a plane's ground-to-air communications.

185

00:11:08,980 --> 00:11:12,980

Howard and Kenny, how much is this going to run us?

186

00:11:12,980 --> 00:11:13,980

Over?

187

00:11:13,980 --> 00:11:14,980

Too much.

188

00:11:14,980 --> 00:11:16,980

Houston, we have a problem.

189

00:11:16,980 --> 00:11:18,980

A abort, abort mission.

190

00:11:18,980 --> 00:11:24,980

The high-tech avionics are really all they need to test this telephone tall tail.

191

00:11:24,980 --> 00:11:30,980

But these guys want to go that extra Mythbusters mile and find a cockpit to put them in.

192

00:11:31,980 --> 00:11:36,980

With the cockpit picked up onto the pickup, the Mythbusting can soon begin.

193

00:11:36,980 --> 00:11:40,980

But first, the boys have been digging up a bit of history.

194

00:11:41,980 --> 00:11:50,980

The airlines and the flight attendants make a really big deal of having you turn off your cell phones and your personal electronic devices.

195

00:11:50,980 --> 00:11:54,980

But have you ever heard of a case where one of those items caused a crash?

196

00:11:54,980 --> 00:11:59,980

Actually, in 2000, a plane did go down near Zurich, killing everybody aboard.

197

00:11:59,980 --> 00:12:03,980

And they think it's because one of the passengers received a text message.

198

00:12:03,980 --> 00:12:06,980

And then following that, another passenger made a cell phone call.

199

00:12:06,980 --> 00:12:14,980

And they know this because they recovered the data from the crash and they showed that the instrumentation went wrong at the time of the calls.

200

00:12:14,980 --> 00:12:21,980

To put this to the test, the team has got more instruments than a flying orchestra, but no idea how to make them work.

201

00:12:21,980 --> 00:12:22,980

Morning, I'm Grant.

202

00:12:22,980 --> 00:12:23,980

Nice to meet you, Grant.

203

00:12:23,980 --> 00:12:26,980

Q Aerospace Engineer, Jeff Guto.

204

00:12:27,980 --> 00:12:29,980

We've got a lot of work here.

205

00:12:30,980 --> 00:12:35,980

Yeah, well in typical Mythbusters fashion, we've only got one day.

206

00:12:35,980 --> 00:12:41,980

So at the end of today, we've got to have a working cockpit full of instrumentation.

207

00:12:41,980 --> 00:12:43,980

Okay, well let's start with this.

208

00:12:43,980 --> 00:12:45,980

This is the Navcom radio.

209

00:12:45,980 --> 00:12:51,980

And we're going to go from this to something where everybody's talking to each other.

210

00:12:51,980 --> 00:12:55,980

There's more wires than a NASA command post.

211

00:12:55,980 --> 00:12:59,980

It's a long, complicated, and sometimes fraught afternoon.

212

00:12:59,980 --> 00:13:05,980

But at the end of it, thanks to Jeff, Grant has become somewhat of a cell phone expert.

213

00:13:06,980 --> 00:13:10,980

So, Grant, how are these cell phones supposedly affecting the airplanes?

214

00:13:10,980 --> 00:13:11,980

Well, that's the question.

215

00:13:11,980 --> 00:13:13,980

I mean, there are two possibilities.

216

00:13:13,980 --> 00:13:20,980

First, the cell phone signal may be masking or blocking the radio signal from the airport or the radio beacons.

217

00:13:20,980 --> 00:13:27,980

And second, the cell phone may be actually affecting the navigational equipment itself directly.

218

00:13:27,980 --> 00:13:28,980

So which is more likely?

219

00:13:28,980 --> 00:13:35,980

It's hard to say definitively, but I think at this point, what we should assume is that it's masking or blocking the radio signal.

220

00:13:35,980 --> 00:13:38,980

Well, okay. I mean, that sounds like a good place to start.

221

00:13:39,980 --> 00:13:50,980

But before they can start firing up some cell phone interference, they first need to see if their second-hand setup can even detect the beacon from San Francisco Airport's navigation station.

222

00:13:51,980 --> 00:13:53,980

I don't think we're getting a good signal.

223

00:13:53,980 --> 00:13:56,980

Okay, so what do you suggest?

224

00:13:56,980 --> 00:13:58,980

Let's see if we can raise the antenna up.

225

00:13:58,980 --> 00:13:59,980

Okay.

226

00:13:59,980 --> 00:14:06,980

This extra altitude should allow their avionics to register the bleep from the airport beacon 10 miles away.

227

00:14:09,980 --> 00:14:11,980

I can see my house from here.

228

00:14:11,980 --> 00:14:13,980

Whose car is that in the driveway?

229

00:14:13,980 --> 00:14:14,980

Hey!

230

00:14:15,980 --> 00:14:17,980

We're getting a signal now.

231

00:14:18,980 --> 00:14:24,980

The signal that we're getting is the San Francisco VOR navigation station.

232

00:14:24,980 --> 00:14:28,980

So this tells us how many degrees bearing we are to the station.

233

00:14:28,980 --> 00:14:31,980

It tells the pilot where he is relative to the station.

234

00:14:31,980 --> 00:14:35,980

Thanks to Jeff, the avionics seem to be all systems go.

235

00:14:35,980 --> 00:14:40,980

How this VOR gauge response to cell phones will be crucial.

236

00:14:40,980 --> 00:14:45,980

Still to come, Grant and Tory become cell phone high flyers.

237

00:14:45,980 --> 00:14:48,980

Seems like one of these I can start dating supermodels.

238

00:14:48,980 --> 00:14:52,980

But next, Adam and Jamie have one large helium heading.

239

00:14:52,980 --> 00:14:54,980

How do you join them together?

240

00:15:04,980 --> 00:15:11,980

Adam and Jamie are testing the myth that a life raft filled with helium will carry one of them into the clouds.

241

00:15:11,980 --> 00:15:15,980

So far, their inflatables have failed miserably.

242

00:15:15,980 --> 00:15:17,980

It's not going anywhere.

243

00:15:17,980 --> 00:15:18,980

It's not going anywhere.

244

00:15:18,980 --> 00:15:23,980

So now they need to see what it will take to get this myth off the ground.

245

00:15:23,980 --> 00:15:29,980

I can't help but noticing that even though it's tethered off, it ain't flying.

246

00:15:29,980 --> 00:15:33,980

Okay, so I've run the math on the lifting power of helium.

247

00:15:33,980 --> 00:15:38,980

It takes almost 16 cubic feet of helium just to lift one pound.

248

00:15:38,980 --> 00:15:46,980

That means for you or me, 200 pounds plus a raft, let's say it weighs 100 pounds, that's 300 pounds of lift.

249

00:15:46,980 --> 00:15:50,980

We need just under 5,000 cubic feet of helium to do that.

250

00:15:50,980 --> 00:15:52,980

Jamie's considered response?

251

00:15:52,980 --> 00:15:53,980

That's huge.

252

00:15:53,980 --> 00:15:54,980

Yeah.

253

00:15:54,980 --> 00:15:55,980

Yeah.

254

00:15:55,980 --> 00:15:59,980

It's like a third the cabin size of a DC-9 airplane.

255

00:15:59,980 --> 00:16:01,980

Guys, that's nothing.

256

00:16:01,980 --> 00:16:07,980

The famous Hindenburg airship needed 7 million cubic feet of helium to stay aloft.

257

00:16:07,980 --> 00:16:13,980

But for some reason, on its fateful voyage from Germany to New York in May 1937,

258

00:16:13,980 --> 00:16:16,980

it was filled with flammable hydrogen instead.

259

00:16:16,980 --> 00:16:22,980

No one knows for sure what sparked the fire as she came in to land at Lakehurst Naval Air Station.

260

00:16:22,980 --> 00:16:30,980

But once the hydrogen started to burn, it took just seconds for history's largest airship to go up in smoke.

261

00:16:30,980 --> 00:16:33,980

All the humanity and all the fire is just beating the rocket.

262

00:16:33,980 --> 00:16:37,980

Now Adam and Jamie are going to build their own airship.

263

00:16:37,980 --> 00:16:38,980

I'll tell you what I'm thinking.

264

00:16:38,980 --> 00:16:46,980

You know that clear poly tubing that comes in like 24, 36 inch lengths that they use for porting air conditioning around on a movie set?

265

00:16:46,980 --> 00:16:47,980

Yeah, it's in a roll.

266

00:16:47,980 --> 00:16:51,980

It looks like just normal plastic, but it's actually a tube that you can inflate.

267

00:16:51,980 --> 00:16:52,980

Right.

268

00:16:52,980 --> 00:16:53,980

They make a heat sealer for that.

269

00:16:53,980 --> 00:16:57,980

And given the amount of cubic footage we need and the amount of time we've got,

270

00:16:57,980 --> 00:17:01,980

I think that if we heat sealed long pontoons and assembled them somehow,

271

00:17:01,980 --> 00:17:07,980

it's our best chance of actually getting a raft with this much lift that might actually support us.

272

00:17:07,980 --> 00:17:15,980

People were talking a raft the size of a parade float made from helium filled plastic pontoons 50 feet long.

273

00:17:15,980 --> 00:17:19,980

Actually make that two rows for structural support.

274

00:17:21,980 --> 00:17:25,980

Out in the car park, the boys put the wind up a 50 foot tube.

275

00:17:25,980 --> 00:17:28,980

When I say wind, of course I mean helium.

276

00:17:28,980 --> 00:17:33,980

And the result is possibly the world's largest double entendre.

277

00:17:33,980 --> 00:17:37,980

Okay fellas, enough schoolboy sniggering please.

278

00:17:37,980 --> 00:17:45,980

I'm actually going to hook it up to a fish scale and however many pounds it shows pulling up on the fish scale is effectively the amount of buoyancy I've got.

279

00:17:45,980 --> 00:17:52,980

The inflated tube has a two foot diameter and holds 157 cubic feet of helium.

280

00:17:52,980 --> 00:17:55,980

That adds up to five pounds of buoyancy.

281

00:17:55,980 --> 00:18:04,980

Well, that would mean in order to lift you and you or me, we'd need 40 of these things.

282

00:18:07,980 --> 00:18:10,980

Not including the tape, so probably more like 50.

283

00:18:12,980 --> 00:18:16,980

Which actually gives us, good God this is a big thing.

284

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

That's cool though.

285

00:18:19,980 --> 00:18:24,980

So big in fact that Janie's workshop won't be anywhere near large enough.

286

00:18:24,980 --> 00:18:28,980

I'm not sure what we're going to do with it when we get it inside.

287

00:18:28,980 --> 00:18:32,980

It's going to be the biggest build in Mythbusters history.

288

00:18:32,980 --> 00:18:34,980

Yeah, that's helium all right.

289

00:18:34,980 --> 00:18:41,980

I don't know to pull this off, I don't often say this but it's looking to be nigh impossible to pull this off.

290

00:18:42,980 --> 00:18:49,980

It's fraught with problems, there's a ton of variables and just an amount of material that boggles my mind.

291

00:18:50,980 --> 00:18:54,980

You think that's mind boggling? Try getting your head around the assembly.

292

00:18:54,980 --> 00:19:01,980

2,500 feet of fragile plastic tubing has to be rolled out and turned into a two tiered raft.

293

00:19:01,980 --> 00:19:05,980

The smallest leak could prove disastrous.

294

00:19:06,980 --> 00:19:08,980

The double decker raft will be woven.

295

00:19:08,980 --> 00:19:12,980

First the bottom deck, 25 pontoons will be rolled out.

296

00:19:12,980 --> 00:19:15,980

The top layer is then rolled out crosswise.

297

00:19:15,980 --> 00:19:21,980

Lines of packing tape at 10 foot intervals will stitch the pontoons together.

298

00:19:21,980 --> 00:19:23,980

Tired to get a cut and a sealant.

299

00:19:23,980 --> 00:19:26,980

Remember take it easy, no mistakes.

300

00:19:28,980 --> 00:19:32,980

There's more plastic here than a convention of Hollywood A-listers.

301

00:19:32,980 --> 00:19:38,980

But can they really turn these PVC pipes into a life raft plastic fantastic?

302

00:19:38,980 --> 00:19:41,980

Well that all depends on the leaks.

303

00:19:42,980 --> 00:19:46,980

The helium's got to get in but they don't want it getting out again.

304

00:19:46,980 --> 00:19:49,980

So each tube will need an airtight valve.

305

00:19:51,980 --> 00:19:54,980

The answer, silicon and zip ties.

306

00:19:56,980 --> 00:19:58,980

There's no water going through there.

307

00:19:58,980 --> 00:20:01,980

You got to get that caulk under pressure.

308

00:20:01,980 --> 00:20:03,980

You're right, you're absolutely right.

309

00:20:03,980 --> 00:20:07,980

So that'll keep the helium from leaking out at least long enough to get this thing working.

310

00:20:07,980 --> 00:20:10,980

Now there's some famous last words for you.

311

00:20:11,980 --> 00:20:13,980

Still to come, will it fly?

312

00:20:13,980 --> 00:20:16,980

Adam and Jamie breathe life into their biggest build.

313

00:20:16,980 --> 00:20:18,980

And we should be flying by lunchtime.

314

00:20:18,980 --> 00:20:20,980

And hold the phone.

315

00:20:20,980 --> 00:20:24,980

As a cell phone just sent Grant's virtual plane into a tailspin.

316

00:20:24,980 --> 00:20:26,980

Is our plane still flying?

317

00:20:27,980 --> 00:20:31,980

Please don't try anything that you're about to see us do at home.

318

00:20:31,980 --> 00:20:32,980

Ever.

319

00:20:56,980 --> 00:21:00,980

Ground to air communication and cause a plane malfunction.

320

00:21:01,980 --> 00:21:04,980

Grant's got a bunch of working cockpit components

321

00:21:04,980 --> 00:21:08,980

so it's time to put this conspiracy theory to the test.

322

00:21:08,980 --> 00:21:13,980

The key to busting this myth lies in the invisible realm of radio frequencies.

323

00:21:13,980 --> 00:21:17,980

And because they're invisible, they make for really bad television.

324

00:21:17,980 --> 00:21:21,980

Unless you happen to have a spectrum analyzer.

325

00:21:21,980 --> 00:21:26,980

Everything electronic to a certain extent emits radio frequency radiation.

326

00:21:26,980 --> 00:21:30,980

Be it a CD player or a personal gaming device or cell phone.

327

00:21:30,980 --> 00:21:37,980

Using this box we can tell what frequencies it's putting out and how much power that is.

328

00:21:37,980 --> 00:21:41,980

And to do that, he'll need a clean experimental space.

329

00:21:41,980 --> 00:21:44,980

A place where stray frequencies can't get in.

330

00:21:44,980 --> 00:21:47,980

And that is a pretty clean spectrum.

331

00:21:47,980 --> 00:21:49,980

I kind of think we should do our tests in here.

332

00:21:49,980 --> 00:21:56,980

For even more RF protection, he builds a Faraday cage to go inside the container.

333

00:21:56,980 --> 00:22:02,980

A Faraday cage is a box made out of brass mesh which blocks radio frequencies.

334

00:22:02,980 --> 00:22:05,980

So it should be ideal for this myth.

335

00:22:07,980 --> 00:22:13,980

Grant will use the spectrum analyzer to see how much RF a cell phone puts out.

336

00:22:13,980 --> 00:22:19,980

He's also going to test a few other devices often found in a plain seat pockets.

337

00:22:19,980 --> 00:22:23,980

A CD player, an MP3 player and a portable game.

338

00:22:23,980 --> 00:22:26,980

They barely register.

339

00:22:26,980 --> 00:22:30,980

But watch what happens when he makes a call.

340

00:22:31,980 --> 00:22:33,980

See that key?

341

00:22:33,980 --> 00:22:36,980

That is the power output of a cell phone.

342

00:22:36,980 --> 00:22:44,980

And that is something that is more likely than anything else to interfere with the aircraft electronics.

343

00:22:44,980 --> 00:22:48,980

Now with a little help from aerospace engineer Jeff Guto,

344

00:22:48,980 --> 00:22:57,980

they'll simulate communication between airport and plane using their spare parts avionics and this device, a ramp tester.

345

00:22:57,980 --> 00:23:02,980

So this one box duplicates all the signals that would be broadcast from the ground.

346

00:23:02,980 --> 00:23:04,980

That's correct.

347

00:23:04,980 --> 00:23:11,980

And they'll try to disrupt that communication by broadcasting RF from a cell phone signal generator.

348

00:23:11,980 --> 00:23:15,980

What's the difference between that and say, turning my phone on?

349

00:23:15,980 --> 00:23:18,980

Well, a huge amount of power.

350

00:23:18,980 --> 00:23:24,980

So what we're going to do is we're not going to use all of this power to simulate the cell phone.

351

00:23:24,980 --> 00:23:27,980

Just the amount that a cell phone would put out.

352

00:23:27,980 --> 00:23:33,980

But if that doesn't work, we have the extra power to say, well, what would it take to affect the instruments?

353

00:23:33,980 --> 00:23:37,980

This machine give us brain tumors 25 times faster.

354

00:23:37,980 --> 00:23:39,980

There's another myth for you to bust.

355

00:23:39,980 --> 00:23:41,980

So let's get this straight.

356

00:23:41,980 --> 00:23:44,980

Inside the Faraday cage will sit the cockpit.

357

00:23:44,980 --> 00:23:51,980

This will be receiving a signal from the ramp tester, simulating the way a plane communicates with the airport.

358

00:23:51,980 --> 00:23:59,980

Grant will blast out RF from the cell phone signal generator to see if any cockpit components go bananas.

359

00:24:00,980 --> 00:24:01,980

That's the theory.

360

00:24:01,980 --> 00:24:05,980

And with Grant boxed in, it's time to put it into practice.

361

00:24:09,980 --> 00:24:15,980

Now remember, this cage tells a pilot where he is in relation to the airport runway.

362

00:24:15,980 --> 00:24:21,980

If that needle wavers, it means our virtual aircraft could be on a crash course.

363

00:24:21,980 --> 00:24:25,980

Grant starts hitting it with simulated cell phone frequencies.

364

00:24:25,980 --> 00:24:28,980

I'll start with GSM to 1800.

365

00:24:28,980 --> 00:24:35,980

GSM is a type of digital cell phone technology used by millions of people around the world.

366

00:24:35,980 --> 00:24:40,980

The flag still says 2 and I have no needle deflection.

367

00:24:40,980 --> 00:24:41,980

No response.

368

00:24:41,980 --> 00:24:43,980

Grant ups the power.

369

00:24:43,980 --> 00:24:46,980

Ramping up the amplitude.

370

00:24:46,980 --> 00:24:48,980

Is our plane still flying?

371

00:24:48,980 --> 00:24:50,980

Still flying.

372

00:24:50,980 --> 00:24:54,980

I'm blasting it now at plus 20 dBm.

373

00:24:54,980 --> 00:24:59,980

Grant, if I were you, I'd be reaching for my tinfoil underpads about now.

374

00:24:59,980 --> 00:25:04,980

So this is 100 times stronger than the cell phone could put out.

375

00:25:04,980 --> 00:25:06,980

Okay, we're going up to a thousand times.

376

00:25:06,980 --> 00:25:08,980

We'll try it one more time.

377

00:25:10,980 --> 00:25:18,980

But watch what happens when he starts broadcasting at 800 MHz, another common cell phone frequency.

378

00:25:18,980 --> 00:25:23,980

So I am getting a big deflection here.

379

00:25:23,980 --> 00:25:26,980

I would call that a major deflection.

380

00:25:26,980 --> 00:25:31,980

He tests 850 MHz, then 900 MHz, with the same result.

381

00:25:31,980 --> 00:25:34,980

The needle swings wildly.

382

00:25:34,980 --> 00:25:41,980

As far as the myth goes that these cell phones don't affect the airplane avionics,

383

00:25:41,980 --> 00:25:44,980

I have to say I think that it's leaning towards busted.

384

00:25:44,980 --> 00:25:48,980

I think they can have an effect on that instrumentation.

385

00:25:48,980 --> 00:25:50,980

Hang on, Grant.

386

00:25:50,980 --> 00:25:53,980

We don't want to bust this myth under lab conditions.

387

00:25:53,980 --> 00:25:57,980

We still have to take this cockpit to the airport for a test flight.

388

00:26:01,980 --> 00:26:08,980

Adam and Jamie's myth stated that if you fill a regular inflatable raft with helium, it'll fly.

389

00:26:08,980 --> 00:26:10,980

Oh, it didn't fly.

390

00:26:10,980 --> 00:26:12,980

That was quickly busted.

391

00:26:12,980 --> 00:26:19,980

To get a single mythbuster airborne, it's going to take at least 5,000 cubic feet of helium.

392

00:26:19,980 --> 00:26:21,980

That is one giant raft.

393

00:26:21,980 --> 00:26:25,980

In fact, it's the biggest build in mythbusters history.

394

00:26:25,980 --> 00:26:30,980

And to put it all together, Adam and Jamie need a big space.

395

00:26:30,980 --> 00:26:34,980

Those rolls of plastic that you saw, there are 60 of them.

396

00:26:34,980 --> 00:26:37,980

And they're 60 feet long and 3 feet wide.

397

00:26:37,980 --> 00:26:41,980

We're going to lay them out here on a 60 by 75 foot square.

398

00:26:41,980 --> 00:26:50,980

And as we roll them out, we're going to stitch them together into a raft with tape, with packaging tape.

399

00:26:50,980 --> 00:26:54,980

Carry that look just about says it all.

400

00:26:54,980 --> 00:26:57,980

Every part of this raft is delicate.

401

00:26:57,980 --> 00:27:02,980

So we have to make sure the floor is totally cleared of every last bit of debris

402

00:27:02,980 --> 00:27:07,980

to make sure that there's nothing that can poke a hole in our plastic before we even get the helium in.

403

00:27:07,980 --> 00:27:13,980

With the floor polished to perfection, the rolls of plastic are laid out.

404

00:27:13,980 --> 00:27:16,980

And the first line of tape goes down.

405

00:27:16,980 --> 00:27:19,980

So it begins.

406

00:27:19,980 --> 00:27:22,980

Precision is going to be the key to this test.

407

00:27:22,980 --> 00:27:29,980

If there's any tube that's not correctly aligned or any tie left undone, the whole raft could be ruined.

408

00:27:29,980 --> 00:27:33,980

And the myth will be sunk.

409

00:27:33,980 --> 00:27:36,980

It was nerve-wracking.

410

00:27:36,980 --> 00:27:42,980

25 hundred feet of plastic, hundreds of feet of packing tape.

411

00:27:42,980 --> 00:27:49,980

Several hours and six sore knees later, the layout is finally complete.

412

00:27:49,980 --> 00:27:51,980

It's the end of day one.

413

00:27:51,980 --> 00:27:54,980

The raft, even though it doesn't look like it, is mostly built.

414

00:27:54,980 --> 00:27:56,980

It is now a raft in potentia.

415

00:27:56,980 --> 00:28:01,980

All we got to do tomorrow is come in with the helium, start filling these pontoons, manage them with the net,

416

00:28:01,980 --> 00:28:04,980

and we should be flying by lunchtime.

417

00:28:04,980 --> 00:28:09,980

I always get a kick when I am so optimistic.

418

00:28:09,980 --> 00:28:15,980

Still ahead, will Adam be able to ride high on one big flight of fancy?

419

00:28:15,980 --> 00:28:16,980

Okay.

420

00:28:16,980 --> 00:28:17,980

Whoa!

421

00:28:17,980 --> 00:28:18,980

Whoa!

422

00:28:18,980 --> 00:28:24,980

And after the break, will a cell phone send Grant crashing back to earth?

423

00:28:24,980 --> 00:28:26,980

Going on back there, G-Force.

424

00:28:26,980 --> 00:28:28,980

Needles all over the place.

425

00:28:35,980 --> 00:28:39,980

Can cell phones interfere with aircraft instruments?

426

00:28:39,980 --> 00:28:47,980

During one test, 800 megahertz, a common cell phone bandwidth, Grant's avionics went haywire.

427

00:28:47,980 --> 00:28:50,980

So now the airport beckons.

428

00:28:50,980 --> 00:28:52,980

So we did the experiments in the Faraday cage.

429

00:28:52,980 --> 00:28:55,980

The cell phone affects the avionics.

430

00:28:55,980 --> 00:28:57,980

Do we have to go to the airport? Why?

431

00:28:57,980 --> 00:28:58,980

I am.

432

00:28:58,980 --> 00:29:03,980

Our viewers are not going to be convinced unless we have the most realistic scenario we can,

433

00:29:03,980 --> 00:29:06,980

a moving platform in a real environment.

434

00:29:06,980 --> 00:29:10,980

Plus, while the ramp tester is a really good diagnostic tool for the bench,

435

00:29:10,980 --> 00:29:13,980

there are a few signals that you can only get at the airport.

436

00:29:13,980 --> 00:29:15,980

That's the theory.

437

00:29:15,980 --> 00:29:20,980

Unfortunately, they won't be able to put it into practice on a runway, but they'll get close.

438

00:29:30,980 --> 00:29:31,980

Whoa!

439

00:29:31,980 --> 00:29:33,980

This place is perfect.

440

00:29:33,980 --> 00:29:34,980

Oh, yeah!

441

00:29:34,980 --> 00:29:37,980

We've got planes coming in constantly.

442

00:29:37,980 --> 00:29:40,980

We've got a big, long parking lot we can drive around in.

443

00:29:40,980 --> 00:29:42,980

We're right on the approach pattern.

444

00:29:42,980 --> 00:29:43,980

It's perfect.

445

00:29:43,980 --> 00:29:48,980

As far as flight simulators go, this isn't what you'd call state-of-the-art.

446

00:29:48,980 --> 00:29:51,980

Top gun Grant's in the hot seat.

447

00:29:51,980 --> 00:29:54,980

As the cockpit taxis around the car park,

448

00:29:54,980 --> 00:29:58,980

receiving a real signal from the airport's navigation beacon,

449

00:29:58,980 --> 00:30:02,980

he'll blast the instruments with RF from the cell phone simulator.

450

00:30:02,980 --> 00:30:03,980

Ready!

451

00:30:05,980 --> 00:30:06,980

Chocks away.

452

00:30:06,980 --> 00:30:09,980

We're clear for takeoff.

453

00:30:09,980 --> 00:30:11,980

What's going on back there, G-Force?

454

00:30:11,980 --> 00:30:13,980

Needle's all over the place.

455

00:30:13,980 --> 00:30:15,980

Yeah, it's really hard to center.

456

00:30:15,980 --> 00:30:18,980

As we're moving around, the needle's swinging back and forth,

457

00:30:18,980 --> 00:30:21,980

and the nav flag is popping up.

458

00:30:21,980 --> 00:30:25,980

And that's before the cell phone signals have even started.

459

00:30:25,980 --> 00:30:31,980

We're going to need a pretty stable reading here in order to tell if it's the cell phone doing it, or what.

460

00:30:31,980 --> 00:30:33,980

So what's next, G-Force?

461

00:30:33,980 --> 00:30:38,980

I think we've got to try it again, but stationary this time.

462

00:30:38,980 --> 00:30:39,980

Engine off.

463

00:30:40,980 --> 00:30:42,980

See if I can get the needle centered.

464

00:30:42,980 --> 00:30:47,980

He feels the need, the need, to be very still.

465

00:30:47,980 --> 00:30:50,980

Okay, so the needle is centered and stationary.

466

00:30:50,980 --> 00:30:51,980

Whoa!

467

00:30:51,980 --> 00:30:53,980

I just lost signal.

468

00:30:53,980 --> 00:30:56,980

I lost the nav flag and the needle swung way up.

469

00:30:56,980 --> 00:30:57,980

I don't know.

470

00:30:57,980 --> 00:30:59,980

It looks okay now.

471

00:30:59,980 --> 00:31:01,980

I don't know what to make of that.

472

00:31:01,980 --> 00:31:04,980

He just can't get a stable reading.

473

00:31:04,980 --> 00:31:07,980

Just as well, the Mythbusters always plan ahead.

474

00:31:07,980 --> 00:31:14,980

This sleek bird's been waiting in the wings just in case their homemade plane crashed and burned.

475

00:31:14,980 --> 00:31:17,980

I know you guys wanted to see us in the air testing this, but we can't.

476

00:31:17,980 --> 00:31:18,980

It's illegal.

477

00:31:18,980 --> 00:31:24,980

We tried our best to be able to get a commercial airline, even a charter airline,

478

00:31:24,980 --> 00:31:27,980

even a private plane to get us up in the air with a cell phone.

479

00:31:27,980 --> 00:31:29,980

It's federal law.

480

00:31:29,980 --> 00:31:36,980

They can't run this myth in the air, but under controlled conditions, they can try a test on the tarmac.

481

00:31:38,980 --> 00:31:42,980

As soon as I get one of these, I can start dating supermodels.

482

00:31:42,980 --> 00:31:47,980

Tom Benvenuto is vice president of flight operations at Sunset Aviation.

483

00:31:47,980 --> 00:31:49,980

This one yours?

484

00:31:49,980 --> 00:31:52,980

This is ours. This is the Hawkeard 800 XP.

485

00:31:52,980 --> 00:31:55,980

2003, it's a mid-sized corporate jet.

486

00:31:55,980 --> 00:31:57,980

It sits eight people.

487

00:31:57,980 --> 00:31:59,980

You and seven of your friends.

488

00:31:59,980 --> 00:32:00,980

Supermodels.

489

00:32:00,980 --> 00:32:03,980

That's right.

490

00:32:03,980 --> 00:32:07,980

Now guys, with all due respect, this is a cockpit.

491

00:32:07,980 --> 00:32:09,980

A glass cockpit, they call it.

492

00:32:09,980 --> 00:32:13,980

Top of the line avionics, computers, LCD displays.

493

00:32:13,980 --> 00:32:16,980

Not a gauge in sight.

494

00:32:16,980 --> 00:32:21,980

All this, you know, because there's a million bazillion miles of wires flowing through this

aircraft,

495

00:32:21,980 --> 00:32:22,980

are all shielded.

496

00:32:22,980 --> 00:32:25,980

And whatever RF signal that may come in conflict with the aircraft,

497

00:32:25,980 --> 00:32:28,980

technically shouldn't affect the aircraft.

498

00:32:28,980 --> 00:32:30,980

We'll see about that, Tom.

499

00:32:31,980 --> 00:32:36,980

The size of this antenna was making the airplane guys a little nervous out there.

500

00:32:37,980 --> 00:32:40,980

Regulations might not allow the test to happen in the air,

501

00:32:40,980 --> 00:32:44,980

but ground-to-air communications begin even before takeoff.

502

00:32:44,980 --> 00:32:47,980

So the Hawker will sit on the tarmac,

503

00:32:47,980 --> 00:32:50,980

receiving a full range of radio signals,

504

00:32:50,980 --> 00:32:53,980

while Grant attempts some cell phone sabotage.

505

00:32:54,980 --> 00:32:58,980

For our test, I have several older cell phones that we're trying out.

506

00:32:58,980 --> 00:33:02,980

Some analog, I've got a PCS phone, different technologies.

507

00:33:02,980 --> 00:33:06,980

All of these are operating except for the PCS,

508

00:33:06,980 --> 00:33:09,980

with an 800 to 900 megahertz band.

509

00:33:09,980 --> 00:33:14,980

Remember, that's the bandwidth that caused problems back in the Faraday cage.

510

00:33:15,980 --> 00:33:17,980

Ready?

511

00:33:17,980 --> 00:33:19,980

Stand by.

512

00:33:22,980 --> 00:33:26,980

And three, two, one.

513

00:33:29,980 --> 00:33:31,980

And nothing's happening.

514

00:33:31,980 --> 00:33:36,980

This is a PCS phone operating at 1.85 gigahertz.

515

00:33:36,980 --> 00:33:39,980

In three, two, one.

516

00:33:40,980 --> 00:33:42,980

Nothing.

517

00:33:43,980 --> 00:33:47,980

None of the phones has any effect on ground-to-air communication.

518

00:33:49,980 --> 00:33:53,980

He tries amplifying the signals using the cell phone signal generator.

519

00:33:53,980 --> 00:33:54,980

Seeing any result?

520

00:33:54,980 --> 00:33:56,980

Nope. Nope.

521

00:33:57,980 --> 00:34:00,980

Not a flicker, not a flash, not a blink.

522

00:34:00,980 --> 00:34:04,980

This airplane is built very well.

523

00:34:04,980 --> 00:34:06,980

It's rock solid, this airplane.

524

00:34:06,980 --> 00:34:09,980

Rock solid and seemingly impenetrable.

525

00:34:09,980 --> 00:34:11,980

The team keeps testing,

526

00:34:11,980 --> 00:34:13,980

but if this pattern continues,

527

00:34:13,980 --> 00:34:16,980

the seat phone conspiracy theory is looking shaky.

528

00:34:16,980 --> 00:34:18,980

Alright, ready?

529

00:34:21,980 --> 00:34:24,980

Well, the conspiracy theorists have it right on one point.

530

00:34:24,980 --> 00:34:28,980

It is more expensive to use the in-flight phone than it is your cell phone.

531

00:34:28,980 --> 00:34:30,980

Why is it so expensive?

532

00:34:30,980 --> 00:34:33,980

That's because it's a dedicated system, and it works in two ways.

533

00:34:33,980 --> 00:34:38,980

If you're over land, the hard-wired phone goes to a transmitter in the belly of the plane.

534

00:34:38,980 --> 00:34:42,980

That then talks to one of 135 land-based radio towers.

535

00:34:42,980 --> 00:34:44,980

Even more complicated if you're over water,

536

00:34:44,980 --> 00:34:47,980

it has to bounce off a satellite and back down to a tower.

537

00:34:47,980 --> 00:34:53,980

So, it's really expensive because it's a specialized, dedicated system.

538

00:34:54,980 --> 00:34:57,980

And what's more, seat phones are safe.

539

00:34:57,980 --> 00:35:02,980

In no way do they interfere with a plane's avionics.

540

00:35:02,980 --> 00:35:07,980

Can the same be said of the cell phone?

541

00:35:07,980 --> 00:35:11,980

Well, back at Ground Zero, all of the cell phones have been tested,

542

00:35:11,980 --> 00:35:15,980

and none have affected any instruments.

543

00:35:15,980 --> 00:35:18,980

So why won't airlines let you use them?

544

00:35:18,980 --> 00:35:23,980

Well, it seems to be a case of better to be safe than sorry.

545

00:35:23,980 --> 00:35:27,980

If there were so many systems on the plane, they would have to all be tested

546

00:35:27,980 --> 00:35:31,980

to make sure, and you're talking about millions of dollars worth of testing.

547

00:35:31,980 --> 00:35:33,980

So they just don't want to take any chances?

548

00:35:33,980 --> 00:35:34,980

They don't want to take any chances.

549

00:35:34,980 --> 00:35:37,980

And a new cell phone comes out every month.

550

00:35:37,980 --> 00:35:39,980

New cell phone, different frequency.

551

00:35:39,980 --> 00:35:44,980

But before they wrap this up, Torey's got one more burning question.

552

00:35:44,980 --> 00:35:50,980

So, Tom, when you're not working, do you ever sneak this out just for your own personal fund?

553

00:35:50,980 --> 00:35:55,980

It's between you and me? No.

554

00:35:55,980 --> 00:35:59,980

All jokes aside, this myth is no laughing matter.

555

00:35:59,980 --> 00:36:06,980

But what's the verdict? Can cell phones spiral out of control?

556

00:36:06,980 --> 00:36:09,980

All right, the conspiracy of cell phones on airplanes.

557

00:36:09,980 --> 00:36:14,980

It was totally frustrating because we couldn't really get on an airplane with a cell phone,

558

00:36:14,980 --> 00:36:19,980

and we couldn't make a call, and we couldn't even see how many bars you had while you're in the air.

559

00:36:19,980 --> 00:36:21,980

Those pesky laws.

560

00:36:21,980 --> 00:36:25,980

We don't have any evidence other than our small-scale cockpit.

561

00:36:25,980 --> 00:36:29,980

It wasn't hardened against RF, and the wires weren't shielded.

562

00:36:29,980 --> 00:36:34,980

When we went out to the commercial jetliner, we weren't able to get any effects on his instruments.

563

00:36:34,980 --> 00:36:39,980

Right. I mean, we ran a bunch of tests, many different cell phones, no interference.

564

00:36:39,980 --> 00:36:43,980

I think it's probably safer on the FAA's part just to say there's a ban outright

565

00:36:43,980 --> 00:36:47,980

because there's a one in a million chance that something, some new cell phone,

566

00:36:47,980 --> 00:36:50,980

could interfere with those instruments, and that's what they want to avoid.

567

00:36:50,980 --> 00:36:54,980

Well, I take the chance. So this one's busted. I say it's busted.

568

00:37:00,980 --> 00:37:04,980

After the break, will the plastic fantastic take to the air?

569

00:37:04,980 --> 00:37:09,980

I really just want to get on there now and be able to relax on my flying rat.

570

00:37:14,980 --> 00:37:20,980

Adam and Jamie have built what they hope will be the world's first flying raft.

571

00:37:20,980 --> 00:37:25,980

It's the biggest thing they've ever made, and tensions are running high.

572

00:37:25,980 --> 00:37:28,980

There's not a lot of optimism in the room at the moment.

573

00:37:28,980 --> 00:37:31,980

I think that there's a lot of difficulties that are presenting themselves,

574

00:37:31,980 --> 00:37:37,980

and there's small little imperfections that could cause everything to completely implode on us.

575

00:37:37,980 --> 00:37:40,980

So we're crossing our fingers.

576

00:37:40,980 --> 00:37:44,980

But I'm not seeing the smiles you usually see on the Myth Buster faces.

577

00:37:44,980 --> 00:37:50,980

Once in every generation, a myth comes along that does not thrill us.

578

00:37:53,980 --> 00:37:58,980

To help distribute Adam's weight across the giant raft, he'll lie on a mini version.

579

00:37:58,980 --> 00:38:01,980

Three small tubes, double bag for strength.

580

00:38:04,980 --> 00:38:08,980

And with the arrival of the eight-year-old, Adam and Jamie,

581

00:38:08,980 --> 00:38:13,980

and with the arrival of the helium, all 36 cylinders of it,

582

00:38:13,980 --> 00:38:16,980

it's time to get this myth up and running.

583

00:38:16,980 --> 00:38:20,980

All right, well, it's in. It's either going to float or it's going to flame out. You ready?

584

00:38:20,980 --> 00:38:21,980

I'm ready.

585

00:38:21,980 --> 00:38:23,980

All right, let's go.

586

00:38:23,980 --> 00:38:26,980

And so the inflation begins.

587

00:38:26,980 --> 00:38:29,980

With 50 of these giant plastic tubes,

588

00:38:29,980 --> 00:38:33,980

the team is going to need almost 8,000 cubic feet of helium

589

00:38:33,980 --> 00:38:36,980

to try to get this myth off the ground.

590

00:38:39,980 --> 00:38:40,980

All right.

591

00:38:40,980 --> 00:38:42,980

One perfect pontoon.

592

00:38:42,980 --> 00:38:47,980

We've built two pontoons. It goes about three minutes of fill.

593

00:38:47,980 --> 00:38:49,980

We've got 48 yet to go.

594

00:38:49,980 --> 00:38:53,980

Thanks for the warning. We might go to the time lapse here.

595

00:38:56,980 --> 00:38:59,980

I'm not seeing or hearing any leaks.

596

00:39:01,980 --> 00:39:06,980

As the massive pontoons fill, each one generates five pounds of lift.

597

00:39:06,980 --> 00:39:07,980

Good.

598

00:39:09,980 --> 00:39:12,980

Before long, the raft is straining to rise.

599

00:39:12,980 --> 00:39:15,980

This thing is effectively neutrally buoyant right now.

600

00:39:15,980 --> 00:39:17,980

And we have plenty to lift me.

601

00:39:18,980 --> 00:39:21,980

The mythbusters can boast a whole raft of achievements,

602

00:39:21,980 --> 00:39:25,980

but this raft would have to rate highly.

603

00:39:25,980 --> 00:39:29,980

Not sure Huck Finn would want to take it down the old Mississippi, but still.

604

00:39:29,980 --> 00:39:31,980

This is strange.

605

00:39:31,980 --> 00:39:33,980

I've never seen anything like this before.

606

00:39:33,980 --> 00:39:37,980

It has to be the single largest thing I've ever built.

607

00:39:37,980 --> 00:39:39,980

Bar none, let alone in two days.

608

00:39:39,980 --> 00:39:41,980

But will it work?

609

00:39:41,980 --> 00:39:44,980

Time for Adam to slip into something a little less comfortable.

610

00:39:44,980 --> 00:39:52,980

This is my new toy, my new SWAT team tactical black climbing harness.

611

00:39:52,980 --> 00:39:54,980

My sister gave it to me.

612

00:39:54,980 --> 00:39:57,980

My whole family's like this.

613

00:39:57,980 --> 00:40:00,980

Yeah, I get the harness, but the wetsuit?

614

00:40:00,980 --> 00:40:04,980

I'm wearing the wetsuit because if we're successful at this,

615

00:40:04,980 --> 00:40:07,980

we'd like to walk it out to the lagoon and float it on the water.

616

00:40:07,980 --> 00:40:09,980

See if it would be a viable raft.

617

00:40:10,980 --> 00:40:13,980

I don't understand that because if it flies in the air,

618

00:40:13,980 --> 00:40:16,980

something tells me that it would float on the water.

619

00:40:16,980 --> 00:40:18,980

Oh, go on. What's the real reason?

620

00:40:18,980 --> 00:40:21,980

I'm wearing the wetsuit because it makes me look good.

621

00:40:21,980 --> 00:40:23,980

Damn good.

622

00:40:26,980 --> 00:40:28,980

Final thought?

623

00:40:28,980 --> 00:40:32,980

The fact that we've got it up and it's buoyant, very exciting.

624

00:40:32,980 --> 00:40:38,980

I really just want to get on there now and be able to relax my flying raft.

625

00:40:40,980 --> 00:40:42,980

It's up, up and away.

626

00:40:47,980 --> 00:40:49,980

Good, good.

627

00:40:49,980 --> 00:40:51,980

Okay, lower.

628

00:40:52,980 --> 00:40:56,980

With Adam in position on the mattress, Carrie starts dumping the ballast.

629

00:40:59,980 --> 00:41:01,980

But straight away, there's a problem.

630

00:41:01,980 --> 00:41:03,980

You better cut the other side a little bit.

631

00:41:03,980 --> 00:41:07,980

Without the ballast, one side of the raft suddenly takes to the skies.

632

00:41:08,980 --> 00:41:11,980

And Adam begins to slip off his mattress.

633

00:41:11,980 --> 00:41:14,980

Okay, stop. Don't cut anymore.

634

00:41:14,980 --> 00:41:15,980

Okay.

635

00:41:15,980 --> 00:41:19,980

The team stop cutting the ballast, but the damage is done

636

00:41:19,980 --> 00:41:24,980

as Adam slides off his helium bed like a greasy bar of soap.

637

00:41:24,980 --> 00:41:26,980

Ah!

638

00:41:26,980 --> 00:41:28,980

Just a second.

639

00:41:28,980 --> 00:41:33,980

Without any support structure, the flimsy pontoons can't cope.

640

00:41:33,980 --> 00:41:39,980

On a build this big, there was always the chance that something would slip through the cracks.

641

00:41:39,980 --> 00:41:41,980

Never thought it would be Adam though.

642

00:41:41,980 --> 00:41:42,980

Hey, Adam.

643

00:41:42,980 --> 00:41:43,980

Yeah.

644

00:41:43,980 --> 00:41:45,980

This isn't working.

645

00:41:45,980 --> 00:41:48,980

No, it seems to have failed utterly.

646

00:41:48,980 --> 00:41:51,980

You've like slipped right through to the bottom side.

647

00:41:51,980 --> 00:41:54,980

I feel like something that got cut out of the matrix here.

648

00:41:54,980 --> 00:41:55,980

Are you all right?

649

00:41:55,980 --> 00:42:03,980

I'm fine. I'm upside down and I'm in a net and I'm below the biggest thing ever built out of helium and balloons, but I'm fine.

650

00:42:03,980 --> 00:42:06,980

Adam may be fine, but the test ain't.

651

00:42:06,980 --> 00:42:12,980

With the raft coming apart at the seams, there's just no way the team can reset to try again.

652

00:42:12,980 --> 00:42:17,980

Their only chance at lift off has just slipped through the net.

653

00:42:18,980 --> 00:42:24,980

Oh, it's very satisfying. I shouldn't do that.

654

00:42:25,980 --> 00:42:27,980

All that work.

655

00:42:27,980 --> 00:42:31,980

Look at this. It's a cathedral of failure.

656

00:42:32,980 --> 00:42:33,980

Not really, Adam.

657

00:42:33,980 --> 00:42:41,980

We've learned that any raft able to fly will be unfeasibly large and far too flimsy to take passengers.

658

00:42:41,980 --> 00:42:43,980

Oh my God. We might need to open a door.

659

00:42:45,980 --> 00:42:46,980

It's getting kind of weird.

660

00:42:46,980 --> 00:42:48,980

It's getting helium in here.

661

00:42:48,980 --> 00:42:49,980

It's getting really stuffy.

662

00:42:49,980 --> 00:42:51,980

I'm going to open up the door, okay?

663

00:42:51,980 --> 00:42:52,980

Okay.

664

00:42:52,980 --> 00:42:59,980

I don't think anybody would fault us for not giving it the best possible effort for success.

665

00:42:59,980 --> 00:43:03,980

I'm sure someone's yelling at their television right now, but I'm calling this one busted.

666

00:43:03,980 --> 00:43:05,980

I know we're not supposed to bust them on site.

667

00:43:05,980 --> 00:43:07,980

We're supposed to wait for the blueprint table, but I don't want to go back there.

668

00:43:07,980 --> 00:43:11,980

I just want to take this wetsuit off and call it done and busted.

669

00:43:11,980 --> 00:43:12,980

Yeah.

670

00:43:12,980 --> 00:43:13,980

Busted.

671

00:43:13,980 --> 00:43:14,980

Yeah. Busted.

672

00:43:14,980 --> 00:43:15,980

Busted. Busted.

673

00:43:15,980 --> 00:43:17,980

Busted. Thank you. I was waiting for you to say it.

674

00:43:17,980 --> 00:43:18,980

Okay. Let's clean it up.

675

00:43:22,980 --> 00:43:24,980

Busted. Busted. Busted.

