

1

00:00:00,000 --> 00:00:05,000

Do not try any of the experiments you are about to see at home.

2

00:00:05,000 --> 00:00:07,000

You heard him. Don't do it.

3

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

On this whirlwind episode of Mythbusters, it's a tornado special.

4

00:00:14,000 --> 00:00:18,000

As Adam and Jamie hitch a ride with the storm chasers.

5

00:00:18,000 --> 00:00:19,000

Nice ride.

6

00:00:19,000 --> 00:00:24,000

First, this awesome foursome brews up a jumbo storm.

7

00:00:25,000 --> 00:00:28,000

To find out if the chasers chariot

8

00:00:28,000 --> 00:00:31,000

250 miles an hour, fire it up.

9

00:00:31,000 --> 00:00:35,000

can really stand firm in a force five tornado.

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00:00:35,000 --> 00:00:38,000

I think I'm just going to take my vehicle now and go home.

11

00:00:38,000 --> 00:00:43,000

Then the Mythbusters get a second wind and turn to invention.

12

00:00:43,000 --> 00:00:45,000

That right there is a result.

13

00:00:45,000 --> 00:00:48,000

Can you really build a personal tornado protector?

14

00:00:48,000 --> 00:00:49,000

Firing it Adam.

15

00:00:49,000 --> 00:00:51,000

Or will it be all hot air?

16

00:00:51,000 --> 00:00:54,000

That's one of the games by the crowd.

17

00:01:02,000 --> 00:01:04,000

Who are the Mythbusters?

18

00:01:04,000 --> 00:01:06,000

Adam Savage.

19

00:01:06,000 --> 00:01:08,000

How much damage could I sustain from this?

20

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

And Jamie Heidemann.

21

00:01:09,000 --> 00:01:10,000

Bye bye.

22

00:01:10,000 --> 00:01:15,000

Between them more than 30 years of special effects experience.

23

00:01:15,000 --> 00:01:18,000

Joining them, Carrie Byron.

24

00:01:18,000 --> 00:01:20,000

Crunchy metal.

25

00:01:20,000 --> 00:01:21,000

It's awesome.

26

00:01:21,000 --> 00:01:22,000

Tori Belleggi.

27

00:01:22,000 --> 00:01:23,000

Is this thing going to burn?

28

00:01:23,000 --> 00:01:24,000

Oh yeah it is.

29

00:01:24,000 --> 00:01:25,000

And Brent Imahara.

30

00:01:25,000 --> 00:01:26,000

I'm free.

31

00:01:26,000 --> 00:01:28,000

They'll just tell the myths.

32

00:01:28,000 --> 00:01:31,000

They put them to the test.

33

00:01:38,000 --> 00:01:42,000

Get ready because it's time to do the twister.

34

00:01:43,000 --> 00:01:46,000

You know I sense more than just hot air coming out of this episode.

35

00:01:46,000 --> 00:01:47,000

And you would be right.

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00:01:47,000 --> 00:01:51,000

We've got a whole hour coming up solely about the power of tornadoes.

37

00:01:51,000 --> 00:01:54,000

And to do this episode we're bringing in two amazing experts,

38

00:01:54,000 --> 00:01:59,000

Sean Casey and Reed Timmer, a.k.a. the storm chasers to help us.

39

00:01:59,000 --> 00:02:01,000

You mean those guys that have those cars?

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00:02:01,000 --> 00:02:03,000

They've specially reinforced them.

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00:02:03,000 --> 00:02:05,000

They drive them right into the middle of tornadoes.

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00:02:05,000 --> 00:02:06,000

Exactly.

43

00:02:09,000 --> 00:02:10,000

Take a look now.

44

00:02:10,000 --> 00:02:12,000

These clouds as they are forming in the distance.

45

00:02:12,000 --> 00:02:14,000

When a tornado is forecast.

46

00:02:14,000 --> 00:02:17,000

Can you swing around and get that please?

47

00:02:17,000 --> 00:02:20,000

The same response is to either leave town.

48

00:02:20,000 --> 00:02:23,000

Or at least duck into a ditch.

49

00:02:25,000 --> 00:02:26,000

Oh my god.

50

00:02:28,000 --> 00:02:30,000

But storm chasers Reed Timmer.

51

00:02:33,000 --> 00:02:34,000

And Sean Casey.

52

00:02:35,000 --> 00:02:37,000

Here it comes right at us.

53

00:02:37,000 --> 00:02:39,000

Are anything but same.

54

00:02:41,000 --> 00:02:42,000

Holy s***.

55

00:02:42,000 --> 00:02:48,000

Instead these maverick meteorologists lay their lives on the line for storm science.

56

00:02:51,000 --> 00:02:56,000

All the while they're supposedly fully protected by their suit up SUVs.

57

00:02:59,000 --> 00:03:00,000

Or are they?

58

00:03:08,000 --> 00:03:09,000

What's the plan?

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00:03:09,000 --> 00:03:14,000

Well the storm chasers want us to test their tornado proof vehicles under tornado like conditions.

60

00:03:14,000 --> 00:03:16,000

Don't they do that all the time?

61

00:03:16,000 --> 00:03:18,000

They drive near tornadoes all the time.

62

00:03:18,000 --> 00:03:23,000

It's true but this season specifically they're expecting to encounter higher winds than they've ever found before.

63

00:03:23,000 --> 00:03:28,000

And they want us to help them determine just how tornado proof their vehicles really are.

64

00:03:28,000 --> 00:03:30,000

Can we break them?

65

00:03:30,000 --> 00:03:33,000

No one has yet told me that we can't.

66

00:03:34,000 --> 00:03:43,000

Well if first impressions are anything to go by this one looks kind of unbreakable.

67

00:03:45,000 --> 00:03:49,000

This is a tornado intercept vehicle or TIB for short.

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00:03:49,000 --> 00:03:52,000

Specifically this is the TIB too.

69

00:03:52,000 --> 00:03:57,000

It's built on a modified truck chassis and it has 10,000 pounds of composite armor.

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00:03:58,000 --> 00:04:07,000

Its 2 1/4 inch thick skin is composed of layers of aluminum, Kevlar aluminum, steel, rubber, polycarbonate, rubber and aluminum.

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00:04:08,000 --> 00:04:12,000

Its windows are made of about an inch of glass and polycarbonate.

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00:04:12,000 --> 00:04:23,000

In addition to its regular armor it's also got four hydraulic panels which can be lowered all the way to the ground to prevent high speed winds from getting underneath the vehicle and creating lift.

73

00:04:24,000 --> 00:04:29,000

It has a couple of 40 inch long spikes that anchor it to the ground.

74

00:04:29,000 --> 00:04:34,000

And it all adds up to the state of the art in tornado preparedness and research.

75

00:04:35,000 --> 00:04:41,000

And to top all that today it comes complete with two experts, Par Exelons.

76

00:04:41,000 --> 00:04:44,000

The TIB2's owner, Sean Casey.

77

00:04:44,000 --> 00:04:47,000

And the dominators, Reed Timmer.

78

00:04:47,000 --> 00:04:54,000

But believe it or not the storm chasers are worried that both their cars tank like traits aren't enough.

79

00:04:55,000 --> 00:04:57,000

Nice ride, what can we do for ya?

80

00:04:57,000 --> 00:05:03,000

Well tornado season is coming up really soon and it's an El Nino year so we expect some of the strongest tornadoes on record.

81

00:05:03,000 --> 00:05:04,000

Where do we come in?

82

00:05:04,000 --> 00:05:10,000

Well this vehicle has withstood winds up to 145 miles per hour but we'd like to know what the outer limits are.

83

00:05:10,000 --> 00:05:13,000

So can you guys make us a tornado to test both of our vehicles?

84

00:05:13,000 --> 00:05:14,000

Sure.

85

00:05:14,000 --> 00:05:15,000

Absolutely.

86

00:05:15,000 --> 00:05:18,000

Well the Mythbusters sure know how to brew up a storm.

87

00:05:18,000 --> 00:05:21,000

After all they've built up perilous P-shooter.

88

00:05:24,000 --> 00:05:25,000

It's pretty serious.

89

00:05:26,000 --> 00:05:29,000

They've survived a round of man versus fan.

90

00:05:30,000 --> 00:05:33,000

I'm okay but my suit's starting to come apart.

91

00:05:33,000 --> 00:05:36,000

And they joked around with Hollywood Jets.

92

00:05:39,000 --> 00:05:40,000

That's a hot car.

93

00:05:41,000 --> 00:05:42,000

Holy s***.

94

00:05:42,000 --> 00:05:51,000

But to best simulate a full on twister when it's not storm chasing season, there's only one place to go.

95

00:05:52,000 --> 00:05:55,000

I can't believe they let us back after tearing up their runway.

96

00:05:55,000 --> 00:06:00,000

Where are the Mythbusters? You can't expect us to show up without something getting destroyed.

97

00:06:01,000 --> 00:06:03,000

Kalita Air 747.

98

00:06:03,000 --> 00:06:06,000

In deepest snowy Michigan.

99

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

Is the perfect tool to test if the storm chaser chariots are really tornado proof.

100

00:06:12,000 --> 00:06:13,000

And here's how.

101

00:06:13,000 --> 00:06:19,000

When it comes to making tornadoes there's really not a whole lot out there that has enough power to do the job.

102

00:06:19,000 --> 00:06:22,000

This is our tornado.

103

00:06:22,000 --> 00:06:28,000

Oh it may look like a 747 to you but to us it's the perfect experimental platform.

104

00:06:28,000 --> 00:06:31,000

All we gotta do is push on this lever.

105

00:06:31,000 --> 00:06:37,000

And this engine spins up putting out 45,150 pounds of thrust.

106

00:06:37,000 --> 00:06:39,000

And out comes the tornado.

107

00:06:40,000 --> 00:06:41,000

Simple really.

108

00:06:41,000 --> 00:06:46,000

And what's more it comes with the storm chaser's seal of approval.

109

00:06:46,000 --> 00:06:48,000

There are three parts of the winds inside the tornado.

110

00:06:48,000 --> 00:06:50,000

The rotational.

111

00:06:50,000 --> 00:06:52,000

Those intense up draft.

112

00:06:53,000 --> 00:06:56,000

And just the pure raw wind speed.

113

00:06:56,000 --> 00:07:00,000

And for our vehicles it's that raw wind speed that we're most interested in.

114

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

And that's why a 747 engine is the perfect tornado simulator.

115

00:07:04,000 --> 00:07:10,000

The 747 with its massive thrust is the perfect storm for this experiment.

116

00:07:10,000 --> 00:07:15,000

It'll unleash its tornado like power directly onto the storm chaser's chariots.

117

00:07:15,000 --> 00:07:19,000

To see if they can hold firm or flip out.

118

00:07:20,000 --> 00:07:26,000

But the mythbusters aren't going to unleash the beast on the chaser's vehicles just yet.

119

00:07:26,000 --> 00:07:29,000

I'm standing 175 feet from the engine of this airplane.

120

00:07:29,000 --> 00:07:36,000

Which right here will give us 160 miles per hour of tornado force winds.

121

00:07:36,000 --> 00:07:43,000

Instead they're starting with a regular cut to see how that can weather the weather.

122

00:07:43,000 --> 00:07:48,000

So right about here it's going to be going 160 miles an hour when they fire that jet up.

123

00:07:48,000 --> 00:07:51,000

Can you put that in context what that means?

124

00:07:51,000 --> 00:07:54,000

Yeah that's about a mid-range EF-3 tornado for us.

125

00:07:54,000 --> 00:07:56,000

And that's the enhanced Fujita scale.

126

00:07:56,000 --> 00:07:59,000

And that's a strong tornado and it would cause serious damage to a house.

127

00:07:59,000 --> 00:08:01,000

Likely lifting the roof off.

128

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

Let's see what it does to the car.

129

00:08:04,000 --> 00:08:07,000

And with the team relocated to the runway.

130

00:08:07,000 --> 00:08:09,000

It's all systems go.

131

00:08:09,000 --> 00:08:13,000

This is what we call a control or a lack thereof.

132

00:08:13,000 --> 00:08:15,000

Alright let's fire up those engines.

133

00:08:15,000 --> 00:08:17,000

Okay turn to number three.

134

00:08:18,000 --> 00:08:22,000

The pilot flips the switch marked unleash held.

135

00:08:22,000 --> 00:08:26,000

And a couple of seconds later that's exactly what happens.

136

00:08:39,000 --> 00:08:42,000

The car is quite literally a pushover.

137

00:08:43,000 --> 00:08:46,000

And that's got Sean a little torn.

138

00:08:48,000 --> 00:08:50,000

Okay Sean.

139

00:08:51,000 --> 00:08:55,000

I think I'm just going to take my vehicle now and go home.

140

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

Actually Sean, sorry buddy.

141

00:08:59,000 --> 00:09:02,000

But it's too late to back out now.

142

00:09:02,000 --> 00:09:06,000

Our fake tornado blew the car about 50 feet and it blew the hood off the car.

143

00:09:06,000 --> 00:09:09,000

Which is now about a quarter mile away from where it started.

144

00:09:09,000 --> 00:09:12,000

Now if you'd been in that car you would have survived.

145

00:09:12,000 --> 00:09:15,000

But the brown pants factor sky high.

146

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

Alright so 160 miles an hour.

147

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

Blew that car's hood right off and moved it 50 feet.

148

00:09:21,000 --> 00:09:24,000

You guys ready to put the TIF 2 in the dominant of the test?

149

00:09:24,000 --> 00:09:25,000

Definitely.

150

00:09:25,000 --> 00:09:26,000

Yeah let's do it.

151

00:09:26,000 --> 00:09:28,000

Alright let's do it.

152

00:09:29,000 --> 00:09:32,000

Undeterred by test one it's full steam ahead.

153

00:09:32,000 --> 00:09:35,000

Alright Sean bring in the TIF 2.

154

00:09:35,000 --> 00:09:37,000

Watching the TIF 2 come towards here.

155

00:09:37,000 --> 00:09:42,000

I feel like I'm living out my fantasy of being in a post-apocalyptic thriller film.

156

00:09:42,000 --> 00:09:46,000

But the TIF 2 is just part of the Stormchaser arsenal.

157

00:09:46,000 --> 00:09:47,000

Beautiful.

158

00:09:47,000 --> 00:09:50,000

Reed's weapon of choice is the Dominator.

159

00:09:52,000 --> 00:09:54,000

So this is the Dominator. Tell me about it.

160

00:09:54,000 --> 00:10:02,000

It has bomb proof coating, a top 16 gauge steel, polycarbonate windows, and hydraulics that allow the vehicle to drop to the ground so no wind can get underneath.

161

00:10:02,000 --> 00:10:04,000

So what's the top wind speed it's been in?

162

00:10:04,000 --> 00:10:08,000

We measured 155.2 miles per hour in a tornado in Wyoming last year.

163

00:10:08,000 --> 00:10:11,000

Well we're going to do it at 160. What do you think?

164

00:10:11,000 --> 00:10:13,000

I think it can definitely handle it.

165

00:10:14,000 --> 00:10:18,000

Both Reed and Sean are confident there'll be no carnage.

166

00:10:18,000 --> 00:10:25,000

And when their awesome autos initiate their storm proof features, you can see why.

167

00:10:26,000 --> 00:10:35,000

One plane, two engines, and two tornado proof cars being exposed to 160 miles per hour of tornado force winds.

168

00:10:35,000 --> 00:10:37,000

Let's see how they're going to do.

169

00:10:38,000 --> 00:10:40,000

Okay well let's do it.

170

00:10:40,000 --> 00:10:43,000

Alright, fire up those engines.

171

00:10:43,000 --> 00:10:45,000

Come on baby.

172

00:10:45,000 --> 00:10:47,000

Oh it's sticking there.

173

00:10:47,000 --> 00:10:49,000

Oh there, here we go.

174

00:10:49,000 --> 00:10:51,000

Okay baby, hold him there.

175

00:10:51,000 --> 00:10:52,000

Speedbrake!

176

00:10:53,000 --> 00:10:55,000

Step up for lift!

177

00:10:59,000 --> 00:11:08,000

Remember they've chosen 160 miles per hour because it's faster than the fastest wind speed either car has ever endured.

178

00:11:11,000 --> 00:11:15,000

At first it seems like it's plane sailing, but then...

179

00:11:16,000 --> 00:11:18,000

Oh my god! My god!

180

00:11:19,000 --> 00:11:25,000

The Tiv's door gets ripped open, but luckily for Sean nothing else moves a micron.

181

00:11:25,000 --> 00:11:29,000

It's been a while, right? Thank you, that was awesome.

182

00:11:30,000 --> 00:11:32,000

We made it.

183

00:11:32,000 --> 00:11:38,000

So it's job done. Other than a flawed door, the vehicles held firm.

184

00:11:39,000 --> 00:11:45,000

I think the test went very well, except for one thing, I forgot to lock the driver's side door.

185

00:11:45,000 --> 00:11:48,000

So something to definitely remember in the future.

186

00:11:49,000 --> 00:11:55,000

The dominator handled the 160 mile power wind like a champ, and that's the strongest one we've ever experienced with this vehicle.

187

00:11:55,000 --> 00:11:57,000

It was totally fine, didn't even budge.

188

00:11:57,000 --> 00:12:03,000

But remember, you're watching MythBusters, and a fat lady's not even close.

189

00:12:03,000 --> 00:12:05,000

Well they survived 160.

190

00:12:05,000 --> 00:12:10,000

Yeah they did, but that's not all we're going to give them, are we?

191

00:12:10,000 --> 00:12:11,000

No.

192

00:12:11,000 --> 00:12:13,000

Let's ramp it up.

193

00:12:14,000 --> 00:12:19,000

Coming right up, the storm chasers feel the force of a Force 5 tornado.

194

00:12:19,000 --> 00:12:21,000

Oh my god!

195

00:12:28,000 --> 00:12:38,000

With tornado season approaching, the storm chasers have asked the MythBusters to find out if their souped up SUVs are really tornado proof.

196

00:12:39,000 --> 00:12:41,000

Fire up those engines!

197

00:12:42,000 --> 00:12:48,000

And because they survived a snowy test one, it's time to ramp things up.

198

00:12:49,000 --> 00:12:56,000

These vehicles were purpose built to be able to withstand tornadoes, but so far they've only seen about half what one can put out.

199

00:12:56,000 --> 00:12:59,000

This time we're going to dial it all the way up.

200

00:12:59,000 --> 00:13:06,000

250 mile an hour winds, which is the equivalent of an EF5 tornado, the highest rating there is.

201

00:13:06,000 --> 00:13:13,000

That kind of wind will strip the house clean off right down to its foundation, and we're going to see what it does to this car.

202

00:13:14,000 --> 00:13:20,000

It's such a fearsome wind speed that the guys are doing a trial run with a regular car first.

203

00:13:20,000 --> 00:13:24,000

What's going to happen? Well this car is going to spin and over end.

204

00:13:24,000 --> 00:13:29,000

What's going to happen is the last thing that's ever going to happen in this car. It's going to blow away down the field.

205

00:13:30,000 --> 00:13:32,000

Alright let's do it.

206

00:13:32,000 --> 00:13:36,000

Okay, regular car, 250 miles an hour.

207

00:13:36,000 --> 00:13:38,000

Fire it up!

208

00:13:43,000 --> 00:13:51,000

From zero to hero, the jet soon reaches full throttle, whereupon the car tumbles like a toy.

209

00:14:03,000 --> 00:14:05,000

That was great!

210

00:14:05,000 --> 00:14:11,000

It's a case of now you see it, now you don't.

211

00:14:11,000 --> 00:14:17,000

Since just two seconds after takeoff, the car is 250 feet away.

212

00:14:17,000 --> 00:14:21,000

Oh, it took that car right up and took it quite a ways.

213

00:14:21,000 --> 00:14:23,000

It did, you think your car is a fair little better?

214

00:14:23,000 --> 00:14:24,000

Definitely.

215

00:14:24,000 --> 00:14:25,000

You ready to put it in the position?

216

00:14:25,000 --> 00:14:26,000

Certainly.

217

00:14:26,000 --> 00:14:27,000

Let's do it.

218

00:14:27,000 --> 00:14:35,000

But as their cars are secured in the full on firing line, the storm chasers mojo goes AWOL.

219

00:14:35,000 --> 00:14:41,000

250 miles power is insanely fast. I'm hoping the dominator will be okay because this is my baby.

220

00:14:41,000 --> 00:14:49,000

Yeah, the final test where this vehicle encounters 250 miles power winds, this has never happened to this vehicle before.

221

00:14:49,000 --> 00:14:56,000

And of course something you've spent your life working on, that being damaged in front of you and in front of everybody, it's horrifying.

222

00:14:56,000 --> 00:14:58,000

It's the moment of truth. You ready?

223

00:14:58,000 --> 00:14:59,000

As I'll ever be.

224

00:14:59,000 --> 00:15:02,000

Alright, let's fire it up!

225

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

John, did you lock the door this time?

226

00:15:08,000 --> 00:15:09,000

Check.

227

00:15:09,000 --> 00:15:19,000

Once again, the source of the force is fired up and a moment later, a 250 mile per hour wind storms through.

228

00:15:19,000 --> 00:15:23,000

At first, the vehicles hold firm.

229

00:15:23,000 --> 00:15:31,000

The tiff with its anchor points barely moves, but then suddenly the dominator starts to lose its footing.

230

00:15:31,000 --> 00:15:33,000

Oh, it was done!

231

00:15:33,000 --> 00:15:35,000

It slides in the force five.

232

00:15:35,000 --> 00:15:37,000

Oh my God!

233

00:15:37,000 --> 00:15:46,000

But thanks to its lowered chassis, the wind can't get underneath it to lift it up or topple it over. It too survives.

234

00:15:49,000 --> 00:15:51,000

Thank you for not destroying my vehicle.

235

00:15:51,000 --> 00:15:53,000

It's okay!

236

00:15:53,000 --> 00:15:55,000

Beautiful!

237

00:15:55,000 --> 00:15:57,000

Good job.

238

00:15:57,000 --> 00:16:02,000

Well, that's great, even though it went sideways, it stayed firmly on the ground and never got under it.

239

00:16:02,000 --> 00:16:07,000

Yeah, I think there was always some downward force of that, which is good. That was a great test.

240

00:16:07,000 --> 00:16:19,000

Sure was. The high speed shows the strain both vehicles were under, and although one did move, this 250 mile per hour test was clearly survivable.

241

00:16:19,000 --> 00:16:21,000

And that's what counts.

242

00:16:21,000 --> 00:16:27,000

The tiff pretty much sat there like a rock. It didn't slide, it didn't vibrate, it didn't budge an inch.

243

00:16:28,000 --> 00:16:36,000

The dominator on the other hand started to move around from the very get-go, and eventually it came broadside to the wind and really started to pick up speed.

244

00:16:36,000 --> 00:16:39,000

But it never lost its balance, it never lost its stance.

245

00:16:39,000 --> 00:16:44,000

The bottom line is, with both of these vehicles and that kind of wind, you would have been safe.

246

00:16:44,000 --> 00:16:46,000

Thank God it's okay!

247

00:16:47,000 --> 00:16:55,000

Despite its wild slide, Reeds once over reveals the dominator only suffered a bent license plate.

248

00:16:56,000 --> 00:17:01,000

But it's the tiff that really testifies to the test's power.

249

00:17:01,000 --> 00:17:03,000

Oh my gosh, look at that!

250

00:17:03,000 --> 00:17:09,000

Yeah, they're bowing. The hydraulic piston, that anchor, goes in the ground, it's bent.

251

00:17:09,000 --> 00:17:16,000

The force of that wind actually bent, something that was rated to 9,500 pounds. Wow.

252

00:17:17,000 --> 00:17:23,000

In the fury of the Force V, the tiff's anchor points bent under pressure.

253

00:17:23,000 --> 00:17:26,000

But even so, the occupants would have survived.

254

00:17:26,000 --> 00:17:30,000

And that means it's mission accomplished for the Mythbusters.

255

00:17:30,000 --> 00:17:35,000

The Storm Chaser Chariots are indeed tornado-proof.

256

00:17:37,000 --> 00:17:42,000

Later, Jamie puts his life on the line for tornado protection.

257

00:17:43,000 --> 00:17:45,000

That's what a man looks like.

258

00:17:53,000 --> 00:17:58,000

The Storm Chaser vehicles survived a 747's most powerful tornado.

259

00:17:58,000 --> 00:18:01,000

Thank you for not destroying my vehicle.

260

00:18:02,000 --> 00:18:07,000

And that means that both cars can get the Mythbusters seal of approval.

261

00:18:07,000 --> 00:18:11,000

But Adam and Jamie are the gift that keeps on giving.

262

00:18:12,000 --> 00:18:18,000

Well gentlemen, I officially pronounce your vehicles both Mythbusters tested to 250 miles per hour.

263

00:18:18,000 --> 00:18:19,000

Nice.

264

00:18:19,000 --> 00:18:24,000

Well, we know that these cars are safe in a tornado, but what if you're not in the car?

265

00:18:24,000 --> 00:18:25,000

Well, you're out of luck.

266

00:18:25,000 --> 00:18:26,000

Big problems.

267

00:18:26,000 --> 00:18:30,000

You know, I think we may be able to come up with a solution for you on that front.

268

00:18:30,000 --> 00:18:34,000

That'd be quite a challenge. Give us a few days and we'll see what we can come up with.

269

00:18:34,000 --> 00:18:40,000

When a tornado hits, being in a Mythbusters-approved armored vehicle is one thing.

270

00:18:40,000 --> 00:18:46,000

But if you're outside with nowhere to run or hide, then surely you're toast.

271

00:18:46,000 --> 00:18:52,000

Well, not if the Mythbusters can somehow build a personal tornado protection device.

272

00:18:52,000 --> 00:18:55,000

If Adam and Jamie want to build us something, this is what it's got to do.

273

00:18:55,000 --> 00:19:01,000

It has to be portable, it has to protect us from flying debris, and have winds of at least EF3 intensity,

274

00:19:01,000 --> 00:19:03,000

which is stronger than 135 miles per hour.

275

00:19:04,000 --> 00:19:10,000

Well, back at M5, it's the calm before the storm, as the guys nut out the problem.

276

00:19:10,000 --> 00:19:11,000

Starting with Adam.

277

00:19:11,000 --> 00:19:12,000

All right, let me walk you through this.

278

00:19:12,000 --> 00:19:17,000

As far as I'm thinking it through, I think this personal protection device has to do three things.

279

00:19:17,000 --> 00:19:21,000

It has to keep you from blowing away, because that would hurt and suck.

280

00:19:21,000 --> 00:19:25,000

It has to protect you from flying debris, because that would hurt and suck.

281

00:19:25,000 --> 00:19:29,000

And it has to adapt very quickly to changing wind directions.

282

00:19:29,000 --> 00:19:33,000

One of the most, I think, nefarious things that happens in a tornado.

283

00:19:33,000 --> 00:19:34,000

And this is my solution.

284

00:19:34,000 --> 00:19:37,000

It's basically some kind of armored bowl.

285

00:19:37,000 --> 00:19:43,000

I'm thinking that shape is ideal for allowing the wind to slip over it, a low coefficient of drag on the ground.

286

00:19:43,000 --> 00:19:44,000

But that's not enough.

287

00:19:44,000 --> 00:19:50,000

I'm also thinking a wing shape on top, pushing the person and his personal protection device into the ground,

288

00:19:50,000 --> 00:19:52,000

keeping him where he is.

289

00:19:52,000 --> 00:19:53,000

That's the theory at least.

290

00:19:53,000 --> 00:19:55,000

It's time to prototype.

291

00:19:56,000 --> 00:19:58,000

Adam's got two builds to contend with.

292

00:19:58,000 --> 00:20:00,000

First his prototype.

293

00:20:00,000 --> 00:20:05,000

And then a wind tunnel, which courtesy of four leaf blowers,

294

00:20:06,000 --> 00:20:10,000

should provide a decent draft to run the tests in.

295

00:20:11,000 --> 00:20:17,000

And thanks to the wonders of editing, both are ready just about now.

296

00:20:17,000 --> 00:20:20,000

So I put together a whole collection of funnels, cones and bowls,

297

00:20:20,000 --> 00:20:22,000

both with and without downforce wings.

298

00:20:22,000 --> 00:20:26,000

And I'm going to place each one of these in my simulated tornado's path

299

00:20:26,000 --> 00:20:29,000

and see which one locks itself best to the ground.

300

00:20:31,000 --> 00:20:32,000

That's the plan.

301

00:20:32,000 --> 00:20:37,000

But it's not a good start as none of the metal balls is what you'd call stable.

302

00:20:41,000 --> 00:20:47,000

The addition of a downforce wing may be good in theory, but it's not so good in practice.

303

00:20:51,000 --> 00:20:56,000

A final pit stop sees Adam minimize the surface area exposed to the wind.

304

00:20:56,000 --> 00:20:59,000

And that gives cause for some hope.

305

00:21:01,000 --> 00:21:03,000

Until that one too bites the dust.

306

00:21:08,000 --> 00:21:13,000

Well little dude, I've tried every combination of bowl and cone and wing that I can imagine.

307

00:21:13,000 --> 00:21:17,000

And as far as I can see, everyone I'm using makes such a high profile.

308

00:21:17,000 --> 00:21:20,000

They all just blow away in the wind even worse than nothing.

309

00:21:20,000 --> 00:21:22,000

I think we got to check this one.

310

00:21:22,000 --> 00:21:25,000

If you agree with me, don't do anything.

311

00:21:27,000 --> 00:21:28,000

I think he agrees with me.

312

00:21:29,000 --> 00:21:34,000

So our question is, how are you going to keep yourself from getting blown away in a strong wind?

313

00:21:34,000 --> 00:21:38,000

Obviously if you're standing upright, it's easy to knock you over.

314

00:21:38,000 --> 00:21:43,000

You could start lying prone and in this way you would present less surface area to the wind.

315

00:21:43,000 --> 00:21:44,000

That's a good thing.

316

00:21:44,000 --> 00:21:47,000

But what if the ground is smooth and hard?

317

00:21:47,000 --> 00:21:52,000

You don't really have any way of digging into the ground or putting a stake on it.

318

00:21:52,000 --> 00:21:58,000

And that starts me thinking that maybe we can use the wind itself to give you traction.

319

00:22:00,000 --> 00:22:02,000

Playing his cards close to his chest.

320

00:22:03,000 --> 00:22:08,000

Jamie runs a series of traction tests that don't mean much to anyone but him.

321

00:22:10,000 --> 00:22:12,000

That right there was a result.

322

00:22:12,000 --> 00:22:17,000

But judging by the giggling, it seems to be going well.

323

00:22:17,000 --> 00:22:19,000

Kind of like a wing shape.

324

00:22:21,000 --> 00:22:27,000

After a whole afternoon of dialing in the testing, Jamie's finally ready to reveal all.

325

00:22:29,000 --> 00:22:32,000

After a lot of fussing around, this is what I've come up with.

326

00:22:32,000 --> 00:22:35,000

This thing is made of several segments.

327

00:22:35,000 --> 00:22:41,000

It has a wind vane on the back and it has a pivot point and spike that grabs on the ground.

328

00:22:42,000 --> 00:22:44,000

Now how this works is this.

329

00:22:44,000 --> 00:22:53,000

As the wind comes over it, this wedge shape design allows the wind to press this spike into the ground and gives us traction.

330

00:22:53,000 --> 00:23:00,000

It also allows that spike to serve as a pivot point that he can shift with thanks to this wind vane.

331

00:23:00,000 --> 00:23:04,000

Also because of this wedge shape device, we have good debris deflection.

332

00:23:04,000 --> 00:23:11,000

And last but not least, this whole thing is extremely portable because it folds up like so.

333

00:23:11,000 --> 00:23:19,000

And attached to his back and he can walk around with it.

334

00:23:19,000 --> 00:23:21,000

The man's a miracle.

335

00:23:21,000 --> 00:23:28,000

Each of the three criteria addressed successfully in half an afternoon, at least in small scale.

336

00:23:29,000 --> 00:23:31,000

Well dude, I think we've got a winner there.

337

00:23:31,000 --> 00:23:33,000

Time to go full scale, huh?

338

00:23:33,000 --> 00:23:35,000

Absolutely.

339

00:23:36,000 --> 00:23:41,000

But as the storm chases will testify, full scale will be full off.

340

00:23:41,000 --> 00:23:42,000

Stay down.

341

00:23:42,000 --> 00:23:44,000

This can be intense you guys.

342

00:23:44,000 --> 00:23:45,000

Hang on.

343

00:23:55,000 --> 00:23:57,000

Twisters can be seriously dangerous.

344

00:23:57,000 --> 00:23:59,000

No, not those twisters.

345

00:23:59,000 --> 00:24:01,000

Those twisters.

346

00:24:01,000 --> 00:24:14,000

But to reduce that danger at the storm chaser's request, Jamie's prototyped a personal tornado protector at its time to go full scale.

347

00:24:14,000 --> 00:24:30,000

Where their shopping list includes polyethylene, check duct tape, check eighth inch aluminum, check some ballistic nylon, check and a Heinemann.

348

00:24:30,000 --> 00:24:31,000

Check.

349

00:24:31,000 --> 00:24:33,000

The plan is this.

350

00:24:33,000 --> 00:24:36,000

I'm going to be making what amounts to a low slung.

351

00:24:36,000 --> 00:24:37,000

This is my baby.

352

00:24:37,000 --> 00:24:41,000

Stream lined and very heavily armored to the tent.

353

00:24:41,000 --> 00:24:43,000

Oh yeah.

354

00:24:46,000 --> 00:24:54,000

Just like a tent that you would go backpacking with, this will fold up into a neat package and then when you're ready to use it, you unfold it.

355

00:24:54,000 --> 00:24:57,000

Now it's starting to look serious.

356

00:24:57,000 --> 00:24:59,000

It's got armored panels.

357

00:24:59,000 --> 00:25:01,000

It's got aluminum tent poles.

358

00:25:01,000 --> 00:25:03,000

Okay, everyone be quiet.

359

00:25:03,000 --> 00:25:05,000

It's Jamie's nap time now.

360

00:25:05,000 --> 00:25:07,000

It's got a heavy duty fabric.

361

00:25:07,000 --> 00:25:10,000

You crawl inside and you're safe.

362

00:25:10,000 --> 00:25:22,000

And with the addition of a spike base that will secure it into the ground, that is what says I'm not going anywhere in a few hundred miles an hour wind.

363

00:25:22,000 --> 00:25:23,000

That works.

364

00:25:23,000 --> 00:25:25,000

It's ready for some testing.

365

00:25:25,000 --> 00:25:26,000

It's all done.

366

00:25:26,000 --> 00:25:29,000

Let's pack it up and see how debris proof it actually is.

367

00:25:29,000 --> 00:25:30,000

Okay.

368

00:25:33,000 --> 00:25:36,000

And that's portability passed.

369

00:25:36,000 --> 00:25:38,000

Nice.

370

00:25:38,000 --> 00:25:39,000

There we go.

371

00:25:39,000 --> 00:25:41,000

I love it.

372

00:25:41,000 --> 00:25:45,000

Our tornado protection device needs to do three things here.

373

00:25:45,000 --> 00:25:47,000

It needs to keep you from blowing away.

374

00:25:47,000 --> 00:25:51,000

It needs to protect you from debris and it needs to be able to face the wind and change its direction.

375

00:25:51,000 --> 00:25:54,000

Today we're testing protection from debris.

376

00:25:54,000 --> 00:26:01,000

Our debris will be this soda can size piece of wood right here, which will be fired at our device by this, Jamie's little pop gun.

377

00:26:01,000 --> 00:26:02,000

That's right.

378

00:26:02,000 --> 00:26:13,000

Jamie's pop gun last popped out soda cans at 250 miles an hour with frightening results.

379

00:26:13,000 --> 00:26:14,000

You killed him.

380

00:26:14,000 --> 00:26:17,000

You tripped all the shock watch stickers in his chest.

381

00:26:17,000 --> 00:26:20,000

But this time it's got wood.

382

00:26:20,000 --> 00:26:24,000

Why are we firing these wood cylinders at our shield?

383

00:26:24,000 --> 00:26:32,000

Well, first off we're fresh out of cows and secondly, wood debris is the most likely thing that you're going to find in a tornado.

384

00:26:32,000 --> 00:26:35,000

And so that's what this is representing.

385

00:26:35,000 --> 00:26:44,000

And representing the person in the prototype is Buster, who for once may not need to be nervous.

386

00:26:44,000 --> 00:26:46,000

It's beautiful.

387

00:26:46,000 --> 00:26:47,000

He's ready to try them out?

388

00:26:47,000 --> 00:26:49,000

I think so.

389

00:26:49,000 --> 00:26:59,000

Well, as we prepare to fire some not insignificant debris at our tornado shield, I have to say I've got high hopes for its ability to withstand what we're going to throw at it.

390

00:26:59,000 --> 00:27:03,000

Now there's only one way to find out.

391

00:27:03,000 --> 00:27:05,000

Dr. Heidemann, are you ready?

392

00:27:05,000 --> 00:27:06,000

I'm ready.

393

00:27:06,000 --> 00:27:12,000

Okay, debris test in three, two, one.

394

00:27:12,000 --> 00:27:15,000

Oh, yeah.

395

00:27:15,000 --> 00:27:16,000

Did it hit it?

396

00:27:16,000 --> 00:27:17,000

Oh, yeah.

397

00:27:17,000 --> 00:27:22,000

It hit it and glanced off and it's about 600 feet that way.

398

00:27:22,000 --> 00:27:25,000

See some crow.

399

00:27:25,000 --> 00:27:37,000

The wood plug traveling at an F4 tornado's 200 miles per hour was a direct hit and the shield hardly shifted.

400

00:27:37,000 --> 00:27:39,000

That handled it really well.

401

00:27:39,000 --> 00:27:41,000

I didn't even see it move.

402

00:27:41,000 --> 00:27:49,000

So for test two, it's out with Buster and in with an altogether more valuable guinea pig.

403

00:27:49,000 --> 00:27:57,000

Based on our test, Adam should be okay, but just in case he's wearing a helmet and we also have EMT Sanjay.

404

00:27:57,000 --> 00:27:59,000

Do I think this will work?

405

00:27:59,000 --> 00:28:01,000

I better be pretty confident it'll work.

406

00:28:01,000 --> 00:28:03,000

I'm about to get inside of it.

407

00:28:03,000 --> 00:28:04,000

Am I a little scared?

408

00:28:04,000 --> 00:28:05,000

Yes, I am.

409

00:28:05,000 --> 00:28:07,000

Do I always answer my own questions?

410

00:28:07,000 --> 00:28:10,000

No, I do not.

411

00:28:10,000 --> 00:28:14,000

With Adam in the tent, it's time to vent.

412

00:28:14,000 --> 00:28:24,000

Okay, debris test firing at Adam in three, two, one.

413

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

Once again, it's a direct hit that's deflected with ease.

414

00:28:28,000 --> 00:28:29,000

I feel great.

415

00:28:29,000 --> 00:28:30,000

That was nothing.

416

00:28:30,000 --> 00:28:32,000

It was like a little tap.

417

00:28:32,000 --> 00:28:33,000

Cool.

418

00:28:33,000 --> 00:28:35,000

Awesome.

419

00:28:35,000 --> 00:28:43,000

As we hoped, as we expected, and as we saw the tornado shield effectively protects its user from flying debris,

420

00:28:43,000 --> 00:28:47,000

even debris flying at tornado-like speeds.

421

00:28:47,000 --> 00:28:51,000

Now all we need is a big tornado to test out the rest of it.

422

00:28:51,000 --> 00:28:55,000

It's pretty simple really, but sometimes the best ideas are.

423

00:28:55,000 --> 00:28:57,000

And the fact is, it worked.

424

00:28:57,000 --> 00:29:00,000

Now all we need to do is find a tornado.

425

00:29:00,000 --> 00:29:02,000

That shouldn't be that hard.

426

00:29:02,000 --> 00:29:05,000

If more is what you want, more is what we've got.

427

00:29:05,000 --> 00:29:09,000

Log on to [discovery.com slash mythbusters](http://discovery.com/slash/mythbusters).

428

00:29:20,000 --> 00:29:21,000

Tornado touching down.

429

00:29:21,000 --> 00:29:22,000

There it is, here it comes.

430

00:29:22,000 --> 00:29:29,000

As Reid Timmer and Sean Casey will tell, with winds reaching speeds in excess of 200 miles an hour,

431

00:29:29,000 --> 00:29:32,000

tornadoes are no laughing matter.

432

00:29:32,000 --> 00:29:33,000

Hold on.

433

00:29:33,000 --> 00:29:35,000

Seat belts.

434

00:29:35,000 --> 00:29:37,000

We're in the middle of it.

435

00:29:37,000 --> 00:29:41,000

Which is why the mythbusters are here to help.

436

00:29:41,000 --> 00:29:42,000

Let's recap.

437

00:29:42,000 --> 00:29:46,000

The storm chasers have these amazing vehicles to protect them from tornadoes,

438

00:29:46,000 --> 00:29:49,000

but nothing if they get caught outside the vehicles.

439

00:29:49,000 --> 00:29:55,000

Jamie and I have designed what we think is a viable tornado shield to protect a human outside of one of these vehicles,

440

00:29:55,000 --> 00:30:00,000

and we've come back to Kalida Air to fire up their 747 and test it out.

441

00:30:00,000 --> 00:30:03,000

So you're ready to see the tornado shield?

442

00:30:03,000 --> 00:30:04,000

For sure.

443

00:30:04,000 --> 00:30:07,000

I'm transported with a backpack too, that's incredible.

444

00:30:07,000 --> 00:30:12,000

So you're going on a hike with your backpack, you see a tornado coming.

445

00:30:12,000 --> 00:30:15,000

You can't get out of the way so you deploy this.

446

00:30:15,000 --> 00:30:17,000

That's exactly right.

447

00:30:17,000 --> 00:30:19,000

And that's pretty much it.

448

00:30:19,000 --> 00:30:21,000

Well sure looks cool.

449

00:30:21,000 --> 00:30:26,000

So far, storm chasers Reed and Sean are impressed, and they should be,

450

00:30:26,000 --> 00:30:32,000

because the rig's 2 for 0, but now comes the ultimate test.

451

00:30:32,000 --> 00:30:35,000

Well, not quite now.

452

00:30:35,000 --> 00:30:38,000

Before we test our tornado shield, we need something to compare it to.

453

00:30:38,000 --> 00:30:42,000

That's called a control, and that control is called Adam Savage.

454

00:30:42,000 --> 00:30:47,000

I'm going to stand here directly in the windstream until I can't stand no more,

455

00:30:47,000 --> 00:30:51,000

and that will be the point at which we test the tornado shield.

456

00:30:51,000 --> 00:30:57,000

In other words, to be a viable system, Jamie in the shield has to withstand more wind

457

00:30:57,000 --> 00:30:59,000

than a person without a shield.

458

00:30:59,000 --> 00:31:01,000

I am ready!

459

00:31:01,000 --> 00:31:05,000

And to find that level, Adams staring down the barrel.

460

00:31:05,000 --> 00:31:08,000

How am I feeling?

461

00:31:08,000 --> 00:31:10,000

I have to admit I'm a little nervous.

462

00:31:10,000 --> 00:31:13,000

I know the safety system we have in place,

463

00:31:13,000 --> 00:31:18,000

but it's not every day you stand behind a freaking jet.

464

00:31:18,000 --> 00:31:23,000

However, I can step out of the windstream of the jet's engine at any time,

465

00:31:23,000 --> 00:31:26,000

and they can cut it in a moment's notice, or a second's notice,

466

00:31:26,000 --> 00:31:29,000

so I guess there's nothing to do but proceed.

467

00:31:29,000 --> 00:31:36,000

Adam is clipped into a safety harness, and he has established some hand signals with Jamie.

468

00:31:36,000 --> 00:31:39,000

So I put one hand up, and that means increase the power.

469

00:31:39,000 --> 00:31:40,000

Exactly.

470

00:31:40,000 --> 00:31:43,000

Weaving around means getting me the hell out of here.

471

00:31:43,000 --> 00:31:44,000

Exactly.

472

00:31:44,000 --> 00:31:48,000

But even so, this is downright dangerous.

473

00:31:48,000 --> 00:31:51,000

It's time for Adam to go into the tornado.

474

00:31:51,000 --> 00:31:53,000

He's a brave man.

475

00:31:53,000 --> 00:31:56,000

Okay, fire that puppy up.

476

00:31:56,000 --> 00:32:01,000

For safety, the pilot starts the thrust at just 20%,

477

00:32:01,000 --> 00:32:05,000

which allows Adam to heave himself to his start point.

478

00:32:10,000 --> 00:32:13,000

Once there, the pilot wraps up the thrust.

479

00:32:13,000 --> 00:32:17,000

30% is 100 miles per hour for our fearless myth buster.

480

00:32:17,000 --> 00:32:25,000

40%, 110%, 50%, 120%, and he's still holding.

481

00:32:25,000 --> 00:32:32,000

But when the wind hits 130%, he gets a knockdown blow.

482

00:32:40,000 --> 00:32:45,000

Like a feather in front of a fan, Adam stood no chance.

483

00:32:52,000 --> 00:32:53,000

How you doing?

484

00:32:53,000 --> 00:32:54,000

I'm good.

485

00:32:54,000 --> 00:32:57,000

That was awesome.

486

00:32:57,000 --> 00:32:59,000

There were a lot of things to worry about in that one.

487

00:32:59,000 --> 00:33:02,000

Chief among them, debris flying towards me,

488

00:33:02,000 --> 00:33:04,000

but I found being able to see where the wind was coming from,

489

00:33:04,000 --> 00:33:09,000

that I could actually dodge things that were heading towards me.

490

00:33:09,000 --> 00:33:11,000

That was crazy, crazy, crazy fun.

491

00:33:11,000 --> 00:33:12,000

I want to do it again.

492

00:33:12,000 --> 00:33:16,000

I really do, but I don't think we need me to do it again.

493

00:33:16,000 --> 00:33:19,000

Afraid not, Adam, because we've got the data.

494

00:33:19,000 --> 00:33:24,000

130 miles an hour, and you're flying without wings.

495

00:33:24,000 --> 00:33:29,000

Without any protection, Adam lost control at about 130 miles an hour.

496

00:33:29,000 --> 00:33:31,000

Now it's time to test the tornado shield.

497

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

I'm feeling pretty good about it.

498

00:33:33,000 --> 00:33:35,000

I'm going for 180.

499

00:33:35,000 --> 00:33:39,000

I'm standing on the spot where I withstood winds of 130 miles per hour

500

00:33:39,000 --> 00:33:41,000

before I got blown away.

501

00:33:41,000 --> 00:33:44,000

The question is, will the tornado shield allow Jamie to stay here

502

00:33:44,000 --> 00:33:46,000

at a higher wind speed?

503

00:33:46,000 --> 00:33:50,000

We have the ability to make the wind speed here up to 180 miles per hour.

504

00:33:50,000 --> 00:33:52,000

Perfect place to test.

505

00:33:52,000 --> 00:33:56,000

And Jamie, as usual, seems somewhat nonchalant,

506

00:33:56,000 --> 00:33:59,000

despite the very real danger.

507

00:33:59,000 --> 00:34:03,000

The thing about going behind airplanes like this in prototypes,

508

00:34:03,000 --> 00:34:05,000

it's dangerous.

509

00:34:05,000 --> 00:34:07,000

We don't know what this is going to do.

510

00:34:07,000 --> 00:34:09,000

I believe I'm going to be all right.

511

00:34:09,000 --> 00:34:12,000

Just the very fact that I'm down on the ground low

512

00:34:12,000 --> 00:34:15,000

and I've got some protection, I think it'll be good.

513

00:34:15,000 --> 00:34:20,000

And remarkably, that's confidence that the storm chasers agree with.

514

00:34:20,000 --> 00:34:22,000

I'm really impressed by this.

515

00:34:22,000 --> 00:34:25,000

It's low to the ground, it's aerodynamic, no wind to go underneath.

516

00:34:25,000 --> 00:34:27,000

I give it a 100% chance of survival.

517

00:34:27,000 --> 00:34:32,000

I have two predictions as to how this test is going to go.

518

00:34:32,000 --> 00:34:36,000

I think absolutely that the tornado shield will allow Jamie to stay here

519

00:34:36,000 --> 00:34:38,000

at wind speeds higher than 130.

520

00:34:38,000 --> 00:34:42,000

I'm guessing maybe 150, actually, which is a pretty significant difference.

521

00:34:42,000 --> 00:34:45,000

I'm also predicting that Jamie takes the thing home to take Napson.

522

00:34:45,000 --> 00:34:47,000

Look at how comfortable he is in it.

523

00:34:47,000 --> 00:34:49,000

I'm in.

524

00:34:49,000 --> 00:34:53,000

Well, there's no time like the present to find out.

525

00:34:53,000 --> 00:34:57,000

All right, here's the first test of the human tornado shield.

526

00:34:57,000 --> 00:35:00,000

Go ahead and start the engines.

527

00:35:00,000 --> 00:35:02,000

I can handle the engines going up.

528

00:35:02,000 --> 00:35:03,000

We're all good.

529

00:35:03,000 --> 00:35:07,000

Like last time, the pilot ups the thrust in increments.

530

00:35:07,000 --> 00:35:09,000

The aircraft's away.

531

00:35:09,000 --> 00:35:11,000

Yeah, now he feels it.

532

00:35:11,000 --> 00:35:17,000

One design flaw of the shield is that Jamie cannot see out of it.

533

00:35:17,000 --> 00:35:23,000

You can only imagine how terrifying it must be as the pilot ups the ante.

534

00:35:23,000 --> 00:35:26,000

The tail end of this thing is one for the left.

535

00:35:26,000 --> 00:35:27,000

A little bit to the top.

536

00:35:27,000 --> 00:35:30,000

Feels OK.

537

00:35:30,000 --> 00:35:35,000

The shield holds up well as the wind creeps beyond 130.

538

00:35:35,000 --> 00:35:41,000

But suddenly, things take a turn for the worse.

539

00:35:41,000 --> 00:35:50,000

The suit tears away and Jamie is left vulnerably exposed.

540

00:35:50,000 --> 00:35:58,000

The pilot cuts the engine almost immediately, but like some sort of cyborg, Jamie survived intact.

541

00:35:58,000 --> 00:36:00,000

How you doing?

542

00:36:00,000 --> 00:36:02,000

I was fine.

543

00:36:02,000 --> 00:36:06,000

The tornado shield wasn't.

544

00:36:06,000 --> 00:36:11,000

It's just like all the...

545

00:36:11,000 --> 00:36:15,000

As the wind hit 135, the suit went AWOL.

546

00:36:15,000 --> 00:36:21,000

But the pilot cut the engines before any real harm was done.

547

00:36:21,000 --> 00:36:25,000

The weird thing is that you're in there in the dark.

548

00:36:25,000 --> 00:36:33,000

That right there is enough to freak you out.

549

00:36:33,000 --> 00:36:36,000

Once the wind started going, I was fine.

550

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

The problem comes when things start to flap a lot.

551

00:36:40,000 --> 00:36:48,000

And at that point, it started to kind of move around to where it actually moved away from me.

552

00:36:48,000 --> 00:36:52,000

But once Jamie collects the shield from the other end of the airport,

553

00:36:52,000 --> 00:36:55,000

It's still all there. Looks like a pin fell out.

554

00:36:55,000 --> 00:36:58,000

It seems all is not lost.

555

00:36:58,000 --> 00:37:04,000

Moments ago behind me, what happened was the tornado shield's top separated from its bottom.

556

00:37:04,000 --> 00:37:09,000

Effectively delaminated, exposing the creamy center that is James Tyneman.

557

00:37:09,000 --> 00:37:11,000

Jamie is going to make some modifications.

558

00:37:11,000 --> 00:37:15,000

He's going to get right back on that horse and get in front of that jet.

559

00:37:15,000 --> 00:37:18,000

That's the spirit.

560

00:37:22,000 --> 00:37:25,000

I'm standing in the main deck of 747 cargo plane.

561

00:37:25,000 --> 00:37:30,000

Not for anything to do with the story, but just because it's so freaking cool.

562

00:37:30,000 --> 00:37:36,000

This is one of my favorite parts about this job is getting to look around the corners and see some of this stuff while we're working on other things.

563

00:37:36,000 --> 00:37:41,000

Alright, now back to your regular leaf schedule.

564

00:37:41,000 --> 00:37:51,000

Being outside during a tornado is a potentially lethal idea. Something Jamie's just confirmed.

565

00:37:51,000 --> 00:38:00,000

His tornado shield was looking promising until at just over 130 miles per hour it blew it.

566

00:38:03,000 --> 00:38:07,000

But Jamie's not giving up without a fight.

567

00:38:07,000 --> 00:38:15,000

This was the problem. These things right here, I made pivot so that the whole thing could fold up neatly.

568

00:38:15,000 --> 00:38:24,000

They're what actually holds the whole thing to the ground because they pivoted, they were allowed to move and they let go of the actual shield.

569

00:38:24,000 --> 00:38:32,000

So we're going to actually bolt them in place and bolt them to the shield. They won't let go this time and I think I'll stay in place.

570

00:38:32,000 --> 00:38:36,000

Alright, there it is. Good luck.

571

00:38:40,000 --> 00:38:43,000

There he goes, one of God's own prototypes.

572

00:38:43,000 --> 00:38:50,000

Once more, Jamie suits up directly behind the warming up engines of the 747.

573

00:38:50,000 --> 00:38:52,000

Are you alright?

574

00:38:52,000 --> 00:38:56,000

Okay, I'm good. I'm okay.

575

00:38:57,000 --> 00:39:05,000

Alright ladies and gentlemen, back by Ponder demand, it's Jamie Heineman in tornado shield 2, the back to the drug board tour. Jamie, take it away.

576

00:39:06,000 --> 00:39:15,000

Alright, start those engines. Jamie sounds really impatient in there. He's like, I'm still standing by as if we've forgotten about him.

577

00:39:15,000 --> 00:39:19,000

Okay, here it is.

578

00:39:26,000 --> 00:39:30,000

At 110 miles an hour, Jamie's finding it a breeze.

579

00:39:31,000 --> 00:39:37,000

So the wind speeds increased to 130.

580

00:39:37,000 --> 00:39:44,000

He's now experiencing 130.

581

00:39:54,000 --> 00:40:02,000

With the suit holding up, the pilot puts the pedal to the metal, increasing the speed to 180.

582

00:40:02,000 --> 00:40:12,000

Jamie and the suit are clinging on for dear life, but that seems to be working.

583

00:40:32,000 --> 00:40:38,000

I'm stuck in. I'm stuck in.

584

00:40:38,000 --> 00:40:48,000

Incredible, Jamie and his suit successfully survived an F4 tornado. It's absolutely mission accomplished.

585

00:40:48,000 --> 00:40:50,000

He did it.

586

00:40:53,000 --> 00:40:56,000

He was still 180 miles per hour.

587

00:40:56,000 --> 00:40:58,000

What was he saying? Is it pretty loud in there?

588

00:40:58,000 --> 00:41:04,000

I could barely hear him. He's like, oh, this is intense. Oh, I'm feeling it now.

589

00:41:04,000 --> 00:41:06,000

Let's go talk to him.

590

00:41:15,000 --> 00:41:18,000

That was 180 miles an hour.

591

00:41:18,000 --> 00:41:21,000

Yeah, baby. 180.

592

00:41:29,000 --> 00:41:39,000

That was just flat out terrifying. There's absolutely nothing you could do with that kind of power, except hold on and hope that the rig holds and by golly, it holds.

593

00:41:39,000 --> 00:41:46,000

It held. It held. I was waiting for the claw to let, what's going to let go, but nothing did.

594

00:41:46,000 --> 00:41:52,000

I was getting beaten by the surface of this thing. Wow. It's like being spanked.

595

00:41:52,000 --> 00:41:54,000

Okay.

596

00:41:54,000 --> 00:41:56,000

Nice work.

597

00:41:59,000 --> 00:42:09,000

The high speed shows just how intense that was with ice chunks hitting and a 180 mile an hour wind. The prototype rock.

598

00:42:09,000 --> 00:42:20,000

I gotta say, when we first started talking about the tornado shield, we went through a lot of design ideas, but I didn't think that any of them would have withstood what I saw here.

599

00:42:20,000 --> 00:42:33,000

Nothing prepared me for how devastating that wind was. And our tornado shield with only one modification held its ground in 180 mile per hour winds with nothing holding it down except from spikes, keeping it from sliding.

600

00:42:36,000 --> 00:42:38,000

That is amazing.

601

00:42:38,000 --> 00:42:41,000

Jamie did great. The first test he did, he failed.

602

00:42:41,000 --> 00:42:43,000

Miserable.

603

00:42:44,000 --> 00:42:49,000

But he did alterations and in the end he came through with flying colors.

604

00:42:49,000 --> 00:42:56,000

I don't know that everybody in the tornado belt is going to want to carry one of these things around, but we saw what happened to an unprotected person.

605

00:42:56,000 --> 00:43:05,000

We saw what happened to a car. And the simple fact is that if you had one of these and you got in it in a tornado, you'd be safe.

606

00:43:05,000 --> 00:43:09,000

Well, you guys wanted a tornado and we brought a tornado.

607

00:43:09,000 --> 00:43:12,000

And you've got a new piece of hardware for your kit.

608

00:43:12,000 --> 00:43:14,000

Man, I can't believe you did that.

609

00:43:14,000 --> 00:43:16,000

It's going to be a great tornado season.

610

00:43:19,000 --> 00:43:22,000

You