1

00:00:00,000 --> 00:00:07,200

I know it looks like we have fun on this show, but we spend weeks and sometimes months planning how to do our myths safely.

2

00:00:07,200 --> 00:00:10,160

So please, don't try this at home.

3

00:00:14,800 --> 00:00:19,400

On this episode of Mythbusters, there's real genius.

4

00:00:19,400 --> 00:00:23,400

Today's more cast, 70% chance of sizes.

5

00:00:23,400 --> 00:00:25,400

Lots of laughs.

6

00:00:26,600 --> 00:00:29,600

And a whole heap of explosions.

7

00:00:30,600 --> 00:00:32,600

Like a wet t-shirt contest, really.

8

00:00:32,600 --> 00:00:36,600

First, Adam and Janey take on a classic urban myth.

9

00:00:36,600 --> 00:00:38,600

This looks awful.

10

00:00:38,600 --> 00:00:42,600

With the top down, can you stay dry by putting the pedal to the metal?

11

00:00:42,600 --> 00:00:44,600

Whoa, look at that!

12

00:00:44,600 --> 00:00:48,600

Then Carrie Grant and Tori have a two-part popcorn parable.

13

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

Oh, the heaven!

14

00:00:50,600 --> 00:00:54,600

First, they're asking can you cook corn with explosions?

15

00:00:54,600 --> 00:00:57,600

And then, lasers.

16

00:01:00,600 --> 00:01:02,600

Am I missing an eyebrow?

17

00:01:06,600 --> 00:01:08,600

Who are the Mythbusters?

18

00:01:08,600 --> 00:01:10,600

Adam Savage.

19

00:01:10,600 --> 00:01:13,600

Am I missing an eyebrow?

20

00:01:13,600 --> 00:01:15,600

And Jamie Heinemann.

21

00:01:15,600 --> 00:01:17,600

I usually don't want people to do that.

22

00:01:17,600 --> 00:01:24,600

Between the more than 30 years of special effects experience, joining them, Carrie Byron.

23

00:01:24,600 --> 00:01:26,600

That was a rush!

24

00:01:26,600 --> 00:01:28,600

Grant Imahara.

25

00:01:29,200 --> 00:01:31,200

Not at all, by ahhh!

26

00:01:31,200 --> 00:01:33,200

They don't just tell the myths.

27

00:01:33,200 --> 00:01:36,200

They put them to the test.

28

00:01:48,200 --> 00:01:50,200

So what's up with the umbrellas?

29

00:01:50,200 --> 00:01:54,200

I'm planning to use them to paint a metaphorical picture.

30

00:01:54,200 --> 00:01:57,200

I want you to imagine that you are having a mid-life crisis

31

00:01:57,800 --> 00:02:01,800

and you run out and spend a bunch of your dough on a really nice convertible sports car.

32

00:02:01,800 --> 00:02:02,800

Okay.

33

00:02:02,800 --> 00:02:04,800

Now, further imagine that you're driving it down the street and it starts to rain.

34

00:02:04,800 --> 00:02:05,800

What do you do?

35

00:02:05,800 --> 00:02:07,800

I pull over and you put the top up.

36

00:02:07,800 --> 00:02:08,800

Ha ha!

37

00:02:08,800 --> 00:02:11,800

That's where the fansite myth states that you might be wrong.

38

00:02:11,800 --> 00:02:15,800

That instead of wasting your time putting the top up, that you should floor it go as fast as you can

39

00:02:15,800 --> 00:02:20,800

because there is a speed at which you can drive that no rain will enter the driver's compartment.

40

00:02:20,800 --> 00:02:22,800

Sounds kind of unsafe to me.

41

00:02:22,800 --> 00:02:24,800

Sounds really fun to test to me.

42

00:02:25,400 --> 00:02:27,400

Aerodynamics.

43

00:02:27,400 --> 00:02:29,400

Dangerous wet weather driving.

44

00:02:29,400 --> 00:02:31,400

And a classic urban myth.

45

00:02:31,400 --> 00:02:33,400

This is It's Buster Country.

46

00:02:33,400 --> 00:02:38,400

Because viewers want to know if you've got the top down when it starts raining,

47

00:02:38,400 --> 00:02:41,400

we'll putting your foot down keep you dry.

48

00:02:41,400 --> 00:02:45,400

So does this mean we get a drive a fancy car really fast in the rain?

49

00:02:45,400 --> 00:02:49,400

We do, but we are in sunny California and that presents a little bit of a problem.

50

00:02:49,400 --> 00:02:53,400

I think just as we did in running in the rain, we're going to have to have a bit of a problem.

51

00:02:54,000 --> 00:02:57,000

We're going to have to manufacture our own rain here.

52

00:02:57,000 --> 00:02:59,000

It's a bit of a chore, but I think we can handle that.

53

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

We still get a drive a really fancy car fast in the rain though, right?

54

00:03:02,000 --> 00:03:04,000

Yes, but slow down there, Cowboy.

55

00:03:04,000 --> 00:03:08,000

I think perhaps we ought to take this model car and run some shop tests.

56

00:03:08,000 --> 00:03:12,000

Sprinkle some water at it, look at it on high speed, see if there's anything at all to this myth.

57

00:03:12,000 --> 00:03:15,000

And then we get a drive a really fancy car fast in the rain.

58

00:03:15,000 --> 00:03:17,000

Okay, look, we'll get some driving lessons.

59

00:03:17,000 --> 00:03:20,000

We'll wet down some tarmac, we'll go out next thing and drive a fancy car, alright?

60

00:03:20,000 --> 00:03:22,000

Alright.

61

00:03:22,600 --> 00:03:26,600

Keep rev head Heinemann happy, they shelve the shop tests in favor of...

62

00:03:26,600 --> 00:03:31,600

Well, the first thing on our agenda is to get some training in foul weather driving on wet roads.

63

00:03:31,600 --> 00:03:36,600

And in lovely sunny California, there's nothing better for that than a perfect sunny day.

64

00:03:36,600 --> 00:03:41,600

But being the boys' scouts that they are, they came prepared to make their own.

65

00:03:41,600 --> 00:03:43,600

This is fun.

66

00:03:43,600 --> 00:03:47,600

That's the bad weather, so all we need now is a convertible car.

67

00:03:48,200 --> 00:03:51,200

You've seen Mythbusters before.

68

00:03:51,200 --> 00:03:55,200

You know that generally when we have cars, they explode.

69

00:03:55,200 --> 00:03:58,200

But not that one, I don't think.

70

00:03:58,200 --> 00:04:03,200

Guiding the guys through their wet weather driving instruction is Brian Fraser.

71

00:04:03,200 --> 00:04:09,200

Brian's the guy that trains anybody that drives an emergency vehicle how to do it right.

72

00:04:09,200 --> 00:04:14,200

That means police, fire, ambulances, Brian's the guy.

73

00:04:14,800 --> 00:04:18,800

There's that old man's steering, there you go, you let a little bit of the steering out to help catch.

74

00:04:18,800 --> 00:04:22,800

If I had a car like that, I wouldn't be letting Adam drive it.

75

00:04:22,800 --> 00:04:29,800

Harsh, but given Adam's track record and current overcaffeinated mood, fair.

76

00:04:36,800 --> 00:04:39,800

I might have gotten the microphone wet there for a second.

77

00:04:40,400 --> 00:04:45,400

Despite Adam's best efforts, the microphone still works and they get down to business.

78

00:04:45,400 --> 00:04:47,400

Well, the surface is now wet.

79

00:04:47,400 --> 00:04:50,400

We're going to lose that cohesion between the tires and the concrete surface.

80

00:04:50,400 --> 00:04:52,400

We're on a concrete pad out here today.

81

00:04:55,400 --> 00:04:58,400

Hydroplaning can also be a factor if we've got standing water.

82

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

Ways to deal with this is to get off the gas, slow our speed down.

83

00:05:03,400 --> 00:05:08,400

It's going to multiply any reaction we do so you want to not be jerky in your steering movements.

84

00:05:10,400 --> 00:05:15,400

So just smoothen out your steering and backing off speed and keep you in control of the car.

85

00:05:22,400 --> 00:05:27,400

The clearest difference between driving on the wet ground versus the dry ground is that it's a lot slimmerier.

86

00:05:27,400 --> 00:05:29,400

And that's the key.

87

00:05:29,400 --> 00:05:36,400

By simply getting grips with the car on a wet surface, they can be sure they won't lose their heads at high speeds on the real test.

88

00:05:37,000 --> 00:05:42,000

Which means they're licensed for wet weather science.

89

00:05:42,000 --> 00:05:44,000

I keep losing my hat.

90

00:05:48,000 --> 00:05:55,000

Now in part one of popcorn pandemonium, is it possible to pop popcorn with an explosion?

91

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

Going to the movie theater is one of my favorite things to do, but what does it have to do with the men?

92

00:06:04,000 --> 00:06:08,000

Well the fans love popcorn as much as I do and they've sent in a ton of myths about popcorn.

93

00:06:08,000 --> 00:06:09,000

Yeah like what?

94

00:06:09,000 --> 00:06:11,000

Pop popcorn with explosives.

95

00:06:11,000 --> 00:06:12,000

How's that supposed to work?

96

00:06:12,000 --> 00:06:16,000

Explosions generate a lot of heat and the fans think that is just enough to pop popcorn.

97

00:06:16,000 --> 00:06:17,000

Cool!

98

00:06:20,000 --> 00:06:21,000

It's delicious.

99

00:06:21,000 --> 00:06:23,000

It's a tasty light.

100

00:06:23,000 --> 00:06:31,000

Popcorn and its distinctive explosive expansion is a ready made recipe for myth and disaster.

101

00:06:31,000 --> 00:06:36,000

And the fans want to know, can you put the pop in popcorn with a bang?

102

00:06:36,000 --> 00:06:41,000

Okay so popcorn with explosives, how are we going to test this?

103

00:06:41,000 --> 00:06:43,000

Well this myth comes in a whole variety of forms.

104

00:06:43,000 --> 00:06:49,000

Everything from a torpedo hitting a container ship full of popcorn to an industrial accident at a popcorn popping plant.

105

00:06:49,000 --> 00:06:51,000

Whoa, what are we going to do?

106

00:06:51,000 --> 00:06:55,000

I think we should take our favorite explosions from our favorite myths, apply them to popcorn.

107

00:06:55,000 --> 00:06:57,000

This is going to be fun.

108

00:06:57,000 --> 00:06:59,000

Oh this is the part where she dies.

109

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

Despite the various outlandish sources for this fan request, the basic premise for each is the same.

110

00:07:09,000 --> 00:07:16,000

Heat and pressure from an explosion causes raw popcorn kernels to cook in an instant.

111

00:07:17,000 --> 00:07:25,000

To test this one central theory, the team is taking two classic blasts from the past.

112

00:07:26,000 --> 00:07:30,000

And reigniting them at the bomb range.

113

00:07:32,000 --> 00:07:33,000

And first up...

114

00:07:33,000 --> 00:07:39,000

Now we do have a myth from James Bond that is the exploding propane tank.

115

00:07:39,000 --> 00:07:41,000

This doesn't pop the popcorn, I don't know what we're...

116

00:07:42,000 --> 00:07:50,000

Strap some C4 onto a propane tank, put some popcorn kernels on top and see if we get this rain-cooked popcorn.

117

00:07:50,000 --> 00:07:56,000

Now we know that heat is what causes popcorn kernels to pop into popcorn, I mean you could do it on your stove.

118

00:07:56,000 --> 00:08:04,000

And I think it's fairly likely that the size of fireball that we'll get will generate the sufficient amount of heat to make something pop.

119

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

So will the explosive C4 and propane cocktail cook the corn?

120

00:08:13,000 --> 00:08:19,000

Or will it simply be shaken, stirred and sprayed shrapnel-like all over the bomb range?

121

00:08:19,000 --> 00:08:23,000

Alright, here we go. In three, two, one...

122

00:08:31,000 --> 00:08:33,000

That was some heat, you think we pop popcorn?

123

00:08:33,000 --> 00:08:35,000

I don't know.

124

00:08:38,000 --> 00:08:40,000

That's the burning question.

125

00:08:41,000 --> 00:08:45,000

But up at the corn carnage epicenter, the signs aren't good.

126

00:08:46,000 --> 00:08:50,000

I see a lot of unpopped kernels on the ground.

127

00:08:50,000 --> 00:08:51,000

No popcorn.

128

00:08:51,000 --> 00:08:52,000

Nothing?

129

00:08:52,000 --> 00:08:53,000

Nope.

130

00:08:53,000 --> 00:08:54,000

There's more foil over here.

131

00:08:55,000 --> 00:09:07,000

It seems the force of the C4 explosion and the rapidly expanding propane fireball distributed the raw kernels far and wide, without actually cooking and popping any of them.

132

00:09:07,000 --> 00:09:12,000

My propane popcorn empire! Why?

133

00:09:13,000 --> 00:09:18,000

I don't think there's quite enough heat and it wasn't sustained for long enough for the popcorn to actually pop.

134

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

I think we just kind of blew it out everywhere.

135

00:09:21,000 --> 00:09:22,000

Coming up...

136

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

It's like a wet t-shirt contest, really.

137

00:09:24,000 --> 00:09:28,000

Jamie and Adam use an unconventional rain-measuring method.

138

00:09:28,000 --> 00:09:29,000

In three!

139

00:09:29,000 --> 00:09:36,000

And have Carrie Grant and Tori crack the kettle corn making market.

140

00:09:36,000 --> 00:09:38,000

Look at all the burning kernels!

141

00:09:42,000 --> 00:09:47,000

It's a popular fansite fable.

142

00:09:47,000 --> 00:09:52,000

Can you keep the rain out of your convertible by putting the pedal to the metal?

143

00:09:54,000 --> 00:10:04,000

After taking their luxury soft top for a wet weather test spin, Adam and Jamie are back at the Batcave for preliminary shop tests.

144

00:10:05,000 --> 00:10:09,000

So this is our scale testing rig for driving in the rain.

145

00:10:09,000 --> 00:10:14,000

And since it's about two things, wind and rain, we're creating both of those in a small scale.

146

00:10:14,000 --> 00:10:17,000

I've got a leaf blower here creating the wind over the car.

147

00:10:17,000 --> 00:10:19,000

I've got Jamie perched up there in the scissor lip.

148

00:10:19,000 --> 00:10:20,000

He's going to be the rain.

149

00:10:20,000 --> 00:10:25,000

He's got a pressurized bottle of some blue dye so that we can actually see the rain drop.

150

00:10:25,000 --> 00:10:27,000

Oh, that's nice.

151

00:10:27,000 --> 00:10:33,000

Hopefully, if there's any validity to this myth that the rain somehow by the aerodynamics of the car going fast won't get in the driver's compartment.

152

00:10:33,000 --> 00:10:34,000

Are you ready?

153

00:10:34,000 --> 00:10:35,000

I'm ready.

154

00:10:35,000 --> 00:10:46,000

I would expect to see these blue raindrops coming down and the wind coming up the car inhibiting them from continuing their journey onto the passengers in the convertible.

155

00:10:46,000 --> 00:10:51,000

To simulate driving through the rain, they've got a 50-mile-an-hour wind.

156

00:10:51,000 --> 00:10:53,000

Alright, go for it.

157

00:10:54,000 --> 00:10:55,000

Oh, yeah.

158

00:10:56,000 --> 00:10:57,000

Ha ha ha ha ha ha.

159

00:10:57,000 --> 00:11:03,000

Followed by a small-scale hurricane with many wind speeds of 30 miles-an-hour.

160

00:11:03,000 --> 00:11:06,000

I almost feel like I'm driving it.

161

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

After which Adam is confident this myth holds water.

162

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

I'm thinking that our scale tests are actually proving pretty fruitful.

163

00:11:14,000 --> 00:11:16,000

There may be something to this.

164

00:11:16,000 --> 00:11:21,000

We run three tests and they're showing me what I would expect to see if this myth were actually true.

165

00:11:21,000 --> 00:11:27,000

I.E., we've run it with no wind and some rain, a slow speed wind, 15 miles per hour and a high speed wind, 30 miles per hour.

166

00:11:27,000 --> 00:11:33,000

And I'm seeing what looks like a bubble forming over the driver's compartment with less rain seems

to want to get into.

167

00:11:33,000 --> 00:11:40,000

Yeah, it does show the rain kind of zipping over the cockpit, but I'm not that sure that the wind and the rain scale that well.

168

00:11:40,000 --> 00:11:42,000

We're going to have to do it full size.

169

00:11:42,000 --> 00:11:43,000

Ha ha ha.

170

00:11:43,000 --> 00:11:44,000

I knew you were going to go there.

171

00:11:44,000 --> 00:11:49,000

Lied before said dangerous wet weather driving, Adam has a couple of issues.

172

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

The first problem with this, as I see it, is that this was loaned to us by a friend and a fan of the show.

173

00:11:55,000 --> 00:11:58,000

And it's worth over $100,000 and we're myth busters.

174

00:11:58,000 --> 00:12:02,000

There's an inherent danger factor just in letting us near something of this value.

175

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

The second problem is that we've got to figure out a way at some fairly extreme speeds to be able to know whether water has gotten into the driver's compartment.

176

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

We need to have a rain detector for inside the car.

177

00:12:15,000 --> 00:12:25,000

But because the amounts that we're dealing with are really quite small, it's not like we can put a funnel in a collector or electronic instrument or something in there.

178

00:12:25,000 --> 00:12:32,000

I figured that if we put something that would, by virtue of getting wet, show a dot, that that would do the trick.

179

00:12:32,000 --> 00:12:39,000

And so I thought of tissue paper because when it's opaque, you can't really see anything through the other side of it.

180

00:12:39,000 --> 00:12:46,000

But when it gets wet, like so, all of a sudden you've got a very clear indication that there's a drop of water that hit.

181

00:12:46,000 --> 00:12:49,000

It's like a wet t-shirt contest, really.

182

00:12:51,000 --> 00:12:53,000

It shows you what's underneath, don't it?

183

00:13:09,000 --> 00:13:16,000

The expansion of gases typical of an explosion is simply distributing the kernels over the bomb range without cooking them.

184

00:13:18,000 --> 00:13:23,000

But our Intravitrio have yet to light the fuse on their final conflagration.

185

00:13:23,000 --> 00:13:31,000

Of all the fireballs that I've seen from explosions that we've done, Creamer Cannon has given us the most slow fireball.

186

00:13:31,000 --> 00:13:33,000

It goes into the air and then...

187

00:13:34,000 --> 00:13:35,000

Oh!

188

00:13:38,000 --> 00:13:40,000

And we're going to have the popcorn kind of mixed in with the Creamer.

189

00:13:40,000 --> 00:13:41,000

Yeah!

190

00:13:41,000 --> 00:13:43,000

That's a recipe for disaster.

191

00:13:43,000 --> 00:13:45,000

Hopefully Kettle Corn.

192

00:13:45,000 --> 00:13:53,000

So maybe the sticky Creamer will stick to the popcorn, creating that heat for long enough that we'll get Kettle Corn.

193

00:13:53,000 --> 00:13:57,000

I'm ever the optimist. I think that this actually has a chance of work.

194

00:13:57,000 --> 00:13:58,000

Alright, you guys want to run?

195

00:13:58,000 --> 00:13:59,000

I do!

196

00:13:59,000 --> 00:14:04,000

What happens is you launch the cannon, the Creamer, and the corn goes up in the air.

197

00:14:04,000 --> 00:14:09,000

The corn's surrounded by fire. Somehow it's going to make us Kettle Corn.

198

00:14:09,000 --> 00:14:11,000

We're at to go.

199

00:14:11,000 --> 00:14:15,000

In three, two, one!

200

00:14:17,000 --> 00:14:19,000

Wow!

201

00:14:20,000 --> 00:14:22,000

You know what I saw? A bunch of burning.

202

00:14:22,000 --> 00:14:23,000

Something!

203

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

Look at all the burning kernels!

204

00:14:24,000 --> 00:14:26,000

I think they're burning up there!

205

00:14:26,000 --> 00:14:28,000

Let's see if we got the popcorn!

206

00:14:28,000 --> 00:14:33,000

The fine grained Creamer once again proves extremely flammable,

207

00:14:35,000 --> 00:14:37,000

leading to a satisfying fireball.

208

00:14:37,000 --> 00:14:41,000

And there appears to be flaming food falling to the ground.

209

00:14:41,000 --> 00:14:43,000

We've got popcorn!

210

00:14:43,000 --> 00:14:45,000

It's a little burnt!

211

00:14:45,000 --> 00:14:46,000

It's corn flambé!

212

00:14:46,000 --> 00:14:48,000

It's burnt, but look!

213

00:14:48,000 --> 00:14:50,000

No, that's just burnt Creamer.

214

00:14:50,000 --> 00:14:51,000

That's not popcorn?

215

00:14:51,000 --> 00:14:52,000

No, I don't know.

216

00:14:52,000 --> 00:14:54,000

No, but it's not raining down!

217

00:14:54,000 --> 00:14:57,000

Unfortunately, it was just little bits of Creamer,

218

00:14:57,000 --> 00:14:59,000

but there was such hope there for a minute.

219

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

I thought we actually did it.

220

00:15:00,000 --> 00:15:03,000

My Kettle Corn Empire!

221

00:15:03,000 --> 00:15:06,000

I'm wrong again!

222

00:15:06,000 --> 00:15:09,000

So with the myth looking pretty much busted,

223

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

it's back to the shop where Carrie meets a popcorn professor.

224

00:15:13,000 --> 00:15:17,000

Now, we've been trying to pop popcorn with explosives,

225

00:15:17,000 --> 00:15:20,000

and I'm wondering if we just don't have enough heat generated.

226

00:15:20,000 --> 00:15:23,000

Why do you think that it's not working for us?

227

00:15:23,000 --> 00:15:26,000

Popcorn pops best at 450 degrees Fahrenheit.

228

00:15:26,000 --> 00:15:28,000

When the popcorn is exposed to that heat,

229

00:15:28,000 --> 00:15:31,000

the moisture inside the kernels expand and expand,

230

00:15:31,000 --> 00:15:34,000

like your grandmother's old-fashioned pressure cooker,

231

00:15:34,000 --> 00:15:37,000

until finally there's enough pressure to break open the kernel,

232

00:15:37,000 --> 00:15:42,000

and what you're eating is the starch that has been condensed inside.

233

00:15:42,000 --> 00:15:44,000

That's the key.

234

00:15:44,000 --> 00:15:48,000

A popcorn kernel is basically a pressure vessel made up of three layers.

235

00:15:48,000 --> 00:15:50,000

The tough outer shell,

236

00:15:50,000 --> 00:15:52,000

the starch-filled middle layer,

237

00:15:52,000 --> 00:15:54,000

and the small central germ.

238

00:15:54,000 --> 00:15:56,000

Add sustained heat,

239

00:15:56,000 --> 00:15:59,000

and the moisture in the center turns to steam.

240

00:15:59,000 --> 00:16:02,000

This heat and pressure gelatinizes the starch,

241

00:16:02,000 --> 00:16:05,000

until finally the shell bursts.

242

00:16:05,000 --> 00:16:07,000

As the steam is released,

243

00:16:07,000 --> 00:16:10,000

the starch cools into the fluffy white ball we know and love.

244

00:16:10,000 --> 00:16:12,000

So let me get this straight.

245

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

The explosives didn't work because we didn't have any of the right circumstances.

246

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

You're saying we need 450 degrees,

247

00:16:18,000 --> 00:16:20,000

even heating, over a period of time,

248

00:16:20,000 --> 00:16:23,000

more like a minute before we can actually get the popcorn to expand.

249

00:16:23,000 --> 00:16:28,000

So there's really no way for us to flash heat and have explosives make us popcorn.

250

00:16:28,000 --> 00:16:30,000

That's my understanding.

251

00:16:34,000 --> 00:16:36,000

Well, as exciting as that was,

252

00:16:36,000 --> 00:16:38,000

we didn't really pop any popcorn with explosives.

253

00:16:38,000 --> 00:16:41,000

Well, there's one more myth I really want to test at the fan-sentan,

254

00:16:41,000 --> 00:16:43,000

and that's why I brought you here to the Movie Theater.

255

00:16:43,000 --> 00:16:44,000

Which one's that?

256

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

Well, do you remember a little movie called Real Genius?

257

00:16:46,000 --> 00:16:48,000

Yeah, patterned my life off of it.

258

00:16:48,000 --> 00:16:50,000

Do you remember the last scene in the movie?

259

00:16:50,000 --> 00:16:52,000

A laser pops an enormous amount of popcorn in the house,

260

00:16:52,000 --> 00:16:55,000

blows out all the windows and the doors just from the power of popcorn.

261

00:16:55,000 --> 00:16:57,000

And that's what we're going to test?

262

00:16:57,000 --> 00:16:59,000

Yep, that's what we're going to test. Check it out.

263

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

A template for Grant's life.

264

00:17:03,000 --> 00:17:05,000

A monument to geekhood.

265

00:17:05,000 --> 00:17:06,000

Oh, the heavens!

266

00:17:06,000 --> 00:17:08,000

And a source for this myth.

267

00:17:10,000 --> 00:17:14,000

Can a 5 megawatt laser really cook a gigantic ball of popcorn?

268

00:17:14,000 --> 00:17:19,000

And can the expansive power unleashed really bring down the house?

269

00:17:22,000 --> 00:17:25,000

All right, well, first we need to see if you can even pop popcorn with a laser.

270

00:17:25,000 --> 00:17:28,000

And we need to characterize the force of popping popcorn.

271

00:17:28,000 --> 00:17:30,000

Okay, well, let's start out with some due diligence.

272

00:17:30,000 --> 00:17:33,000

Before we unleash the power of popcorn on an actual house,

273

00:17:33,000 --> 00:17:35,000

how about you and I go check out a military spec laser

274

00:17:35,000 --> 00:17:38,000

to see if it pops popcorn while you run some tests on force and expansion?

275

00:17:38,000 --> 00:17:39,000

All right, let's go.

276

00:17:39,000 --> 00:17:41,000

We can't leave yet. The credits are running out.

277

00:17:41,000 --> 00:17:42,000

Can we work hard on this?

278

00:17:42,000 --> 00:17:43,000

We don't work on this, do we?

279

00:17:45,000 --> 00:17:46,000

Next.

280

00:17:46,000 --> 00:17:47,000

It's a little Iwo Jima moment here.

281

00:17:47,000 --> 00:17:48,000

Yeah.

282

00:17:48,000 --> 00:17:51,000

Jamie and Adam raise the rain and the stakes.

283

00:17:54,000 --> 00:17:56,000

Then popcorn pandemonium.

284

00:17:56,000 --> 00:17:58,000

We're popping popcorn with lasers.

285

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

Reaches all new hot heights.

286

00:18:12,000 --> 00:18:16,000

Jamie and Adam are on the runway at Alameda raising a rainmaker.

287

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

It's a little Iwo Jima moment here.

288

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

Yeah.

289

00:18:19,000 --> 00:18:23,000

Because to test the myth that driving fast keeps you dry,

290

00:18:23,000 --> 00:18:24,000

Holy Cropola.

291

00:18:24,000 --> 00:18:27,000

they need wet weather at the flick of a switch.

292

00:18:27,000 --> 00:18:28,000

Homo.

293

00:18:29,000 --> 00:18:32,000

And for that, they're going back to their movie roots.

294

00:18:32,000 --> 00:18:35,000

Hollywood, like Mythbusters, doesn't wait for ideal weather conditions.

295

00:18:35,000 --> 00:18:38,000

They make their own weather and this device is one of the ways they do it.

296

00:18:38,000 --> 00:18:40,000

This is a rain bar.

297

00:18:40,000 --> 00:18:41,000

Got it.

298

00:18:41,000 --> 00:18:44,000

And it sprays water through a set of spouts.

299

00:18:44,000 --> 00:18:46,000

These spouts, there's six of them.

300

00:18:46,000 --> 00:18:51,000

And if what you want is torrential rain, it can deliver 1200 gallons a minute.

301

00:18:51,000 --> 00:18:57,000

For us, it's going to be delivering a linear swath of rain 200 feet long.

302

00:18:57,000 --> 00:18:59,000

Well, everything's hooked up and in place.

303

00:18:59,000 --> 00:19:02,000

And the next thing we're going to do is a dribble test.

304

00:19:02,000 --> 00:19:07,000

We're just going to pressurize all the lines to the point where water starts dribbling out the rain heads

305

00:19:07,000 --> 00:19:09,000

because of several things.

306

00:19:09,000 --> 00:19:13,000

This amount of rain is perfect for our test.

307

00:19:13,000 --> 00:19:15,000

It's just about two inches per hour.

308

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

One, that's a lot of weight of water, about 600 pounds per bar.

309

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

And the weight distribution could change and they could swing.

310

00:19:22,000 --> 00:19:24,000

So we need to make sure we can control them.

311

00:19:24,000 --> 00:19:27,000

Two, there's a little bit of a West to East breeze here.

312

00:19:27,000 --> 00:19:30,000

We want to make sure the rain falls where the car is going to drive.

313

00:19:30,000 --> 00:19:33,000

So we might adjust our final bar position based on what we see here.

314

00:19:33,000 --> 00:19:35,000

That's perfect.

315

00:19:35,000 --> 00:19:38,000

With the rain ready to fall and the cameras ready to roll,

316

00:19:38,000 --> 00:19:42,000

it's time to bring in the star of the car.

317

00:19:42,000 --> 00:19:46,000

We've modified this car in a couple of ways to turn it into a data collection device for this test.

318

00:19:46,000 --> 00:19:51,000

First, because it's a fancy car, we've protected the whole interior with absorbent fabric

319

00:19:51,000 --> 00:19:53,000

so that no water can damage the car.

320

00:19:53,000 --> 00:19:57,000

Second, to measure what water does get in the car, we've got these two boards,

321

00:19:57,000 --> 00:20:00,000

which is basically a piece of plywood faced with acrylic and tissue paper.

322

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

Any water that hits this surface is going to create a nice dark spot that's easy to see,

323

00:20:06,000 --> 00:20:09,000

easy to count and should give us a really nice comparative analysis

324

00:20:09,000 --> 00:20:13,000

of how much water is getting into the driver's compartment under the different conditions for testing.

325

00:20:13,000 --> 00:20:15,000

Well, let's get to it.

326

00:20:15,000 --> 00:20:16,000

Okay.

327

00:20:16,000 --> 00:20:22,000

And by to it, they mean using their driving instructor as a human crash test guinea pig.

328

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

The biggest danger posed by this experiment is hydroplaning.

329

00:20:26,000 --> 00:20:31,000

That's where the car floats up on a cushion of water and you lose all control of it.

330

00:20:32,000 --> 00:20:36,000

Okay, go Rain and Brian.

331

00:20:39,000 --> 00:20:45,000

So, Brian, our safety trainer and driver is actually going to take this run at 120 miles an hour

332

00:20:45,000 --> 00:20:49,000

across the rainy tarmac to make sure that it's safe for Jamie and I to do it.

333

00:20:49,000 --> 00:20:56,000

Brian's about to hit what's essentially a sluice down skid pad at 120 miles per hour.

334

00:20:57,000 --> 00:20:59,000

This could be interesting.

335

00:21:01,000 --> 00:21:02,000

Okay.

336

00:21:09,000 --> 00:21:17,000

Out of control through 450 degrees is exactly why the expert was behind the wheel and not Adam or Jamie.

337

00:21:17,000 --> 00:21:18,000

What happened there, buddy?

338

00:21:18,000 --> 00:21:20,000

That's what we call hydroplaning.

339

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

Wow.

340

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

That seemed quite intense.

341

00:21:22,000 --> 00:21:24,000

It was very intense and a lot of fun.

342

00:21:27,000 --> 00:21:30,000

I gotta say, Brian gets real props for that one.

343

00:21:31,000 --> 00:21:35,000

Looking at the footage, Brian's expression didn't change at all.

344

00:21:35,000 --> 00:21:43,000

He didn't flinch while he's spinning out of control around and around and around at 120 miles an hour.

345

00:21:43,000 --> 00:21:45,000

So, one thing's clear.

346

00:21:45,000 --> 00:21:53,000

These tests will be dangerous, hitting a wet surface at higher than highway speeds as the potential to put you into a spin cycle.

347

00:21:53,000 --> 00:21:55,000

How do you feel about it, Jamie?

348

00:21:55,000 --> 00:21:56,000

He did it.

349

00:21:56,000 --> 00:21:57,000

I'll do it.

350

00:22:02,000 --> 00:22:03,000

Oh!

351

00:22:07,000 --> 00:22:09,000

My kettle corn empire!

352

00:22:10,000 --> 00:22:11,000

Why?

353

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

Our intrepid trio are looking into unconventional ways to pop popcorn.

354

00:22:19,000 --> 00:22:23,000

And to test this popcorn themed scene from the silver screen,

355

00:22:24,000 --> 00:22:26,000

Carrie and Tori go back to school.

356

00:22:26,000 --> 00:22:32,000

Because they want to know if there's any science at all in this science fiction sounding scenario.

357

00:22:32,000 --> 00:22:38,000

Now what we're trying to find out here is can you pop popcorn with the laser and if so, could you do it from a plane?

358

00:22:38,000 --> 00:22:42,000

I believe that they're both possible, just to monitor how much laser power you have.

359

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

Now how realistic do you think the laser in the movie was?

360

00:22:44,000 --> 00:22:46,000

Five megawatts is a stretch.

361

00:22:46,000 --> 00:22:50,000

I'm not saying it's impossible, but it's a stretch even for chemical lasers,

362

00:22:50,000 --> 00:22:54,000

which typically operate, you know, the highest power is about 100 kilowatts.

363

00:22:54,000 --> 00:22:57,000

I don't think that a five megawatt laser is around the corner just yet.

364

00:22:57,000 --> 00:23:05,000

Now one serious question that Grant wanted me to ask you was how close are we to lightsaber

technology?

365

00:23:08,000 --> 00:23:10,000

Oh, that's classified.

366

00:23:11,000 --> 00:23:16,000

So as unlikely as it sounds, there's a kernel of truth to this myth.

367

00:23:17,000 --> 00:23:19,000

And for proof of concept...

368

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

Here is my popcorn kernel.

369

00:23:21,000 --> 00:23:22,000

There we go.

370

00:23:22,000 --> 00:23:26,000

They've got a 10 watt laser pointed right at it.

371

00:23:26,000 --> 00:23:28,000

We're pumping popcorn with lasers.

372

00:23:29,000 --> 00:23:35,000

Looking at the thermal camera, I'm seeing a tiny bit of heat at the top and the bottom of the kernel, and they're expanding very slowly.

373

00:23:35,000 --> 00:23:38,000

I'm pretty sure this is not how mom used to make it.

374

00:23:38,000 --> 00:23:40,000

Who does how grand-mom used to make it?

375

00:23:43,000 --> 00:23:44,000

Proof of concept!

376

00:23:45,000 --> 00:23:50,000

Well, now that you can laser pop popcorn, let's just concentrate on the power of popcorn.

377

00:23:50,000 --> 00:23:51,000

That is cool.

378

00:23:53,000 --> 00:23:54,000

Pretty good.

379

00:23:55,000 --> 00:23:56,000

After the break...

380

00:24:00,000 --> 00:24:03,000

It's all hands on deck for a full scale popcorn cookout.

381

00:24:08,000 --> 00:24:10,000

Please do not try what we do on the show at home.

382

00:24:10,000 --> 00:24:12,000

We're what you call experts.

383

00:24:12,000 --> 00:24:13,000

It's safer that way.

384

00:24:19,000 --> 00:24:22,000

In part two of popcorn pandemonium...

385

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

We're pumping popcorn with lasers.

386

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

Carrie Grant and Tori have discovered that just like the myth, you can actually cook popcorn with a laser.

387

00:24:31,000 --> 00:24:32,000

Proof of concept!

388

00:24:33,000 --> 00:24:39,000

So now all we need is a 5 megawatt laser, and then we can finally find out if popcorn could break down doors and windows.

389

00:24:40,000 --> 00:24:47,000

No. In fact, a hundred kilowatts is the most powerful you're going to find, and that's even in military applications.

390

00:24:47,000 --> 00:24:52,000

Yeah, so basically we're never going to find a laser big enough to pop a house full of popcorn.

391

00:24:52,000 --> 00:24:55,000

If we can't get a laser, we can substitute another heat source.

392

00:24:55,000 --> 00:24:57,000

Already on it. Induction heating.

393

00:24:57,000 --> 00:25:00,000

We just have to switch out the tin foil for some sort of steel container.

394

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

Sounds reasonable to me.

395

00:25:01,000 --> 00:25:05,000

So did you ask him about that thing we were talking about, the laser sword?

396

00:25:05,000 --> 00:25:06,000

Actually, I did.

397

00:25:06,000 --> 00:25:07,000

And guess what?

398

00:25:07,000 --> 00:25:08,000

I got a prototype right here.

399

00:25:08,000 --> 00:25:09,000

There you go, buddy.

400

00:25:09,000 --> 00:25:10,000

Don't turn it on inside.

401

00:25:10,000 --> 00:25:12,000

I said don't turn it on inside.

402

00:25:12,000 --> 00:25:13,000

Ow!

403

00:25:13,000 --> 00:25:15,000

Cut somebody's head off!

404

00:25:15,000 --> 00:25:19,000

So out goes the science fiction-sized 5 megawatt laser.

405

00:25:19,000 --> 00:25:24,000

And in comes a giant steel frying pan, heated by electromagnetism.

406

00:25:24,000 --> 00:25:30,000

So we're trying to find out, does popcorn have the expansive power to blow open doors and windows of a house?

407

00:25:30,000 --> 00:25:37,000

Now, we know in theory that a laser can pop popcorn, but there's no way we're going to be able to get a laser powerful enough to pop a whole house full of popcorn.

408

00:25:38,000 --> 00:25:40,000

So I'm going to make a frying pan.

409

00:25:40,000 --> 00:25:46,000

And not just any normal frying pan, but a giant steel electromagnetically heated frying pan.

410

00:25:46,000 --> 00:25:48,000

This is going to be crazy.

411

00:25:49,000 --> 00:25:52,000

It's a big pan, but it's not house-sized.

412

00:25:52,000 --> 00:25:57,000

And that's because the second change to the movie scenario is one of scale.

413

00:25:57,000 --> 00:26:00,000

The team are starting small with just one window.

414

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

Now in the movie, the weak point was the windows.

415

00:26:02,000 --> 00:26:06,000

So I'm constructing a window, putting it in a wall, making that the lid for a pan.

416

00:26:06,000 --> 00:26:11,000

Now if this myth is true, popcorn should pop like crazy, pop with mythical power,

417

00:26:11,000 --> 00:26:14,000

bust through the windows and spill out everywhere.

418

00:26:14,000 --> 00:26:16,000

That's the setup.

419

00:26:16,000 --> 00:26:18,000

And inside, Grant is using his...

420

00:26:18,000 --> 00:26:20,000

Play the Jedi Mind Force.

421

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

...mind...

422

00:26:25,000 --> 00:26:30,000

...to crunch the crucial numbers for the expansion potential of popcorn.

423

00:26:30,000 --> 00:26:37,000

So the popped kernel has an increase in volume of approximately 30 times, which is pretty good.

424

00:26:37,000 --> 00:26:42,000

Next he uses the force, gauge, to measure the pressure of that expansion.

425

00:26:42,000 --> 00:26:45,000

Rise, popcorn, rise.

426

00:26:45,000 --> 00:26:48,000

Push on the plate and give us force.

427

00:26:49,000 --> 00:26:53,000

Which turns out to be 0.22 psi.

428

00:26:55,000 --> 00:26:57,000

So we're about to heat up the pan to cook the popcorn.

429

00:26:57,000 --> 00:27:01,000

Now the way we're going to do that is we're using an induction heating system.

430

00:27:01,000 --> 00:27:04,000

And how that works is there are copper coils underneath the steel plate

431

00:27:04,000 --> 00:27:07,000

and they send out a high-frequency AC current.

432

00:27:07,000 --> 00:27:12,000

Now that current creates a magnetic field which will move the molecules around in the steel

433

00:27:12,000 --> 00:27:16,000

as those molecules are moving and creates friction which creates heat.

434

00:27:16,000 --> 00:27:18,000

And that's how we're going to cook our popcorn.

435

00:27:18,000 --> 00:27:20,000

In essence we're making a giant skillet.

436

00:27:23,000 --> 00:27:26,000

Fuuuuuuuuck!

437

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

So now we're going to coat the bottom of the pan with coconut oil to spread the heat evenly.

438

00:27:31,000 --> 00:27:33,000

It smells like popcorn.

439

00:27:33,000 --> 00:27:37,000

And then fill it with 3 quarters of an inch popcorn kernels.

440

00:27:38,000 --> 00:27:45,000

According to Grant's earlier calculations, 3 quarters of an inch of kernels should expand to over 20 inches.

441

00:27:46,000 --> 00:27:54,000

And with the window a mere 6 inches above the uncooked corn, we're all set to find out if popcorn has the power to break out.

442

00:27:55,000 --> 00:28:01,000

So what we're looking for in this experiment is whether the force of the popping popcorn will actually break the window.

443

00:28:01,000 --> 00:28:02,000

Okay, it's on!

444

00:28:02,000 --> 00:28:07,000

Now in my earlier experiment I found that the popcorn generated 0.22 psi.

445

00:28:08,000 --> 00:28:10,000

Now one, two, three!

446

00:28:12,000 --> 00:28:17,000

Which doesn't sound like a whole lot but consider this is a relatively large surface area

447

00:28:17,000 --> 00:28:24,000

The window's over a thousand square inches which means potentially 220 pounds of force.

448

00:28:24,000 --> 00:28:27,000

But despite a sterling, stirring effort.

449

00:28:27,000 --> 00:28:31,000

Break it, Grant! Now's your chance! Show us what you got, boy!

450

00:28:32,000 --> 00:28:36,000

The popcorn fails to make an impression on the window and it never will.

451

00:28:36,000 --> 00:28:41,000

Because confining the popcorn while it's cooking prevents it from popping.

452

00:28:41,000 --> 00:28:44,000

So it looks like most of our kernels popped and you might be thinking,

453

00:28:44,000 --> 00:28:47,000

well if they didn't bust through the window why don't they just add more popcorn?

454

00:28:47,000 --> 00:28:54,000

But there's actually a maximum amount of kernels you can use before not only is the compression start making them pop smaller but everything just burns.

455

00:28:54,000 --> 00:28:58,000

This is the most popcorn that's going to pop in these circumstances.

456

00:28:58,000 --> 00:29:06,000

So it's a catch-22. Putting pressure on the popcorn means it doesn't pop and can't exert that expensive pressure.

457

00:29:06,000 --> 00:29:08,000

But the guys aren't giving up yet.

458

00:29:09,000 --> 00:29:12,000

We do know from your experiment the pressures that the popcorn should exert.

459

00:29:12,000 --> 00:29:19,000

So what if we took the cooking out of the equation, used pre-popped popcorn and applied our own force?

460

00:29:19,000 --> 00:29:23,000

Yeah, then we can see if the popcorn is strong enough to break out of the house.

461

00:29:23,000 --> 00:29:26,000

Or whether the kernels would simply crush under those conditions.

462

00:29:26,000 --> 00:29:27,000

So back to the drawing board?

463

00:29:27,000 --> 00:29:28,000

Yeah.

464

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

Next on Mythbusters.

465

00:29:30,000 --> 00:29:31,000

Today's forecast.

466

00:29:31,000 --> 00:29:34,000

70% chance of science.

467

00:29:34,000 --> 00:29:37,000

And 100% chance of grain.

468

00:29:38,000 --> 00:29:42,000

Then Carrie Grant and Tori pop the top off with popcorn.

469

00:29:49,000 --> 00:29:56,000

Adam and Jamie are lifting the lid on a myth that to stay dry, you don't put the top up, you put your foot down.

470

00:29:57,000 --> 00:29:58,000

First up is the control.

471

00:29:58,000 --> 00:30:04,000

See, the myth states that if it starts to rain, you're driving your convertible with the top down, you shouldn't waste your time putting it up.

472

00:30:04,000 --> 00:30:05,000

You should gun it.

473

00:30:05,000 --> 00:30:06,000

Floor it goes fast as you can.

474

00:30:06,000 --> 00:30:09,000

So of course we're going to gun it, floor it, and go as fast as we can.

475

00:30:09,000 --> 00:30:11,000

But what do we compare that to?

476

00:30:11,000 --> 00:30:20,000

We compare it to the control, which is driving into a rainstorm, stopping, putting the top up and seeing how much rain we gathered that way.

477

00:30:20,000 --> 00:30:23,000

With a direct line to the weather gods.

478

00:30:23,000 --> 00:30:25,000

Alright, stand by for pressure.

479

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

Or at least John, the rain bar operator, Adam commences the rain.

480

00:30:29,000 --> 00:30:31,000

Today's forecast.

481

00:30:31,000 --> 00:30:34,000

70% chance of science.

482

00:30:34,000 --> 00:30:36,000

Go ahead and pressure it up.

483

00:30:36,000 --> 00:30:38,000

Jamie, come on in.

484

00:30:40,000 --> 00:30:44,000

Remember, this is a control for comparative purposes.

485

00:30:46,000 --> 00:30:48,000

Alright, now stop and put the top up.

486

00:30:50,000 --> 00:30:51,000

This looks awful.

487

00:30:51,000 --> 00:31:00,000

If you're foolish enough to be driving with the roof down while there's a rainstorm approaching, we want to know how wet you'll get in the time it takes to pop the top back on.

488

00:31:01,000 --> 00:31:03,000

Now go ahead and drive up.

489

00:31:03,000 --> 00:31:07,000

And it's pretty clear because that's one wet pineapple.

490

00:31:09,000 --> 00:31:11,000

How is that? Looks like you got soaked.

491

00:31:11,000 --> 00:31:12,000

I think so.

492

00:31:12,000 --> 00:31:14,000

Oh look at our test boards.

493

00:31:14,000 --> 00:31:17,000

There's no drops to count. They're just 100% soaked.

494

00:31:17,000 --> 00:31:30,000

I don't know whether this is going to turn out to be something to driving really fast to keep the rain out of your convertible, but it's pretty clear that stopping at all, even to put the top up, is going to get you saturated with rain pretty quickly.

495

00:31:30,000 --> 00:31:32,000

Alright, now stop and put the top up.

496

00:31:34,000 --> 00:31:36,000

Now that we've got a good control, it's time for some real testing.

497

00:31:36,000 --> 00:31:43,000

If there's any merit to this myth, we should see a lot less rain on our rain collection panels than last time.

498

00:31:43,000 --> 00:31:53,000

But the weather gods, the real ones, otherwise known as the physical forces of meteorology, decide to rain on Adam and Jamie's scientific parade.

499

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

The tissue paper rig is not going to work in these conditions.

500

00:31:56,000 --> 00:32:02,000

Well, why don't we do some runs anyway and shoot in on high speed and look at it closely and see if we can detect any kind of pattern from it.

501

00:32:02,000 --> 00:32:05,000

Okay, that sounds good. First up, let's do 25 miles an hour.

502

00:32:05,000 --> 00:32:06,000

Okay.

503

00:32:07,000 --> 00:32:15,000

For this stately 25 mile an hour test, out go the rain detection boards and in comes the high speed camera.

504

00:32:16,000 --> 00:32:25,000

Then after a quick reset, Jamie ups the speed to a healthy 55 miles an hour before heading back to compare the two runs.

505

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

At 25 miles an hour, I don't see any plume coming up the windshield at all.

506

00:32:30,000 --> 00:32:33,000

You will. It's coming up in just a minute. There, see?

507

00:32:33,000 --> 00:32:35,000

Yeah, it's pretty small.

508

00:32:35,000 --> 00:32:36,000

But still, you can see the effect.

509

00:32:36,000 --> 00:32:37,000

Okay.

510

00:32:37,000 --> 00:32:38,000

Then...

511

00:32:38,000 --> 00:32:39,000

It's like a lot of it's going into the cockpit though.

512

00:32:39,000 --> 00:32:43,000

Yes. Here's 55 though. The difference is actually pretty marked.

513

00:32:43,000 --> 00:32:46,000

So no plume, look at how the plume appeared.

514

00:32:46,000 --> 00:32:47,000

Oh yeah.

515

00:32:47,000 --> 00:32:48,000

Isn't that nifty?

516

00:32:48,000 --> 00:32:49,000

Yeah.

517

00:32:49,000 --> 00:32:50,000

This is totally clear.

518

00:32:50,000 --> 00:32:57,000

Totally clear? Well, there seems to be more of a plume at the faster speed, but is the cockpit actually staying drier?

519

00:32:57,000 --> 00:33:01,000

There's no way of knowing for sure until the real rain lets out.

520

00:33:03,000 --> 00:33:07,000

I'm not going to say it's too loud, but it looks like it might actually be clearing up.

521

00:33:07,000 --> 00:33:09,000

We might get a window for testing soon.

522

00:33:12,000 --> 00:33:17,000

Carrie Grant and Tori are asking, can popping popcorn blow out your house?

523

00:33:17,000 --> 00:33:20,000

It's kind of tinkling against the window. I thought they'd be more aggressive.

524

00:33:20,000 --> 00:33:21,000

Yeah.

525

00:33:21,000 --> 00:33:28,000

Large scale cooking didn't work. So they're taking heat out of the equation to focus on the expansion potential.

526

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

Now what we do know is that if you can pop popcorn, it does exert a certain amount of force.

527

00:33:35,000 --> 00:33:41,000

This is a PSI 0.22. So we're going to try this experiment again, but in a different way.

528

00:33:41,000 --> 00:33:50,000

We're going to take a bunch of pre-pop popcorn, fill a house that we build, add our own pressure and see if the popcorn is enough to destroy the house.

529

00:33:52,000 --> 00:33:54,000

That's a little hot.

530

00:33:55,000 --> 00:33:57,000

Am I missing an eyebrow?

531

00:33:57,000 --> 00:34:01,000

We've done the calculations to fill a house that is six by six by six feet.

532

00:34:01,000 --> 00:34:05,000

We're going to need 30 55 gallon garbage bags full.

533

00:34:05,000 --> 00:34:11,000

So we've got six popcorn poppers all popping at the same time and we're working around the clock so we can fill the house.

534

00:34:12,000 --> 00:34:18,000

After the corn mountain peaks, Carrie's four-legged vacuum cleaners move in and the team can move on.

535

00:34:21,000 --> 00:34:30,000

And with a house built to code in fast forward, Grant steps up with a larger than necessary piston to apply the popcorn power.

536

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

Ta-da! I'm not compensating for anything.

537

00:34:35,000 --> 00:34:39,000

So I'm standing underneath what would be the floor of our house.

538

00:34:39,000 --> 00:34:45,000

We're going to fill up the entire house with popcorn and then this cylinder is going to push up.

539

00:34:45,000 --> 00:34:48,000

Oh yeah, it fits.

540

00:34:48,000 --> 00:34:52,000

Now initially it's going to be just the popcorn force.

541

00:34:52,000 --> 00:34:58,000

Just to see if under ideal conditions, if we popped every kernel, what would happen to the house?

542

00:34:58,000 --> 00:35:02,000

Would it push up and blow out the windows or would it do nothing?

543

00:35:03,000 --> 00:35:04,000

There we go.

544

00:35:04,000 --> 00:35:05,000

Pump sun.

545

00:35:05,000 --> 00:35:06,000

All right, you guys ready?

546

00:35:06,000 --> 00:35:07,000

Yep.

547

00:35:07,000 --> 00:35:10,000

Okay, so this is regular popcorn popping force.

548

00:35:10,000 --> 00:35:13,000

Three, two, one.

549

00:35:13,000 --> 00:35:17,000

It's moving.

550

00:35:17,000 --> 00:35:19,000

Yeah, it's moving.

551

00:35:19,000 --> 00:35:21,000

Can you hear the creaking?

552

00:35:21,000 --> 00:35:23,000

Yeah, something's going to give.

553

00:35:23,000 --> 00:35:25,000

Is it the popcorn?

554

00:35:25,000 --> 00:35:26,000

Is it the house?

555

00:35:26,000 --> 00:35:28,000

As it turns out, neither.

556

00:35:28,000 --> 00:35:39,000

Popcorn power, which according to Grant's calculations is 0.22 psi and exactly the pressure exerted by the piston just isn't enough to do any damage at all.

557

00:35:39,000 --> 00:35:46,000

So basically the expansive pressure popcorn exerts doesn't come close to denting the door or windows.

558

00:35:46,000 --> 00:35:48,000

That means...

559

00:35:48,000 --> 00:35:50,000

I gotta say this part of the myth is looking busted.

560

00:35:50,000 --> 00:35:51,000

Yep, busted.

561

00:35:51,000 --> 00:35:52,000

Yep, busted.

562

00:35:52,000 --> 00:35:53,000

But you know what?

563

00:35:53,000 --> 00:35:55,000

We still have a house full of popcorn.

564

00:35:55,000 --> 00:35:57,000

I say we max it out, see what happens.

565

00:35:57,000 --> 00:35:58,000

I want to see what's going to go first.

566

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

The house or the popcorn?

567

00:36:00,000 --> 00:36:01,000

Do it.

568

00:36:01,000 --> 00:36:03,000

All right, let's wreck this house.

569

00:36:03,000 --> 00:36:06,000

With Grant's piston cranked to the max.

570

00:36:06,000 --> 00:36:10,000

3, 2, 1.

571

00:36:10,000 --> 00:36:14,000

This test is a transparent excuse to destroy stuff.

572

00:36:14,000 --> 00:36:20,000

The only question is, will the popcorn crash into dust or will the house come tumbling down?

573

00:36:20,000 --> 00:36:25,000

And as it turns out, the popcorn wins out.

574

00:36:25,000 --> 00:36:28,000

It's the real popcorn!

575

00:36:28,000 --> 00:36:31,000

Or at least Grant's giant piston dent.

576

00:36:31,000 --> 00:36:33,000

It was a really popcorn power.

577

00:36:33,000 --> 00:36:35,000

That was how many tons of force?

578

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

15.

579

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

So it was really just popcorn as a spacer.

580

00:36:38,000 --> 00:36:39,000

Yeah.

581

00:36:39,000 --> 00:36:42,000

So popcorn power didn't really destroy the house.

582

00:36:42,000 --> 00:36:43,000

No.

583

00:36:43,000 --> 00:36:45,000

But that was cool!

584

00:36:45,000 --> 00:36:46,000

Next.

585

00:36:46,000 --> 00:36:47,000

90 miles an hour?

586

00:36:47,000 --> 00:36:48,000

90 miles an hour.

587

00:36:48,000 --> 00:36:49,000

90 miles an hour.

588

00:36:49,000 --> 00:36:50,000

Let's do it.

589

00:36:50,000 --> 00:36:51,000

Let it wreck.

590

00:36:51,000 --> 00:36:53,000

Adam and Jamie ramp it up in the rain.

591

00:36:53,000 --> 00:37:03,000

3 and popcorn pandemonium ends with a bang.

592

00:37:03,000 --> 00:37:08,000

Adam and Jamie have already seen hints of the aerodynamic basis for this myth.

593

00:37:08,000 --> 00:37:09,000

Oh yeah.

594

00:37:09,000 --> 00:37:10,000

Isn't that nifty?

595

00:37:10,000 --> 00:37:17,000

On the next 70 miles per hour run, they're looking for physical evidence on the tissue paper rain detectors.

596

00:37:17,000 --> 00:37:20,000

Jamie, you may start your run now.

597

00:37:20,000 --> 00:37:23,000

This is 70 miles per hour gunning it.

598

00:37:23,000 --> 00:37:28,000

Gun it, Jacob does.

599

00:37:28,000 --> 00:37:35,000

Hitting his mark and holding steady at the target speed for the length of the course.

600

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

And cut the rain.

601

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

And with no hydroplaning or dangerous spin out, it's time to take in the results.

602

00:37:43,000 --> 00:37:45,000

Oh, look at that!

603

00:37:45,000 --> 00:37:46,000

Well, that's far out.

604

00:37:46,000 --> 00:37:50,000

It looks like no rain at all hit the middle here.

605

00:37:50,000 --> 00:37:55,000

But we've got wetness up top here and on the left hand side here.

606

00:37:55,000 --> 00:38:00,000

It's important to note that whatever little water came in here on the 70 mile an hour run

607

00:38:00,000 --> 00:38:03,000

was a tiny, tiny fraction of what came in on the control.

608

00:38:03,000 --> 00:38:04,000

Totally.

609

00:38:04,000 --> 00:38:07,000

I predicted that there'd be less rain in the car on this run.

610

00:38:07,000 --> 00:38:08,000

Not nearly this little.

611

00:38:08,000 --> 00:38:11,000

It really seems to be something to this man.

612

00:38:11,000 --> 00:38:14,000

A conviction only confirmed by the high speed camera.

613

00:38:14,000 --> 00:38:15,000

That's really clear.

614

00:38:15,000 --> 00:38:17,000

It's like there's a line.

615

00:38:17,000 --> 00:38:19,000

It's a really visible bubble, isn't it?

616

00:38:19,000 --> 00:38:20,000

Yes.

617

00:38:20,000 --> 00:38:22,000

That's what the windshield's for.

618

00:38:22,000 --> 00:38:25,000

So it would seem.

619

00:38:25,000 --> 00:38:27,000

But the guys aren't done yet.

620

00:38:27,000 --> 00:38:32,000

Adam, who will observe from a safe, dry distance, feels the need for more speed.

621

00:38:32,000 --> 00:38:35,000

Well, as far as I'm concerned, we should go for 100 miles an hour

622

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

and see if we can get those boards to stay bone dry.

623

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

I'd go ahead and leave the traction we throw on.

624

00:38:40,000 --> 00:38:46,000

But Brian, our safety driver, is concerned about the additional soaking the surface took from the real rain.

625

00:38:46,000 --> 00:38:49,000

So he suggests sticking to 90 miles per hour.

626

00:38:49,000 --> 00:38:50,000

Later, Brian.

627

00:38:50,000 --> 00:38:51,000

Try to counterfeiter it.

628

00:38:51,000 --> 00:38:53,000

But if you can't, just let it go.

629

00:38:53,000 --> 00:38:54,000

Got it.

630

00:38:56,000 --> 00:38:57,000

Let's go to full pressure.

631

00:39:01,000 --> 00:39:03,000

I am set and ready to go.

632

00:39:03,000 --> 00:39:06,000

Awesome. Jamie, you may start your 90 mile an hour run now.

633

00:39:06,000 --> 00:39:07,000

Let it rip.

634

00:39:21,000 --> 00:39:23,000

And cut the rain.

635

00:39:23,000 --> 00:39:24,000

Nice work, Jamie.

636

00:39:24,000 --> 00:39:26,000

Get the hydroplane.

637

00:39:26,000 --> 00:39:27,000

Awesome.

638

00:39:27,000 --> 00:39:30,000

Let's open this top and see how we did.

639

00:39:30,000 --> 00:39:33,000

Oh, dude.

640

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

Look at that.

641

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

We wanted to find out whether driving fast when it's raining will actually keep you dry.

642

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

And it turns out it does.

643

00:39:41,000 --> 00:39:44,000

Around 25 miles an hour or so, it's not so effective.

644

00:39:44,000 --> 00:39:48,000

But as you go faster, it actually does neglect most of the rain.

645

00:39:48,000 --> 00:39:52,000

Now, it's not that hard to understand really, because the rain's coming down like this.

646

00:39:52,000 --> 00:39:59,000

If you're going this way and you've got something in front of you, then it's going to catch all the rain and send it up over the top of you.

647

00:39:59,000 --> 00:40:01,000

And you stay dry.

648

00:40:01,000 --> 00:40:04,000

So it does make sense to gun it. The faster, the better, in fact.

649

00:40:04,000 --> 00:40:09,000

Yeah, you might die in the process, but you'll be dry.

650

00:40:09,000 --> 00:40:16,000

Your Honor, ladies and gentlemen of the jury, for my closing argument, I'd like to call your attention to Exhibit 24,

651

00:40:16,000 --> 00:40:21,000

which is footage from the tailgate up or down fuel efficiency myth that Mythbusters filmed.

652

00:40:21,000 --> 00:40:28,000

If you'll notice here in the Water Oatmeal test, there's a bubble formed in the back of the pickup truck that allows air to flow over the back of the pickup truck.

653

00:40:28,000 --> 00:40:34,000

The self-same aerodynamics that the engineers put into this sports car that allow it to be aerodynamic,

654

00:40:34,000 --> 00:40:39,000

even with the top down, create the same kind of bubble over the passenger compartment.

655

00:40:39,000 --> 00:40:44,000

And I contend that that's what keeps the passenger dry at high speed.

656

00:40:47,000 --> 00:40:52,000

This is a conundrum because I don't feel like it's right to call this one confirmed.

657

00:40:52,000 --> 00:40:55,000

Yeah, driving really fast in the rain can be very dangerous.

658

00:40:55,000 --> 00:40:58,000

How about plausible but not recommended?

659

00:40:58,000 --> 00:41:00,000

I'll buy that.

660

00:41:07,000 --> 00:41:11,000

It's been a long and winding road for this popcorn parable.

661

00:41:12,000 --> 00:41:17,000

Carrie Grant and Tori have discovered explosions won't pop your corn.

662

00:41:17,000 --> 00:41:19,000

That didn't work very well. It didn't work at all.

663

00:41:19,000 --> 00:41:21,000

But lasers will.

664

00:41:21,000 --> 00:41:30,000

However, a giant ball of corn popped by a 5 megawatt laser, leading to a house explosion, is pure fiction.

665

00:41:30,000 --> 00:41:31,000

Busted?

666

00:41:31,000 --> 00:41:32,000

Yep, busted.

667

00:41:33,000 --> 00:41:37,000

Now our house hasn't exploded yet, and this myth calls for an exploding house.

668

00:41:37,000 --> 00:41:39,000

So we're out here at the bomb range, and this is the plan.

669

00:41:39,000 --> 00:41:42,000

We're going to load it with C4 at the top and the bottom.

670

00:41:42,000 --> 00:41:45,000

And when this day is over, we should see splinters and popcorn.

671

00:41:45,000 --> 00:41:47,000

And that's all.

672

00:41:47,000 --> 00:41:50,000

I don't think they taught me this in bomb school.

673

00:41:50,000 --> 00:41:53,000

Well, we started with a bang, we're ending with a bang.

674

00:41:53,000 --> 00:41:56,000

So basically we've got a boom popcorn sandwich.

675

00:41:56,000 --> 00:41:58,000

Alright, you guys ready?

676

00:41:58,000 --> 00:42:01,000

And three, two, one.

677

00:42:02,000 --> 00:42:07,000

Oh, look at the rain of popcorn coming down!

678

00:42:10,000 --> 00:42:12,000

The rain of the house, too!

679

00:42:13,000 --> 00:42:16,000

Now that is exploding a house with popcorn.

680

00:42:20,000 --> 00:42:24,000

Well, not really popcorn, but C4 surrounded by popcorn.

681

00:42:25,000 --> 00:42:30,000

You know, to get this result, we had to go very far away from popcorn power.

682

00:42:32,000 --> 00:42:36,000

It didn't really push up on the house, it didn't blow the windows open.

683

00:42:36,000 --> 00:42:38,000

It didn't really do a whole lot.

684

00:42:40,000 --> 00:42:43,000

Popcorn power turned out to be science fiction.

685

00:42:43,000 --> 00:42:46,000

This explosion? Real genius.

686

00:42:54,000 --> 00:42:56,000

Hey, you! Yeah, you!

687

00:42:56,000 --> 00:42:57,000

You want more?

688

00:42:57,000 --> 00:43:00,000

Well, it's on Discovery.com slash MythBusters.