1

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

Please do not try what you are about to see at home.

2

00:00:04,000 --> 00:00:05,500

We're what you call experts.

3

00:00:05,500 --> 00:00:06,500

Can't you tell?

4

00:00:07,500 --> 00:00:10,000

On this great-neck episode of Mythbusters,

5

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

Adam and Janie are bubbling over with excitement.

6

00:00:15,000 --> 00:00:16,500

That was magnificent.

7

00:00:16,500 --> 00:00:19,000

As they test this viral video.

8

00:00:19,500 --> 00:00:21,000

Yeah, we did it, boss.

9

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

But can a buffer pack round?

10

00:00:23,500 --> 00:00:25,000

Science is dangerous.

11

00:00:25,000 --> 00:00:28,500

Really let you walk away from a 35-foot fall.

12

00:00:28,500 --> 00:00:30,500

Still totally and utterly dead.

13

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

Then carry Gran Tontori go head over heels.

14

00:00:38,500 --> 00:00:40,500

For some bond-carbed bedlam.

15

00:00:40,500 --> 00:00:44,000

Look, James, I got a lot of stuff going on right now.

16

00:00:44,000 --> 00:00:46,500

Can a rocket-powered ejector seat?

17

00:00:46,500 --> 00:00:49,500

This is the most dangerous thing I have ever built.

18

00:00:49,500 --> 00:00:53,500

Really flip an overturned car back onto its wheels?

19

00:00:59,500 --> 00:01:01,500

Who are the Mythbusters?

20

00:01:01,500 --> 00:01:02,500

Adam Savage.

21

00:01:02,500 --> 00:01:04,500

This is science in action.

22

00:01:04,500 --> 00:01:06,500

And Janie Heineman.

23

00:01:06,500 --> 00:01:07,500

Bye-bye.

24

00:01:08,500 --> 00:01:12,500

Between them more than 30 years of special effects experience,

25

00:01:12,500 --> 00:01:14,500

together with Brad Imajaro,

26

00:01:14,500 --> 00:01:15,500

That is crazy.

27

00:01:15,500 --> 00:01:16,500

Carrie Byron,

28

00:01:17,500 --> 00:01:19,500

and Tori Valetian.

29

00:01:19,500 --> 00:01:21,500

It's about to get real.

30

00:01:21,500 --> 00:01:23,500

They don't just tell the rits,

31

00:01:24,500 --> 00:01:26,500

they put them to the test.

32

00:01:28,500 --> 00:01:30,220

The

33

00:01:39,500 --> 00:01:42,500

So judging by the fact that we've got this bubble stuff all over the place,

34

00:01:42,500 --> 00:01:45,500

can I assume that somebody's done something really stupid with it?

35

00:01:45,500 --> 00:01:47,500

You are absolutely correct.

36

00:01:47,500 --> 00:01:50,500

What we've got is a viral video where a guy wraps himself up

37

00:01:50,500 --> 00:01:52,500

in a bunch of this bubble packaging,

38

00:01:52,500 --> 00:01:54,500

hurls himself up a three-story building,

39

00:01:54,500 --> 00:01:57,500

and at the end of his fall appears to be totally unharmed.

40

00:01:57,500 --> 00:01:59,500

Well, it is designed to cushion things.

41

00:01:59,500 --> 00:02:00,500

Yes it is.

42

00:02:02,500 --> 00:02:05,500

Bubble pack was created to cushion cargo.

43

00:02:05,500 --> 00:02:06,500

To covile gas.

44

00:02:06,500 --> 00:02:11,500

But can a few inches of the pimply padding break a 35-foot fall?

45

00:02:13,500 --> 00:02:18,500

In other words, can this three-story story really be real?

46

00:02:18,500 --> 00:02:19,500

Obviously.

47

00:02:21,500 --> 00:02:24,500

Obviously at some point one of us is going to end up wrapped in bubble packaging

48

00:02:24,500 --> 00:02:26,500

and jumping out of building.

49

00:02:26,500 --> 00:02:28,500

But I have some safety concerns about that.

50

00:02:28,500 --> 00:02:30,500

How do you want to deal with it?

51

00:02:30,500 --> 00:02:33,500

I think quite simply by starting our testing with Buster instead of with us,

52

00:02:33,500 --> 00:02:36,500

let's replicate the exact circumstances we see in the video.

53

00:02:36,500 --> 00:02:39,500

Wrapping Buster in the same amount of bubble packaging,

54

00:02:39,500 --> 00:02:41,500

throw him off a correctly sized building,

55

00:02:41,500 --> 00:02:43,500

put some accelerometers on his body,

56

00:02:43,500 --> 00:02:44,500

and see if he lives.

57

00:02:44,500 --> 00:02:45,500

Works for me.

58

00:02:45,500 --> 00:02:49,500

So to recreate the circumstances of this bubble boy myth,

59

00:02:49,500 --> 00:02:54,500

Adam, Jamie and Buster drop in on their favorite drop zone.

60

00:02:54,500 --> 00:02:58,500

Today we find ourselves in a decommissioned military building on San Francisco Bay,

61

00:02:58,500 --> 00:02:59,500

and it's not our first time here.

62

00:02:59,500 --> 00:03:02,500

For instance, way back when we did awning fall right below me.

63

00:03:06,500 --> 00:03:08,500

Today it is all bubble boy.

64

00:03:08,500 --> 00:03:11,500

In the clip the guy falls from 35 feet.

65

00:03:11,500 --> 00:03:15,500

He lands flat on his back and he's got four inches of bubble packing on him.

66

00:03:15,500 --> 00:03:19,500

Now for us to tell how effective that bubble packing would be,

67

00:03:19,500 --> 00:03:23,500

we need to do a control which means that we're going to drop our dummy first

68

00:03:23,500 --> 00:03:28,500

from that height without any bubble packing and see what he registers on our sensors.

69

00:03:28,500 --> 00:03:32,500

So Buster's facing two three-story tumbles.

70

00:03:32,500 --> 00:03:38,500

First he'll nose dive naked, then he'll take the plunge in a bubbly burrito.

71

00:03:38,500 --> 00:03:40,500

How are we going to compare one to the other?

72

00:03:40,500 --> 00:03:41,500

With this.

73

00:03:41,500 --> 00:03:46,500

This is an accelerometer and it can read G loads up to 5,000 G.

74

00:03:46,500 --> 00:03:49,500

This ought to give us a really nice clean comparison

75

00:03:49,500 --> 00:03:52,500

between Buster dropping protected and unprotected.

76

00:03:53,500 --> 00:03:57,500

That's the plan, so Adam cuts to the chase and sets the sensors.

77

00:03:57,500 --> 00:03:58,500

Think you're ready Buster?

78

00:03:58,500 --> 00:04:01,500

Before Buster is hoisted 35 feet.

79

00:04:01,500 --> 00:04:03,500

That looks kind of perfect.

80

00:04:03,500 --> 00:04:04,500

And assumes the position.

81

00:04:04,500 --> 00:04:05,500

Poor Buster.

82

00:04:05,500 --> 00:04:07,500

Poor poor Buster.

83

00:04:07,500 --> 00:04:11,500

Here we go. Buster, control dropping from 35 feet.

84

00:04:11,500 --> 00:04:14,500

And three, two, one.

85

00:04:14,500 --> 00:04:17,500

Oh, nice.

86

00:04:17,500 --> 00:04:18,500

A perfect hit.

87

00:04:18,500 --> 00:04:20,500

He stayed together in one piece.

88

00:04:20,500 --> 00:04:21,500

He totally did.

89

00:04:21,500 --> 00:04:27,500

Yep, if there's one thing Buster can do, it's stick to landing.

90

00:04:27,500 --> 00:04:28,500

A perfect hit.

91

00:04:28,500 --> 00:04:31,500

Buster's control drop went off without a hitch.

92

00:04:31,500 --> 00:04:33,500

Feels like old times.

93

00:04:33,500 --> 00:04:35,500

He hit the target from 35 feet.

94

00:04:35,500 --> 00:04:37,500

He landed, he flipped over.

95

00:04:37,500 --> 00:04:40,500

Now we've got to see how many G's he pulled when he hit.

96

00:04:40,500 --> 00:04:41,500

What do we get?

97

00:04:41,500 --> 00:04:44,500

Well, Buster falling flat onto the ground with no protection.

98

00:04:44,500 --> 00:04:47,500

The accelerometer says that he took 300 G's.

99

00:04:47,500 --> 00:04:48,500

Lethal.

100

00:04:48,500 --> 00:04:49,500

Absolutely lethal.

101

00:04:49,500 --> 00:04:53,500

Like four times your average severe car accident kind of lethal.

102

00:04:53,500 --> 00:04:55,500

Adam's not exaggerating.

103

00:04:55,500 --> 00:04:59,500

With no protection, Buster's drop was a disaster.

104

00:04:59,500 --> 00:05:04,500

And he smacked the sidewalk at 300 G's.

105

00:05:04,500 --> 00:05:08,500

With all this talk about G's and G loads, you may be wondering what a G is.

106

00:05:08,500 --> 00:05:11,500

Well, a G is one Earth's gravity.

107

00:05:11,500 --> 00:05:15,500

So when we say that Buster is experiencing 300 G's,

108

00:05:15,500 --> 00:05:18,500

that means he's experiencing a stress.

109

00:05:18,500 --> 00:05:21,500

300 times as large as the Earth's gravity.

110

00:05:21,500 --> 00:05:23,500

And that's a lot.

111

00:05:23,500 --> 00:05:24,500

It sure is.

112

00:05:24,500 --> 00:05:29,500

A 300 G impact is like being slammed by a speeding cement truck.

113

00:05:29,500 --> 00:05:33,500

But will that be the same when bound in bubbles?

114

00:05:33,500 --> 00:05:37,500

To match the viral video, Buster is carefully cocooned in bubble pack.

115

00:05:37,500 --> 00:05:39,500

Hold on a second, I'm getting dizzy.

116

00:05:39,500 --> 00:05:40,500

Me too.

117

00:05:40,500 --> 00:05:43,500

Until the protective packing is four inches thick.

118

00:05:43,500 --> 00:05:45,500

So it's pretty obvious that if we start to add padding,

119

00:05:45,500 --> 00:05:50,500

we're going to be reducing the impact by slowing down the deceleration process.

120

00:05:50,500 --> 00:05:53,500

That meeting of Buster and the pavement.

121

00:05:53,500 --> 00:05:57,500

The question is, is four inches of padding enough to reduce that deceleration

122

00:05:57,500 --> 00:06:00,500

to where Buster would survive?

123

00:06:00,500 --> 00:06:01,500

I don't think so.

124

00:06:01,500 --> 00:06:05,500

With Buster easy prey buried up to his neck in bubbles,

125

00:06:05,500 --> 00:06:08,500

it's time for him to make his 35-foot leap of faith.

126

00:06:08,500 --> 00:06:12,500

All right, Buster, following from 35 feet in bubble packaging.

127

00:06:12,500 --> 00:06:14,500

Come on, three, come on, Buster.

128

00:06:14,500 --> 00:06:16,500

Two, one, go!

129

00:06:18,500 --> 00:06:20,500

That was a satisfying thud.

130

00:06:20,500 --> 00:06:23,500

I don't think it was a survivable thud, but it was satisfying.

131

00:06:23,500 --> 00:06:27,500

Buster bounced, but did he burst his own bubble?

132

00:06:27,500 --> 00:06:34,500

With all of this extra padding, we dropped Buster's maximum G load from 300 Gs to 260 Gs.

133

00:06:34,500 --> 00:06:36,500

He's still totally and utterly dead.

134

00:06:36,500 --> 00:06:39,500

Yeah, he's going to need a lot more padding than this to survive that fall.

135

00:06:39,500 --> 00:06:41,500

Indeed he is.

136

00:06:41,500 --> 00:06:44,500

While four inches of bubbles did reduce Buster's G load,

137

00:06:44,500 --> 00:06:48,500

he's still three and a half times over the lethal limit.

138

00:06:48,500 --> 00:06:53,500

So Buster's dead-falling naked and dead-falling wrapped in bubble pack, where does that leave us?

139

00:06:53,500 --> 00:06:57,500

Well, I can't help but think that with enough of this stuff, sooner or later you'd be safe.

140

00:06:57,500 --> 00:06:58,500

I totally agree.

141

00:06:58,500 --> 00:07:02,500

Let's head back to the shop and see how much it would take for him to survive this fall.

142

00:07:02,500 --> 00:07:04,500

More bubble trouble. I like it.

143

00:07:05,500 --> 00:07:11,500

Next up, it's time to be shaken and stirred.

144

00:07:11,500 --> 00:07:16,500

Alright, so we have a myth that involves ejector seats, missiles, and James Bond.

145

00:07:16,500 --> 00:07:18,500

Sounds like the perfect combination of me.

146

00:07:18,500 --> 00:07:21,500

He had it from the movie, but he has a car chase right across the frozen lake.

147

00:07:21,500 --> 00:07:23,500

Something goes horribly wrong and boom, cars upside down.

148

00:07:23,500 --> 00:07:29,500

Right, and that gives the bad guy time to pull over, line up his car, and fire his onboard car missiles.

149

00:07:30,500 --> 00:07:36,500

Just as you think James Bond is a sitting duck, at the last minute he pushes the passenger ejector seat and,

150

00:07:36,500 --> 00:07:38,500

shoot, seat through the roof.

151

00:07:38,500 --> 00:07:43,500

Oh, and that amount of force imparted on the ground causes the car to flip back over and he drives away.

152

00:07:43,500 --> 00:07:46,500

This could be the best James Bond myth we've ever tested.

153

00:07:46,500 --> 00:07:51,500

Upside down with nowhere to go, 007 seems down for the count.

154

00:07:51,500 --> 00:07:56,500

But by deploying his rocket-powered passenger hot seat, he flips his way to freedom.

155

00:07:56,500 --> 00:08:01,500

But is this rocketry real, or is this myth on thin ice?

156

00:08:01,500 --> 00:08:06,500

Okay, so all we need is an upside down sports car and a rocket-powered ejector seat.

157

00:08:06,500 --> 00:08:08,500

Well, the ejector seat could be a problem.

158

00:08:08,500 --> 00:08:14,500

Since we don't know exactly what Q's design involved, it could be some high-powered thing that launches people hundreds of feet in the air.

159

00:08:14,500 --> 00:08:18,500

Or it could be a low-key ejector seat, you know, enough to send the bad guy out of the car.

160

00:08:18,500 --> 00:08:22,500

Well, if you look at the footage, when it deploys, you see just a little bit of flame.

161

00:08:22,500 --> 00:08:26,500

Now, with the big ejector seat, you'd imagine you'd see this huge fireball after it.

162

00:08:26,500 --> 00:08:27,500

And that's not what we see.

163

00:08:27,500 --> 00:08:29,500

So I'm guessing probably the latter.

164

00:08:29,500 --> 00:08:31,500

Something that ejected like 25 feet.

165

00:08:31,500 --> 00:08:32,500

Yeah.

166

00:08:32,500 --> 00:08:35,500

And then we find out what that rocket thrust is, we flip the car and test the myth.

167

00:08:35,500 --> 00:08:36,500

Great.

168

00:08:37,500 --> 00:08:41,500

So first up, the mythbusters need a top-of-the-range Bond Mobile.

169

00:08:41,500 --> 00:08:43,500

I don't know about you, but I feel like a spy.

170

00:08:43,500 --> 00:08:45,500

But they got this.

171

00:08:45,500 --> 00:08:48,500

Yes, Mr. President, we'll be right there.

172

00:08:49,500 --> 00:08:54,500

After doing a little bit of research, even to find a used and trashed car, like the one in the Bond film,

173

00:08:54,500 --> 00:08:57,500

we were talking about $100,000.

174

00:08:57,500 --> 00:09:00,500

This one's a little more on our price range.

175

00:09:00,500 --> 00:09:04,500

And we chose this car because it has a similar curb weight, it's 4,000 pounds,

176

00:09:04,500 --> 00:09:08,500

and we can actually create the same weight distribution front to back.

177

00:09:08,500 --> 00:09:10,500

This one should work really well for our flip.

178

00:09:10,500 --> 00:09:17,500

It may not look like much, but with similar specs to Bond's movie machine, this car's the wheel deal.

179

00:09:17,500 --> 00:09:19,500

So cue the ejection injection.

180

00:09:19,500 --> 00:09:24,500

So to test this myth properly, we have to make some modifications to our vehicle.

181

00:09:24,500 --> 00:09:27,500

One, we're pulling out the pre-existing passenger seat.

182

00:09:27,500 --> 00:09:34,500

Then we are cutting open the sunroof bigger so that it allows a chair with a person sitting in it to be ejected.

183

00:09:36,500 --> 00:09:37,500

That was easy.

184

00:09:37,500 --> 00:09:41,500

And then finally, we're introducing our own rocket-powered ejector seat.

185

00:09:41,500 --> 00:09:43,500

This is going to be awesome.

186

00:09:43,500 --> 00:09:47,500

Tori soon bonds a rocket guide rail into place.

187

00:09:47,500 --> 00:09:51,500

Before he then, heeds in some heavy metal.

188

00:09:51,500 --> 00:09:55,500

We're adding a big steel plate to the floor of the car for a couple of reasons.

189

00:09:55,500 --> 00:09:57,500

Ha ha ha! It fits perfectly.

190

00:09:57,500 --> 00:10:00,500

We don't want the rocket to burn through the bottom of the car.

191

00:10:00,500 --> 00:10:06,500

We want to contain all of the thrust, and this will give us a weight distribution that's balanced just like the car from the movie clip.

192

00:10:07,500 --> 00:10:14,500

And once that reinforced floor is safely locked and loaded, their SpyCar special is almost all set.

193

00:10:14,500 --> 00:10:16,500

So our ejector seat is finished.

194

00:10:16,500 --> 00:10:19,500

Now there's wheels on the back of the chair that hook into a rail.

195

00:10:19,500 --> 00:10:23,500

That way he stays online as the rockets thrust him upwards and out of the car.

196

00:10:23,500 --> 00:10:27,500

Now all we have to do is attach the rockets to it, see if it actually works.

197

00:10:27,500 --> 00:10:33,500

If it works, then we're going to flip the car over and see if the ejector seat will actually flip the car back on its wheels.

198

00:10:34,500 --> 00:10:36,500

Adios muchachos!

199

00:10:36,500 --> 00:10:40,500

That's the theory. At a Goldfinger paint job later...

200

00:10:40,500 --> 00:10:42,500

Just paint right over the bird poop.

201

00:10:42,500 --> 00:10:44,500

Look at that! What bird poop?

202

00:10:44,500 --> 00:10:47,500

And it's time for this myth to live and let die.

203

00:10:50,500 --> 00:10:52,500

Alright, test, break...

204

00:10:52,500 --> 00:10:55,500

Coming right up, will their ejector seat fire or a fizzle?

205

00:10:56,500 --> 00:10:59,500

And Adam gets in some serious bubble trouble.

206

00:10:59,500 --> 00:11:01,500

Bye bye everybody.

207

00:11:04,500 --> 00:11:10,500

In this viral video, supposedly a wrapping of bubble pack lets you dive and survive.

208

00:11:10,500 --> 00:11:14,500

But Buster's landing was anything but soft.

209

00:11:15,500 --> 00:11:17,500

That was a satisfying thud.

210

00:11:17,500 --> 00:11:19,500

Well, Buster's dead again.

211

00:11:19,500 --> 00:11:22,500

Yep, and I have to say I'm really glad it was him and not me.

212

00:11:22,500 --> 00:11:27,500

Yeah, well speaking of that, before one of us gets wrapped in this stuff and jumps off a building,

213

00:11:27,500 --> 00:11:30,500

I have to say that I'm really glad it was him and not me.

214

00:11:30,500 --> 00:11:33,500

But before one of us gets wrapped in this stuff and jumps off a building,

215

00:11:33,500 --> 00:11:37,500

I think we've got a bunch of testing we need to do first to determine how much it takes to be safe.

216

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

So some small scale testing is what you're thinking.

217

00:11:39,500 --> 00:11:40,500

Exactly.

218

00:11:40,500 --> 00:11:42,500

Alright, let's get down to the shop and set it up.

219

00:11:42,500 --> 00:11:46,500

Yep, before either myth Buster takes a tumble as a crash test dummy,

220

00:11:46,500 --> 00:11:55,500

The guys first plan some bench tests to find out what can make a bubble pack leap of faith safe.

221

00:11:56,500 --> 00:11:58,500

But what equals safe?

222

00:11:58,500 --> 00:12:01,500

For that, I want you to cast your mind back to our episode called Dumpster Diving,

223

00:12:01,500 --> 00:12:05,500

which Jamie and I were trained to jump off a building by a Hollywood stuntman.

224

00:12:05,500 --> 00:12:06,500

Perfect.

225

00:12:06,500 --> 00:12:10,500

Now the G-forces we encountered were about 10 Gs.

226

00:12:10,500 --> 00:12:14,500

That is the G-load that Hollywood stuntmen used to keep themselves safe.

227

00:12:14,500 --> 00:12:16,500

That is what our target G-load is.

228

00:12:16,500 --> 00:12:20,500

But to reach that 10 G target, they need the top of the box.

229

00:12:20,500 --> 00:12:21,500

Wow, built this stuff.

230

00:12:21,500 --> 00:12:25,500

So first up, the guys are going to see which style of bubble pack,

231

00:12:25,500 --> 00:12:30,500

mini, medium, or heavy duty has the best cushion credentials.

232

00:12:30,500 --> 00:12:32,500

So many bubbles so little time.

233

00:12:32,500 --> 00:12:33,500

And how?

234

00:12:33,500 --> 00:12:38,500

By dropping a human analog that brings a whole new meaning to the word simple.

235

00:12:39,500 --> 00:12:43,500

Believe it or not, this thing right here is my idealized human.

236

00:12:43,500 --> 00:12:47,500

It's a plastic tube filled with seven cannonballs and it doesn't talk.

237

00:12:47,500 --> 00:12:51,500

Because this test ain't about chit chat, it's about getting a consistent drop.

238

00:12:51,500 --> 00:12:56,500

The idea here is to have something that is the approximate size and weight of a human,

239

00:12:56,500 --> 00:13:03,500

but has a uniform shape so that we can reliably test the performance of various types of bubble packing.

240

00:13:03,500 --> 00:13:04,500

It's ready.

241

00:13:04,500 --> 00:13:08,500

And they'll start at the mythical four inches and double the thickness from there.

242

00:13:08,500 --> 00:13:14,500

As we increase the amount of padding we're using, we're looking to see if we can find any kind of pattern.

243

00:13:14,500 --> 00:13:20,500

In other words, if we double the thickness of the padding, are we cutting the impact we see in half?

244

00:13:22,500 --> 00:13:29,500

To find out the guys attach impact accelerometers before raising the human analog to a benchmark six feet high.

245

00:13:29,500 --> 00:13:30,500

I know what you're thinking.

246

00:13:30,500 --> 00:13:37,500

You're wondering why we are dropping a solid body onto bubble packaging rather than wrapping it in bubble packaging like the guy does in the clip.

247

00:13:37,500 --> 00:13:42,500

The fact is from a physics standpoint, when you're examining the cushioning effects of bubble packaging,

248

00:13:42,500 --> 00:13:45,500

it doesn't make any difference whether you wrap it or you drop it.

249

00:13:45,500 --> 00:13:50,500

So they line up the mini, medium and heavyweight bubbles and it's bombs away on all three.

250

00:13:51,500 --> 00:13:54,500

Dropping human analog into bubble packaging.

251

00:13:54,500 --> 00:13:56,500

Three, two, one.

252

00:14:00,500 --> 00:14:06,500

200 pounds is dropped from six feet into three types of bubbles.

253

00:14:07,500 --> 00:14:08,500

I felt that one.

254

00:14:08,500 --> 00:14:09,500

Yeah.

255

00:14:09,500 --> 00:14:10,500

Four inches thick.

256

00:14:11,500 --> 00:14:14,500

It's a free fall, free for all.

257

00:14:14,500 --> 00:14:15,500

Wow.

258

00:14:15,500 --> 00:14:17,500

That was very, very different.

259

00:14:17,500 --> 00:14:18,500

It was.

260

00:14:18,500 --> 00:14:20,500

But when the dust settles.

261

00:14:20,500 --> 00:14:22,500

Let's check out the horror show of this drop.

262

00:14:22,500 --> 00:14:24,500

The G-loads are ready to be revealed.

263

00:14:24,500 --> 00:14:25,500

Coming in beautifully.

264

00:14:25,500 --> 00:14:29,500

The medium bubbles fared worst, producing 100 Gs.

265

00:14:29,500 --> 00:14:33,500

But strangely, the mini and heavyweight bubbles were almost neck and neck.

266

00:14:33,500 --> 00:14:35,500

That's amazing.

267

00:14:35,500 --> 00:14:39,500

I would have never called that this would have that result on the bubble packaging.

268

00:14:40,500 --> 00:14:44,500

But how will these four inch results stack up against eight inches?

269

00:14:45,500 --> 00:14:51,500

Now we're doing the same set of tests again, except this time with double the thickness of bubble packaging material.

270

00:14:51,500 --> 00:14:52,500

We expect that we'll get better results.

271

00:14:52,500 --> 00:14:55,500

The question we have is how much better?

272

00:14:55,500 --> 00:14:56,500

Hold on tight.

273

00:14:56,500 --> 00:14:58,500

It's time to release the pounds.

274

00:14:58,500 --> 00:14:59,500

Eight inches thick.

275

00:14:59,500 --> 00:15:00,500

Here we go.

276

00:15:00,500 --> 00:15:02,500

Three, two, one.

277

00:15:04,500 --> 00:15:07,500

Eight inches of wrap has the human analog making a break for it.

278

00:15:07,500 --> 00:15:11,500

The question is, will the rebounds pop out different G-loads?

279

00:15:11,500 --> 00:15:13,500

That is really scary as hell.

280

00:15:13,500 --> 00:15:20,500

This time the mini bubble had the least trouble with 35 Gs, while medium and heavyweight are both on 40.

281

00:15:20,500 --> 00:15:24,500

But what's crucial is that doubling the bubbles has cut the G-load in half.

282

00:15:24,500 --> 00:15:26,500

That was very interesting.

283

00:15:26,500 --> 00:15:28,500

Eight inches, very different than four inches.

284

00:15:28,500 --> 00:15:29,500

Yeah.

285

00:15:29,500 --> 00:15:30,500

I've always said it.

286

00:15:30,500 --> 00:15:33,500

But will that pattern continue at 16 inches?

287

00:15:33,500 --> 00:15:36,500

Three, two, one.

288

00:15:38,500 --> 00:15:41,500

Science is dangerous.

289

00:15:41,500 --> 00:15:44,500

Double the bubbles has cut the G-loads in half again.

290

00:15:44,500 --> 00:15:46,500

And that's not the only good news.

291

00:15:46,500 --> 00:15:51,500

Here at 16 inches, these three measurements are effectively the same.

292

00:15:51,500 --> 00:15:58,500

That means that the more bubble wrap we wrap around Buster and ourselves, the less important the type of bubble wrap.

293

00:15:58,500 --> 00:16:00,500

I would not have called that.

294

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

Yep, it's been a successful small scale test because it seems that with a thick enough bubble burrito, a myth buster may survive the dive.

295

00:16:09,500 --> 00:16:13,500

But their shop drops were short.

296

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

Will things still be looking up when they raise the stakes?

297

00:16:16,500 --> 00:16:18,500

That was magnificent.

298

00:16:19,500 --> 00:16:31,500

Cary, Grant and Tori are bonding as they find out if you can flip a car thanks to a rocket powered ejector seat.

299

00:16:31,500 --> 00:16:36,500

And at an abandoned airfield, first up is some ejector evaluation.

300

00:16:36,500 --> 00:16:38,500

Time to deploy our spy car.

301

00:16:38,500 --> 00:16:41,500

Myth busters, it's go time.

302

00:16:41,500 --> 00:16:45,500

We've come out to the new Jerusalem runway so we can test our bond ejector seat myth.

303

00:16:45,500 --> 00:16:51,500

Now for that we've built an ejector seat and we're going to find out how much thrust it takes to get our passenger out of the car.

304

00:16:51,500 --> 00:16:55,500

Now this is important because that's how much thrust we're going to use to try to flip the car.

305

00:16:55,500 --> 00:17:06,500

Yep, before any car flips out, the guys first need to give their ejector seat the same thrust as a 007 model with some top of the range rockets.

306

00:17:06,500 --> 00:17:10,500

Now the target height that we're looking for is 20 to 25 feet.

307

00:17:10,500 --> 00:17:16,500

But you can't get that with any off the shelf hobby rocket motor and that's why we're using these.

308

00:17:16,500 --> 00:17:20,500

These have a 500 millisecond burn time, 200 pounds of thrust each.

309

00:17:20,500 --> 00:17:25,500

Four of them should be more than enough to get our 300 pounds of buster plus his rig up and out of the car.

310

00:17:25,500 --> 00:17:28,500

So Tori adds the rockets to the seat.

311

00:17:28,500 --> 00:17:30,500

Alright, the chair is loaded.

312

00:17:30,500 --> 00:17:33,500

And the seat complete with bond villain to the car.

313

00:17:33,500 --> 00:17:34,500

We're in!

314

00:17:34,500 --> 00:17:37,500

Alright, this is rocket powered ejector seat.

315

00:17:37,500 --> 00:17:41,500

Test in three, two, one, fire!

316

00:17:51,500 --> 00:17:57,500

Perfect is right as their ejector seat propel buster right into their benchmark buttersome.

317

00:17:58,500 --> 00:18:03,500

But once the smoke's cleared, it's clear that this test isn't just about good news.

318

00:18:03,500 --> 00:18:08,500

Now I'm not a super spy but I think I've identified a major problem with the ejector seat concept

319

00:18:08,500 --> 00:18:12,500

and that is filling the entire car with plane.

320

00:18:12,500 --> 00:18:17,500

Now that was just a bare minimum of rocket power that we needed to get buster out of the car.

321

00:18:17,500 --> 00:18:23,500

So, you're a bad guy, he'd be out of the car, but you're a good guy, he'd be toast, literally.

322

00:18:23,500 --> 00:18:28,500

Yeah, the test does highlight the flaw of using rockets in enclosed spaces.

323

00:18:28,500 --> 00:18:32,500

But what's more important is that it's mission accomplished.

324

00:18:32,500 --> 00:18:34,500

We choose everything we wanted with this test.

325

00:18:34,500 --> 00:18:38,500

We have enough thrust to get buster out of the car, we got simultaneous ignition

326

00:18:38,500 --> 00:18:42,500

and we got the 20 feet, even 30 feet that we were looking for.

327

00:18:42,500 --> 00:18:44,500

Now is the fun part.

328

00:18:44,500 --> 00:18:47,500

We see if this actually has enough to flip the car.

329

00:18:47,500 --> 00:18:51,500

In other words, it's time for this myth to get turned on its head.

330

00:18:57,500 --> 00:19:00,500

Just to recap, we are testing the myth from the James Bond movie

331

00:19:00,500 --> 00:19:05,500

where if a car is upside down and you use the ejector seat, you can flip that car back on its wheels.

332

00:19:05,500 --> 00:19:09,500

So far we successfully made an ejector seat by using four rockets.

333

00:19:09,500 --> 00:19:12,500

That gave us enough thrust to get a man out of the car.

334

00:19:13,500 --> 00:19:17,500

But now, is that thrust going to be enough to flip a car back on its wheels?

335

00:19:17,500 --> 00:19:22,500

To find out just that, Tori carefully installs four identical rockets

336

00:19:22,500 --> 00:19:27,500

before an even more delicate operation must take place, inverting their bond mobile.

337

00:19:27,500 --> 00:19:32,500

It's a flip and unusual method for flopping a car.

338

00:19:32,500 --> 00:19:35,500

But through a combination of tug of war,

339

00:19:35,500 --> 00:19:38,500

Backing up, lowering,

340

00:19:38,500 --> 00:19:40,500

Machine muscle,

341

00:19:40,500 --> 00:19:46,500

and Tori holding the blue rope, the guy slowly inch the car into position.

342

00:19:46,500 --> 00:19:47,500

It's very exciting.

343

00:19:47,500 --> 00:19:50,500

Until finally we have touchdown.

344

00:19:52,500 --> 00:19:53,500

Perfect!

345

00:19:53,500 --> 00:19:58,500

So Q built a rocket powered ejector seat for James Bond's car, and so did we.

346

00:19:58,500 --> 00:20:03,500

The only problem is that it only takes 800 pounds of thrust to get a guy out of a car.

347

00:20:03,500 --> 00:20:06,500

That is a 4,000 pound car.

348

00:20:06,500 --> 00:20:10,500

800 pounds of thrust, I'm sorry, but it's not going to flip the car.

349

00:20:10,500 --> 00:20:13,500

In fact, I barely think it's even going to move it.

350

00:20:13,500 --> 00:20:19,500

Brad is firmly in the Dr. No Camp, but you can never say never.

351

00:20:19,500 --> 00:20:21,500

Alright, this is ejector seat car flip.

352

00:20:21,500 --> 00:20:26,500

Here we go in three, two, one, fire!

353

00:20:31,500 --> 00:20:33,500

That was a little underwhelming.

354

00:20:33,500 --> 00:20:36,500

Yeah, it looks like four just isn't enough.

355

00:20:36,500 --> 00:20:37,500

Ain't that the truth?

356

00:20:37,500 --> 00:20:41,500

Instead of look at the freedom, the car barely quivered.

357

00:20:42,500 --> 00:20:45,500

Now so far we've recreated the circumstances of the myth,

358

00:20:45,500 --> 00:20:48,500

and the results are not promising.

359

00:20:48,500 --> 00:20:54,500

Four rockets was enough to get a person out of the car, but not enough to move the car at all.

360

00:20:54,500 --> 00:20:57,500

Indeed, the math of the myth just doesn't add up.

361

00:20:57,500 --> 00:21:02,500

800 pounds can propel a passenger, but it's never going to flip a car.

362

00:21:02,500 --> 00:21:04,500

But all is not lost.

363

00:21:04,500 --> 00:21:08,500

We want to give this myth the best possible chance.

364

00:21:08,500 --> 00:21:10,500

So we're actually going to step it up.

365

00:21:12,500 --> 00:21:17,500

We're going to make our ejector seat an equivalent to a fighter jet ejector seat.

366

00:21:17,500 --> 00:21:20,500

Now we're talking about 4,000 pounds of thrust.

367

00:21:20,500 --> 00:21:24,500

I mean, it's a little bit of overkill, but Q might have gone there.

368

00:21:24,500 --> 00:21:31,500

Their first ejector seat replicated the flimsy flame of the film, and it didn't pack enough punch.

369

00:21:31,500 --> 00:21:36,500

But this time, ooh, look at all these rockets. It's like 4th of July.

370

00:21:36,500 --> 00:21:40,500

All bets are off as the mythbusters fire this myth to the max.

371

00:21:40,500 --> 00:21:44,500

But will it be the shot in the arm this test needs?

372

00:21:44,500 --> 00:21:48,500

The whole concept here is that the ejector seat is firing down into the ground,

373

00:21:48,500 --> 00:21:52,500

therefore pushing the car over back onto its wheels.

374

00:21:52,500 --> 00:21:55,500

But I just have a hard time believing that this Hollywood myth is true.

375

00:21:55,500 --> 00:22:00,500

What I think is going to happen is this car is just going to go up into a big ball of fire.

376

00:22:01,500 --> 00:22:05,500

Well, in that case, it's a good job that the fire department has arrived.

377

00:22:06,500 --> 00:22:10,500

Hey, this is Bond ejector seat 20 rockets, 4,000 pounds of thrust. Take it away.

378

00:22:10,500 --> 00:22:13,500

All right, let's see if the ejector seat flips the car.

379

00:22:13,500 --> 00:22:17,500

Here we go. In three, two, one, fire.

380

00:22:21,500 --> 00:22:26,500

It lifted it a little bit, but it didn't flip it. That was sweet.

381

00:22:26,500 --> 00:22:27,500

Let's go see the carnage.

382

00:22:27,500 --> 00:22:30,500

Well, we should probably get that fire put out.

383

00:22:31,500 --> 00:22:35,500

With the fire brought under control, the guys go in for a closer look.

384

00:22:35,500 --> 00:22:37,500

Not that it's really necessary.

385

00:22:38,500 --> 00:22:42,500

So this myth is busted.

386

00:22:42,500 --> 00:22:47,500

No matter what we did, we could not get this car to flip with the rocket ejector seat.

387

00:22:49,500 --> 00:22:51,500

And that was a ridiculous amount of thrust.

388

00:22:51,500 --> 00:22:53,500

However, we are not going to stop here.

389

00:22:53,500 --> 00:22:56,500

This is the part on the show where we replicate the results,

390

00:22:56,500 --> 00:23:00,500

and we're going to find out how much thrust it would take to get this car to flip.

391

00:23:00,500 --> 00:23:02,500

We're going to do it old school, Hollywood style.

392

00:23:02,500 --> 00:23:06,500

Strap yourself in because this myth's about to flip its lid.

393

00:23:08,500 --> 00:23:09,500

Wow!

394

00:23:11,500 --> 00:23:12,500

Next.

395

00:23:12,500 --> 00:23:15,500

This is the most dangerous thing I have ever built.

396

00:23:15,500 --> 00:23:19,500

And still to come, Adam faces a 35 foot free fall finale.

397

00:23:19,500 --> 00:23:21,500

I'm a little bit scared.

398

00:23:23,500 --> 00:23:27,500

Please, don't try anything you're about to see at home.

399

00:23:27,500 --> 00:23:29,500

Where would you call experts?

400

00:23:29,500 --> 00:23:42,500

According to YouTube, a four inch bubble burrito will mean you don't drop dead from a 35 foot drop.

401

00:23:44,500 --> 00:23:48,500

But according to the myth busters, you most definitely will.

402

00:23:48,500 --> 00:23:50,500

Still totally and utterly dead though.

403

00:23:50,500 --> 00:23:52,500

Yet all is not lost.

404

00:23:52,500 --> 00:23:55,500

The readings we've been getting thus far in the shop are good.

405

00:23:55,500 --> 00:23:59,500

It gives a direction, but they're nowhere near our butter zone of 10 Gs.

406

00:23:59,500 --> 00:24:02,500

So now Buster here is our new human in a long time.

407

00:24:02,500 --> 00:24:07,500

He's floppier, he's more accurate, and he's going to get dropped from the highest point in our shop.

408

00:24:07,500 --> 00:24:10,500

15 feet is more than double the height of their bench tests,

409

00:24:10,500 --> 00:24:13,500

but still less than half the height of the myth.

410

00:24:13,500 --> 00:24:19,500

So will Buster's impact on a 16 inch bed of bubbles approach the 10 G low that this myth needs?

411

00:24:19,500 --> 00:24:24,500

Buster dropping 15 feet into 16 inches of bubble packaging.

412

00:24:24,500 --> 00:24:28,500

3, 2, 1, go.

413

00:24:32,500 --> 00:24:34,500

That was magnificent.

414

00:24:34,500 --> 00:24:35,500

Wasn't it?

415

00:24:35,500 --> 00:24:39,500

Buster bounced dead center, but is his impact in the zone.

416

00:24:39,500 --> 00:24:47,500

So Buster's fall into the bubble packaging from 15 feet was perfect, but he pulled 39 Gs upon impact.

417

00:24:47,500 --> 00:24:50,500

We're looking for a butter zone of 10 Gs.

418

00:24:50,500 --> 00:24:52,500

39 is totally out.

419

00:24:52,500 --> 00:24:55,500

So next up we're going to double the thickness and drop him again.

420

00:24:55,500 --> 00:24:58,500

39 is four times their safety target.

421

00:24:58,500 --> 00:25:01,500

So once more they double the bubbles to 32 inches thick.

422

00:25:01,500 --> 00:25:03,500

It's starting to get kind of impractical, isn't it?

423

00:25:03,500 --> 00:25:05,500

Yeah, it is.

424

00:25:05,500 --> 00:25:09,500

Here we go. Buster dropping 15 feet into 32 inches of bubble material.

425

00:25:09,500 --> 00:25:12,500

3, 2, 1.

426

00:25:17,500 --> 00:25:19,500

Poor Buster.

427

00:25:19,500 --> 00:25:23,500

Once again Buster bounces, but is he walking away?

428

00:25:23,500 --> 00:25:28,500

I would feel like if we were going to see a reduced G load that he would take longer to bounce back up.

429

00:25:28,500 --> 00:25:30,500

It's not the result they were after.

430

00:25:30,500 --> 00:25:35,500

Doubling the bubbles reduced the load by less than a quarter, and that doesn't bode well.

431

00:25:35,500 --> 00:25:45,500

Because if 16 inches resulted in 39 Gs and 32 inches in 30, they need a pile of packing 15 feet high to get to 10 Gs.

432

00:25:45,500 --> 00:25:48,500

And that's just for a 15 foot drop.

433

00:25:48,500 --> 00:25:55,500

From 35 feet, they need well over 50 feet of wrap, giving Buster a 100 foot diameter.

434

00:25:55,500 --> 00:26:00,500

So if layering up the bubble pack isn't working, is there a design that will?

435

00:26:00,500 --> 00:26:06,500

For a full 60 minutes, the guys stop, drop and roll out ideas.

436

00:26:06,500 --> 00:26:08,500

What about something like this?

437

00:26:08,500 --> 00:26:10,500

But get nowhere fast.

438

00:26:10,500 --> 00:26:12,500

That doesn't seem to give any improvement.

439

00:26:12,500 --> 00:26:14,500

But then they pop out a plan in parallel.

440

00:26:14,500 --> 00:26:20,500

What if we didn't wrap it in tight tubes, but we wrap it in tubes with a bigger hole in the middle?

441

00:26:20,500 --> 00:26:24,500

So these would crush just like a coil spring in our mattress.

442

00:26:24,500 --> 00:26:25,500

Right, exactly.

443

00:26:25,500 --> 00:26:33,500

It may not look like much, but by alternating regular sheets with coiled but hollow bubble springs, the guys have high hopes.

444

00:26:33,500 --> 00:26:34,500

Awesome.

445

00:26:34,500 --> 00:26:35,500

Alright.

446

00:26:35,500 --> 00:26:40,500

And once two bubble spring mattresses are complete, Buster's ready to take another for the team.

447

00:26:40,500 --> 00:26:48,500

Here we go, Buster onto modified bubble packaging geometry in three, two, one.

448

00:26:50,500 --> 00:26:53,500

With no Buster bounce, there's a clear difference.

449

00:26:55,500 --> 00:26:57,500

Oh my God, that's like one of the best drops ever.

450

00:26:58,500 --> 00:27:00,500

Once he enters the bed, you never see him again.

451

00:27:00,500 --> 00:27:06,500

But from 15 feet, Buster still took 30 Gs, three times their 10 G target.

452

00:27:06,500 --> 00:27:08,500

So they add one more mattress.

453

00:27:08,500 --> 00:27:11,500

In three, two, one.

454

00:27:12,500 --> 00:27:15,500

But is this the soft landing they're looking for?

455

00:27:17,500 --> 00:27:21,500

So our 15 foot Buster drops here in the shop are yielding some exciting data fruit.

456

00:27:21,500 --> 00:27:23,500

And I just coined that term.

457

00:27:23,500 --> 00:27:24,500

Check out the first drop here.

458

00:27:24,500 --> 00:27:31,500

We are dropping Buster into two layers of tubes constructed of thick wall, heavy back, half inch bubble packaging.

459

00:27:31,500 --> 00:27:34,500

And he pulled an average of 30 Gs on that drop.

460

00:27:34,500 --> 00:27:38,500

That's an improvement over some of the other stuff we've seen, but it's still not in our ballpark.

461

00:27:38,500 --> 00:27:46,500

However, for the second drop, which you can see here, we added a layer of thin wall, non-heavy duty, half inch bubble packaging

462

00:27:46,500 --> 00:27:48,500

to slow down his deceleration.

463

00:27:48,500 --> 00:27:50,500

And it seems to have done exactly that.

464

00:27:50,500 --> 00:27:54,500

On that second drop, he pulled an average of 15 Gs.

465

00:27:54,500 --> 00:27:57,500

We cut our G load in half.

466

00:27:57,500 --> 00:28:03,500

And to bring the 10 G target into range, Jamie's tweaking the tubes into a more shock absorbing shape.

467

00:28:04,500 --> 00:28:15,500

That cone or funnel shape will allow the bubbles to neatly fold inside the structure, like so, and give us a nice linear deceleration.

468

00:28:15,500 --> 00:28:18,500

And these bubble cones serve a double purpose.

469

00:28:18,500 --> 00:28:24,500

We can make a curved instead of a flat sheet, and we can actually roll out them up inside it.

470

00:28:24,500 --> 00:28:26,500

Uh, yep, you heard that right.

471

00:28:26,500 --> 00:28:29,500

And we can actually roll out them up inside it.

472

00:28:29,500 --> 00:28:37,500

So confident are they in their new mattress model that for the next drop, it's out with Buster and in with someone altogether more important.

473

00:28:37,500 --> 00:28:43,500

Now the question is, is this engineering of bubble packaging enough to save my life?

474

00:28:43,500 --> 00:28:45,500

That's what we're doing next.

475

00:28:48,500 --> 00:28:51,500

Alright, hey to admit it, but this bond myth is busted.

476

00:28:51,500 --> 00:28:54,500

Yep, we got the car to bounce up, but it didn't flip over.

477

00:28:54,500 --> 00:28:56,500

Plus, we burned up Bond in the process.

478

00:28:56,500 --> 00:28:58,500

So that means...

479

00:28:58,500 --> 00:29:00,500

It's time to replicate the results.

480

00:29:00,500 --> 00:29:04,500

Yep, there is one technique that Hollywood uses when they want to flip a car.

481

00:29:04,500 --> 00:29:10,500

That's right, nitrogen cannon pointed straight down should provide enough force to flip the car all the way back over.

482

00:29:10,500 --> 00:29:12,500

Nitrogen cannon it is.

483

00:29:12,500 --> 00:29:20,500

Originally built for the superhero special, the nitrogen cannon sure packs a punch.

484

00:29:20,500 --> 00:29:24,500

But for this myth, the gloves are coming off.

485

00:29:24,500 --> 00:29:27,500

The suit is barrel, this ain't a barrel.

486

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

That's a barrel.

487

00:29:31,500 --> 00:29:37,500

By beefing up both the diameter of the barrel and the size of the tank,

488

00:29:37,500 --> 00:29:41,500

Grant's cranking the cannon's power to the max.

489

00:29:41,500 --> 00:29:47,500

And in theory, this mighty machine should be able to flip this myth on its head.

490

00:29:47,500 --> 00:29:49,500

It fits.

491

00:29:50,500 --> 00:29:53,500

But what about in practice?

492

00:29:53,500 --> 00:29:55,500

We're back at the New Jerusalem runway.

493

00:29:55,500 --> 00:30:01,500

Now we've already busted our bond myth that an ejector seat is going to be able to flip a car from upside down to right side up.

494

00:30:01,500 --> 00:30:03,500

So now we're going to get a little Hollywood on it.

495

00:30:03,500 --> 00:30:06,500

We've got a nitrogen cannon loaded into the passenger seat.

496

00:30:06,500 --> 00:30:12,500

Hopefully this is actually going to flip our car completely over so we can see this bond myth in action.

497

00:30:13,500 --> 00:30:17,500

But before firing it up, first comes the obligatory inversion.

498

00:30:17,500 --> 00:30:21,500

Okay, so just to be clear, here's how things are going to work.

499

00:30:21,500 --> 00:30:22,500

Hang on one sec.

500

00:30:22,500 --> 00:30:26,500

Inside the barrel of the cannon is a solid steel rod that's about three feet long.

501

00:30:26,500 --> 00:30:28,500

Yeah, hold it right there.

502

00:30:28,500 --> 00:30:34,500

When the car's in position, Grant's going to weld the bracket from the rod onto the trench plate so it doesn't fly out.

503

00:30:34,500 --> 00:30:38,500

Then we'll fill the tank to maximum pressure and the idea is that when we trigger it...

504

00:30:38,500 --> 00:30:40,500

Three, two, one.

505

00:30:41,500 --> 00:30:47,500

The rod will get fired into the ground with such power that the car should twist up and over landing on its wheels.

506

00:30:48,500 --> 00:30:52,500

Indeed, but it's not just the tank that's feeling the pressure.

507

00:30:52,500 --> 00:30:56,500

Well, this is orders of magnitude more dangerous than what we normally do.

508

00:30:58,500 --> 00:31:01,500

Uh, look, I'm a little nervous, right?

509

00:31:01,500 --> 00:31:03,500

The cannon could rupture.

510

00:31:03,500 --> 00:31:06,500

The valve could have a leak.

511

00:31:06,500 --> 00:31:10,500

It could accidentally go off while I'm filling up.

512

00:31:11,500 --> 00:31:14,500

Luckily for all of us, Grant mans up.

513

00:31:15,500 --> 00:31:16,500

Fills up.

514

00:31:16,500 --> 00:31:18,500

Okay, good to go.

515

00:31:18,500 --> 00:31:20,500

And finally...

516

00:31:20,500 --> 00:31:21,500

Alright, you guys ready?

517

00:31:21,500 --> 00:31:22,500

Yeah, let's flip the car.

518

00:31:22,500 --> 00:31:29,500

Alright, ejector seat, car flip with the nitrogen cannon in three, two, one.

519

00:31:33,500 --> 00:31:37,500

In Bubble Boy, Adam and Jamie finally think they've cracked it.

520

00:31:37,500 --> 00:31:38,500

That looks pretty good.

521

00:31:38,500 --> 00:31:43,500

So back at the drop zone, it's time to crank the danger dial up to the max.

522

00:31:43,500 --> 00:31:44,500

Well, almost.

523

00:31:44,500 --> 00:31:51,500

Well, our hard work and our testing have paid off and it now seems like it is time for me to wrap myself in bubble packaging and get thrown off a building.

524

00:31:51,500 --> 00:31:53,500

I'm not going to the full 35 feet just yet.

525

00:31:53,500 --> 00:31:58,500

No, the first drop I'm going to do is to replicate Buster's 15 foot fall.

526

00:32:00,500 --> 00:32:01,500

Am I scared?

527

00:32:01,500 --> 00:32:03,500

I have to admit, I'm a little bit scared.

528

00:32:03,500 --> 00:32:10,500

Scared because their best impact has been 15 Gs, a full 5 Gs above the safety threshold.

529

00:32:10,500 --> 00:32:16,500

Hopefully tapering their tubes will ensure Adam can make the leap and live to tell the tale.

530

00:32:16,500 --> 00:32:19,500

We're counting on the fact that the bubble packaging here is going to save my life.

531

00:32:19,500 --> 00:32:25,500

But we've also posited some other worst case scenarios and implemented safety procedures to protect me in their case.

532

00:32:25,500 --> 00:32:30,500

First of all, a neck brace, a helmet and a spine protector.

533

00:32:30,500 --> 00:32:35,500

I'll have a radio earpiece in so I can communicate to the outside.

534

00:32:35,500 --> 00:32:37,500

This ought to keep me safe.

535

00:32:38,500 --> 00:32:44,500

Aught being the operative word because remember the cone coil springs are an untested technology.

536

00:32:44,500 --> 00:32:45,500

You ready?

537

00:32:45,500 --> 00:32:46,500

I'm ready, let's do it.

538

00:32:46,500 --> 00:32:47,500

Here we go.

539

00:32:47,500 --> 00:32:49,500

See you on the other side.

540

00:32:49,500 --> 00:32:53,500

That's right because from this point, Adam's under wraps.

541

00:32:53,500 --> 00:32:54,500

Oh, that's cozy.

542

00:32:54,500 --> 00:32:58,500

Starting with five layers of heavyweight bubble pack.

543

00:32:58,500 --> 00:32:59,500

Bye bye everybody.

544

00:33:02,500 --> 00:33:06,500

Then the first coat of their spring system is coiled around him.

545

00:33:06,500 --> 00:33:07,500

Okay, up we go.

546

00:33:07,500 --> 00:33:08,500

Keep tension.

547

00:33:09,500 --> 00:33:11,500

It's a good thing I don't get claustrophobic.

548

00:33:11,500 --> 00:33:12,500

Followed by the second.

549

00:33:12,500 --> 00:33:15,500

Full little tension and up and in.

550

00:33:15,500 --> 00:33:16,500

You're doing good.

551

00:33:16,500 --> 00:33:19,500

But once that's taped on, Adam drops a bombshell.

552

00:33:19,500 --> 00:33:20,500

Hey, Jamie.

553

00:33:20,500 --> 00:33:21,500

Yeah.

554

00:33:21,500 --> 00:33:23,500

I'll tell you, I can feel the pressure.

555

00:33:23,500 --> 00:33:25,500

It's quite a lot of weight.

556

00:33:25,500 --> 00:33:29,500

The weight on me is actually quite intense.

557

00:33:29,500 --> 00:33:35,500

100 pounds of bubble pack mattress has Adam under pressure and there's still a layer to go.

558

00:33:35,500 --> 00:33:37,500

Is it a problem?

559

00:33:37,500 --> 00:33:40,500

No, it's not more than I can take, but I can tell you that when we put that third layer on,

560

00:33:40,500 --> 00:33:43,500

that's about as much as a human could take.

561

00:33:43,500 --> 00:33:45,500

It's a worrying revelation.

562

00:33:45,500 --> 00:33:47,500

Here comes the third layer.

563

00:33:47,500 --> 00:33:52,500

At the full 150 pounds, the weight of the wrapping will be almost unbearable.

564

00:33:52,500 --> 00:33:53,500

It's going to be heavy.

565

00:33:53,500 --> 00:33:55,500

So the guys really need to bubble along.

566

00:33:55,500 --> 00:33:57,500

Okay, now I've got to get the big tape.

567

00:33:57,500 --> 00:33:58,500

Are you guys okay?

568

00:33:58,500 --> 00:34:01,500

And get the final mattress mobilized.

569

00:34:01,500 --> 00:34:02,500

Wow.

570

00:34:02,500 --> 00:34:03,500

Are you all right?

571

00:34:03,500 --> 00:34:04,500

Yeah, I'm all right.

572

00:34:04,500 --> 00:34:05,500

Am I fully wrapped now?

573

00:34:05,500 --> 00:34:06,500

You are.

574

00:34:06,500 --> 00:34:07,500

Oh, great.

575

00:34:07,500 --> 00:34:10,500

I truly am a bubble boy.

576

00:34:10,500 --> 00:34:16,500

With Adam trust up like a turkey on steroids, the team carefully cradles him to the drop zone

577

00:34:16,500 --> 00:34:19,500

before Jamie gets ready to raise the bar.

578

00:34:19,500 --> 00:34:20,500

So we're going up.

579

00:34:20,500 --> 00:34:21,500

Are you ready?

580

00:34:21,500 --> 00:34:22,500

Almost.

581

00:34:22,500 --> 00:34:26,500

Am I feet off the end of this thing?

582

00:34:26,500 --> 00:34:27,500

No, they're not.

583

00:34:27,500 --> 00:34:29,500

Then I think I'm ready, Jamie.

584

00:34:29,500 --> 00:34:31,500

Okay, up we go.

585

00:34:31,500 --> 00:34:37,500

But as they start to rise, the test strikes turbulence.

586

00:34:37,500 --> 00:34:39,500

I feel myself being blown around in the wind.

587

00:34:39,500 --> 00:34:44,500

Out of nowhere, the wind has picked up and that's got Jamie very worried indeed.

588

00:34:44,500 --> 00:34:49,500

You guys are going to go that way and I need the four guys on the four tie lines.

589

00:34:49,500 --> 00:34:52,500

You keep track of Adam, make sure he's okay.

590

00:34:52,500 --> 00:34:57,500

With Adam in a squeeze, this is like I could feel pressure over my whole body.

591

00:34:57,500 --> 00:35:00,500

They dare not delay this free fall finale.

592

00:35:00,500 --> 00:35:02,500

I'm on the trip line.

593

00:35:02,500 --> 00:35:03,500

Adam, we're in place.

594

00:35:03,500 --> 00:35:04,500

You're at the correct height.

595

00:35:04,500 --> 00:35:06,500

Are you good to go?

596

00:35:06,500 --> 00:35:09,500

Jamie, I am good to go.

597

00:35:09,500 --> 00:35:11,500

But just as they're ready to rumble.

598

00:35:11,500 --> 00:35:13,500

Is there anybody that's not good to go?

599

00:35:13,500 --> 00:35:17,500

Okay, we're going in three, two.

600

00:35:17,500 --> 00:35:18,500

Hold on.

601

00:35:18,500 --> 00:35:19,500

There's too much wind.

602

00:35:19,500 --> 00:35:23,500

The wind cranks up so much that it's too dangerous to continue.

603

00:35:23,500 --> 00:35:24,500

Okay.

604

00:35:24,500 --> 00:35:31,500

But it's also dangerous to stand down because 15 feet up, Adam's being smothered.

605

00:35:31,500 --> 00:35:35,500

All in all, the mythbusters are in a bubble of trouble.

606

00:35:39,500 --> 00:35:41,500

The bond ejector flip.

607

00:35:41,500 --> 00:35:42,500

Have a good flight, buddy.

608

00:35:42,500 --> 00:35:43,500

Fire.

609

00:35:43,500 --> 00:35:44,500

Didn't lift once.

610

00:35:44,500 --> 00:35:46,500

That was pathetic.

611

00:35:46,500 --> 00:35:48,500

Let alone twice.

612

00:35:48,500 --> 00:35:49,500

Wow!

613

00:35:50,500 --> 00:35:56,500

Which means the team has a license to kill off this myth, courtesy of their nitrogen cannon.

614

00:35:56,500 --> 00:35:57,500

Ready to do this?

615

00:35:57,500 --> 00:35:58,500

Oh yeah.

616

00:35:58,500 --> 00:36:00,500

Just flip the car Hollywood style.

617

00:36:00,500 --> 00:36:01,500

All right, here we go.

618

00:36:01,500 --> 00:36:05,500

This is ejector seat car flip with nitrogen cannon.

619

00:36:05,500 --> 00:36:08,500

In three, two, one.

620

00:36:16,500 --> 00:36:18,500

Good job, Q.

621

00:36:18,500 --> 00:36:19,500

Awesome.

622

00:36:19,500 --> 00:36:22,500

And that's how it's done.

623

00:36:22,500 --> 00:36:24,500

At last they've got air.

624

00:36:24,500 --> 00:36:28,500

And for your eyes only, here's the high speed.

625

00:36:28,500 --> 00:36:35,500

The nitrogen cannon fired its steel rod with enough force to flip the car a full 180 degrees

626

00:36:35,500 --> 00:36:41,500

before the whole thing falls gently back to earth right side up.

627

00:36:41,500 --> 00:36:47,500

The bond myth is busted, but the flip was worth the trip.

628

00:36:47,500 --> 00:36:50,500

And that is how you flip a car.

629

00:36:50,500 --> 00:36:51,500

I can't believe it worked.

630

00:36:51,500 --> 00:36:53,500

But it worked and that's what counts.

631

00:36:53,500 --> 00:36:56,500

Right, all you need is a giant nitrogen cannon.

632

00:36:56,500 --> 00:36:57,500

Let's go get some martini.

633

00:36:57,500 --> 00:36:58,500

Shake it.

634

00:36:58,500 --> 00:36:59,500

That's dirt.

635

00:37:09,500 --> 00:37:10,500

Careful about tipping me.

636

00:37:10,500 --> 00:37:15,500

It's the grand finale of Bubble Boy and Adam's life hangs in the balance.

637

00:37:15,500 --> 00:37:17,500

Okay, up we go.

638

00:37:17,500 --> 00:37:20,500

I have taken some falls on this show before.

639

00:37:20,500 --> 00:37:23,500

I've jumped off buildings.

640

00:37:23,500 --> 00:37:25,500

I've slipped on banana peels.

641

00:37:25,500 --> 00:37:31,500

I've flown 70 feet through the air at the end of a giant waterslide.

642

00:37:31,500 --> 00:37:37,500

But this fall is different because I am completely passive to this entire enterprise.

643

00:37:37,500 --> 00:37:40,500

My life is in Jamie's hands.

644

00:37:40,500 --> 00:37:44,500

Well, Jamie's and Mother Nature's.

645

00:37:44,500 --> 00:37:47,500

I can feel myself being blown around in the wind.

646

00:37:47,500 --> 00:37:53,500

With the wind gusting, they've stopped the drop, leaving Adam precariously poised.

647

00:37:53,500 --> 00:37:59,500

You guys are going to go that way and I need the four guys on the four-tile line.

648

00:37:59,500 --> 00:38:03,500

Dave, you keep track of Adam, make sure he's okay.

649

00:38:03,500 --> 00:38:08,500

Luckily for everyone, it's not long before the wind falls.

650

00:38:08,500 --> 00:38:12,500

Okay, is there anybody that's not good to go?

651

00:38:12,500 --> 00:38:14,500

So it's now or never?

652

00:38:14,500 --> 00:38:20,500

Okay, we're going in three, two, one.

653

00:38:25,500 --> 00:38:27,500

There's no doubt about it.

654

00:38:27,500 --> 00:38:29,500

The padded pod plummeted.

655

00:38:29,500 --> 00:38:31,500

But how's the cargo?

656

00:38:31,500 --> 00:38:33,500

Oh, my God.

657

00:38:33,500 --> 00:38:35,500

That silence rings alarm bells.

658

00:38:35,500 --> 00:38:39,500

The team rushes in and Jamie is the first to the scene when...

659

00:38:39,500 --> 00:38:42,500

Oh, I'm okay.

660

00:38:42,500 --> 00:38:45,500

I'm okay.

661

00:38:45,500 --> 00:38:54,500

After a free fall of 15 feet, it looks like Adam and Jamie's bubble engineering has taken the bulk of the blow.

662

00:38:54,500 --> 00:38:55,500

That was intense.

663

00:38:55,500 --> 00:38:58,500

But the touchdown didn't please the pilot.

664

00:38:58,500 --> 00:39:04,500

What happened was the moment you released me, my head came off the board and then an instant later it hit the board.

665

00:39:04,500 --> 00:39:07,500

But that rough landing wasn't the worst part.

666

00:39:07,500 --> 00:39:13,500

Oh, I have to tell you, man, the weight of all this bubble wrap was the hardest part of that.

667

00:39:13,500 --> 00:39:16,500

It just felt like two guys sitting on my chest.

668

00:39:16,500 --> 00:39:18,500

Well, that's something Buster couldn't tell us, huh?

669

00:39:18,500 --> 00:39:21,500

That's absolutely what I call an empirical test.

670

00:39:23,500 --> 00:39:25,500

Thank you, sir.

671

00:39:27,500 --> 00:39:29,500

It's done.

672

00:39:29,500 --> 00:39:34,500

While it came close to crushing him, their bubble barrel did protect the plummet.

673

00:39:34,500 --> 00:39:37,500

Peeking at just nine Gs.

674

00:39:37,500 --> 00:39:41,500

But remember, in the clip, Bubble Boy jumped from 35 feet.

675

00:39:41,500 --> 00:39:44,500

Yeah, but you know what?

676

00:39:44,500 --> 00:39:47,500

I don't think I'd trust something like this at 35 feet.

677

00:39:47,500 --> 00:39:49,500

I don't want to go at 35 feet.

678

00:39:49,500 --> 00:39:53,500

If I went to 35 feet, I would need more padding and more padding. I couldn't take it.

679

00:39:53,500 --> 00:39:56,500

I think that's the limit of human experimentation.

680

00:39:57,500 --> 00:39:59,500

It just makes me nervous anyway.

681

00:39:59,500 --> 00:40:01,500

You and me both.

682

00:40:01,500 --> 00:40:07,500

So Buster's going to pick up the pieces and wrap this myth for the final 35-foot fall.

683

00:40:07,500 --> 00:40:12,500

He will have around him the same amount of padding I had at 15 feet, and here is why.

684

00:40:12,500 --> 00:40:17,500

With all the weight of that bubble packaging around me, it was about as much as my body could take.

685

00:40:17,500 --> 00:40:23,500

That tells me that this is the most amount of bubble packaging one could have around their body for a jump off of a building.

686

00:40:23,500 --> 00:40:27,500

That further tells me that if Buster does not survive in this amount of padding,

687

00:40:27,500 --> 00:40:33,500

the entire idea of jumping off a building and being protected by bubble packaging is totally busted.

688

00:40:33,500 --> 00:40:37,500

With old friend David Harding ready to crunch their drop data,

689

00:40:37,500 --> 00:40:41,500

their packages postmarked 35 feet ready for delivery.

690

00:40:41,500 --> 00:40:44,500

Alright, here we go. Buster from the full 35 feet.

691

00:40:44,500 --> 00:40:47,500

In three, two, one.

692

00:40:51,500 --> 00:40:52,500

That was perfect.

693

00:40:52,500 --> 00:40:54,500

I think that was perfect.

694

00:40:54,500 --> 00:40:58,500

The falling was perfect. The landing, not so much.

695

00:40:58,500 --> 00:41:00,500

I'm so glad that was not me.

696

00:41:00,500 --> 00:41:02,500

But how did Buster fare?

697

00:41:02,500 --> 00:41:06,500

Well, for that, it's over to David, the data doctor.

698

00:41:08,500 --> 00:41:13,500

Alright, dude. Dying divided how Buster did from 35 feet. What do the numbers say?

699

00:41:13,500 --> 00:41:17,500

Alright, for the torso. Okay. Peaked right around 29 Gs.

700

00:41:17,500 --> 00:41:18,500

Ow!

701

00:41:18,500 --> 00:41:19,500

Yeah.

702

00:41:20,500 --> 00:41:23,500

The head, it's quite a bit higher. You can see it's about 48 Gs.

703

00:41:23,500 --> 00:41:24,500

48 Gs?

704

00:41:24,500 --> 00:41:25,500

That has hurt.

705

00:41:25,500 --> 00:41:30,500

Dude! And that is barely survivable, but you'd be tongue and funny for the rest of your life.

706

00:41:30,500 --> 00:41:32,500

Yeah, that's quite a hit.

707

00:41:32,500 --> 00:41:35,500

I am so glad that I did not try this one.

708

00:41:35,500 --> 00:41:42,500

Yep, although Adam and Jamie's mattress mechanism offered way more protection than the Bubble Boy Burrito,

709

00:41:42,500 --> 00:41:46,500

this three-story story is nothing but Busted.

710

00:41:47,500 --> 00:41:49,500

So how are we going to call it?

711

00:41:49,500 --> 00:41:52,500

I think it's pretty clear. We've tested it every way from Sunday.

712

00:41:52,500 --> 00:41:59,500

There is no reasonable amount of bubble packaging that will allow you to safely leap off a three-and-a-half-story building.

713

00:41:59,500 --> 00:42:02,500

The myth is busted and the whole idea is busted.

714

00:42:02,500 --> 00:42:04,500

Yep, I agree. It's busted.

715

00:42:04,500 --> 00:42:05,500

That's good.

716

00:42:05,500 --> 00:42:20,500

MythBusters is all about experimentation, but that means there are a lot of things that we shoot that don't make it on air.

717

00:42:20,500 --> 00:42:26,500

So if you want to see some of that stuff, log on to Discovery.com slash MythBusters and check it out.