

1

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

Give us a break.

2

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

Don't try anything you're about to see us do at home.

3

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

On this trucking episode of Mythbusters,

4

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

we've got three big stories about big rigs.

5

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

That is crazy!

6

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

First up, there's the dynamometer of death.

7

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

This is the coolest toy ever!

8

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

Adam and Jamie test the gory story

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

that a truck tire blowout can knock your block off.

10

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

Wow!

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

Then buckle up as the team takes on the night rider.

12

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

I just hope the car still works when I get my truck.

13

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

Adam and Jamie ask, can you ramp it up on the highway?

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

I think I have 75.

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

And finally, Cari Torian Grant put their lives on the line.

16

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

It's getting dangerous now, and that's how we like it.

17

00:00:50,000 --> 00:00:55,000

As they find out if drafting increases your fuel efficiency.

18

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

Oh my God!

19

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

Who are the Mythbusters?

20

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

Adam Savage

21

00:01:03,000 --> 00:01:05,000

He's having a good time.

22

00:01:05,000 --> 00:01:06,000

And Jamie Heidemann

23

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

He gets me all worked up just looking at it.

24

00:01:08,000 --> 00:01:10,000

This is beautiful!

25

00:01:10,000 --> 00:01:14,000

Between them more than 30 years of special effects experience.

26

00:01:14,000 --> 00:01:15,000

That was heavy.

27

00:01:15,000 --> 00:01:17,000

Joining them, Grant Imahara

28

00:01:17,000 --> 00:01:19,000

Jamie makes it look so easy when he does it.

29

00:01:19,000 --> 00:01:20,000

Tori Bellaci

30

00:01:20,000 --> 00:01:22,000

Somebody ordered some exploding pants.

31

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

And Cari Byron

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00:01:23,000 --> 00:01:25,000

High explosives and electricity.

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00:01:25,000 --> 00:01:27,000

They don't just tell the Myth.

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00:01:27,000 --> 00:01:30,000

They put them to the test.

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00:01:36,000 --> 00:01:38,000

We have a killer of a myth.

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00:01:38,000 --> 00:01:39,000

Literally.

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00:01:39,000 --> 00:01:40,000

Bring it on.

38

00:01:40,000 --> 00:01:43,000

Well, you're in a vehicle alongside a semi-trailer truck.

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

And the myth is that when the tire blows,

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00:01:46,000 --> 00:01:49,000

it's such a powerful explosion that it will not only break your windshield,

41

00:01:49,000 --> 00:01:51,000

but also decapitate you.

42

00:01:52,000 --> 00:01:55,000

That is perfect and right up our alley.

43

00:01:57,000 --> 00:01:59,000

Tires can short-turn nasty.

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

Overpressurize them and the results are explosive.

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00:02:03,000 --> 00:02:08,000

But if you're unlucky enough to be alongside when a big rick tire blows,

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00:02:08,000 --> 00:02:10,000

would you literally lose your head?

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00:02:11,000 --> 00:02:15,000

Dynamo, dynamo, dynamo, dynamo, dynamometer, dynamometer.

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00:02:15,000 --> 00:02:19,000

Now I was thinking this is a perfect thing for spinning our truck tire up to speed,

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00:02:19,000 --> 00:02:23,000

except that nobody west of the Rockies will let us blow a truck tire

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00:02:23,000 --> 00:02:25,000

anywhere near their dynamometer.

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00:02:25,000 --> 00:02:27,000

We're going to have to make our own.

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00:02:27,000 --> 00:02:29,000

Why don't we do it in a myth-buster style?

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00:02:29,000 --> 00:02:33,000

We'll say get a really powerful pickup truck and yank the bed off of it

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00:02:33,000 --> 00:02:36,000

and drive the pickup, drive wheel up to speed,

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00:02:36,000 --> 00:02:38,000

just underneath the truck tire,

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00:02:38,000 --> 00:02:41,000

and that'll take the truck tire up to speed and we're there.

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

Let's do it.

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00:02:42,000 --> 00:02:44,000

In a typically ingenious plan of action,

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00:02:44,000 --> 00:02:48,000

Adam and Jamie will build their own super-sized dynamometer.

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00:02:48,000 --> 00:02:50,000

They'll sync a pickup truck,

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00:02:50,000 --> 00:02:53,000

lower a big rig onto the spinning wheels,

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00:02:53,000 --> 00:02:56,000

and put Buster in the firing line.

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00:02:56,000 --> 00:02:58,000

In three, two, one.

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

And the first step in taking Buster's block off with a blowout

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

is pairing back this pickup.

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00:03:05,000 --> 00:03:09,000

We cut the sides off this truck because we need to expose the drive wheel.

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

The drive wheel is going to provide the power to turn the big semi-trailer tire.

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00:03:14,000 --> 00:03:17,000

So we need to get at that wheel.

69

00:03:17,000 --> 00:03:19,000

We've got everything else out of the way.

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00:03:19,000 --> 00:03:23,000

We'll put the semi-trailer on top of this and fire this puppy up

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00:03:23,000 --> 00:03:25,000

and see what happens.

72

00:03:26,000 --> 00:03:29,000

Jamie makes it all sound so easy,

73

00:03:29,000 --> 00:03:31,000

but at the Chabot gun range,

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00:03:31,000 --> 00:03:35,000

the reality is that this is an enormous undertaking.

75

00:03:35,000 --> 00:03:37,000

Our trailer's going to go here.

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00:03:37,000 --> 00:03:40,000

A pickup truck's going to go there.

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

The pickup's drive wheels need to spin at more than 50 miles an hour.

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00:03:45,000 --> 00:03:47,000

But so that it can't go anywhere,

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00:03:47,000 --> 00:03:50,000

the MythBusters must sync its tires into the ground.

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00:03:52,000 --> 00:03:55,000

Dude, give it more gas!

81

00:03:56,000 --> 00:03:59,000

Well, hell, that ain't no truck no more.

82

00:03:59,000 --> 00:04:01,000

That's a dynamometer!

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

With the dyno fired up,

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

next the boys need a big rig to put on it.

85

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

And this should do.

86

00:04:09,000 --> 00:04:11,000

Yeah!

87

00:04:12,000 --> 00:04:17,000

I've just secured our big rig trailer to the biggest forklift we've ever used on the show,

88

00:04:17,000 --> 00:04:19,000

which is rated to 30,000 pounds.

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00:04:19,000 --> 00:04:21,000

It's not only a safety precaution,

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00:04:21,000 --> 00:04:24,000

but it's also a key part of the experiment in allowing us to adjust

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00:04:24,000 --> 00:04:28,000

how much pressure is actually on the big rig's tire.

92

00:04:28,000 --> 00:04:31,000

With the forklift locked and loaded,

93

00:04:31,000 --> 00:04:33,000

the trailer is lowered into position.

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00:04:33,000 --> 00:04:35,000

And once the two tires kiss,

95

00:04:35,000 --> 00:04:38,000

everything's ready for a test.

96

00:04:40,000 --> 00:04:43,000

Look at that!

97

00:04:43,000 --> 00:04:45,000

Their dynamometer may be ugly,

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00:04:45,000 --> 00:04:47,000

but it works like a charm.

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00:04:47,000 --> 00:04:51,000

That's what you call the ghetto dynamometer.

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00:04:51,000 --> 00:04:54,000

So now it's time to burn rubber

101

00:04:54,000 --> 00:04:57,000

and blow this big rig myth sky high.

102

00:04:57,000 --> 00:04:58,000

Seems fine.

103

00:04:58,000 --> 00:05:00,000

Yeah, I agree. We get it up to speed.

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

Wham! Boom! Do it.

105

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

The big rig myth that we get to test

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00:05:12,000 --> 00:05:15,000

happens to be one of the most popular topics on the fan site.

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00:05:15,000 --> 00:05:17,000

Have you guys heard of drafting?

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00:05:17,000 --> 00:05:22,000

Oh, that's when you try to get up as close as possible behind a trailer of a big rig to save fuel.

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00:05:22,000 --> 00:05:25,000

Yeah, the idea is that the big rig slices through the air,

110

00:05:25,000 --> 00:05:27,000

creates a low pressure zone in its wake,

111

00:05:27,000 --> 00:05:29,000

and you need less fuel to move your car.

112

00:05:29,000 --> 00:05:32,000

I've always wanted to try it, but I just never had the nerve.

113

00:05:32,000 --> 00:05:35,000

I was afraid that the driver was going to slam on the brakes.

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00:05:36,000 --> 00:05:38,000

Following a big rig dangerously close

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00:05:38,000 --> 00:05:41,000

may seem like an insane way to pass time,

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00:05:41,000 --> 00:05:44,000

but according to fans, it can actually save you money.

117

00:05:44,000 --> 00:05:47,000

The theory is that the closer you tailgate a truck,

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00:05:47,000 --> 00:05:50,000

the more you'll decrease the drag of air resistance,

119

00:05:50,000 --> 00:05:52,000

and the more fuel you'll save.

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00:05:53,000 --> 00:05:55,000

Before we go full-size with this myth,

121

00:05:55,000 --> 00:05:57,000

I think we ought to do a few small-scale tests

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00:05:57,000 --> 00:06:00,000

just to see if there's anything going on behind the big rig aerodynamically.

123

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

If we're going to test aerodynamics,

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00:06:02,000 --> 00:06:04,000

I know NASA has a wind tunnel.

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00:06:04,000 --> 00:06:07,000

I'd be happy to call them and see if they'll work with us.

126

00:06:07,000 --> 00:06:11,000

In the past, the team have constructed their own wind tunnels for testing.

127

00:06:12,000 --> 00:06:14,000

That's exactly what we're looking for.

128

00:06:14,000 --> 00:06:18,000

But this time, they're going straight to the big guns, NASA.

129

00:06:18,000 --> 00:06:22,000

And the idea is that the wind flowing through here is very even and steady.

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00:06:22,000 --> 00:06:26,000

We're going to blow smoke through over our model big rig,

131

00:06:26,000 --> 00:06:29,000

and if we see that smoke collecting at the back end,

132

00:06:29,000 --> 00:06:31,000

that indicates a low pressure zone.

133

00:06:31,000 --> 00:06:34,000

With the high-speed camera primed to catch the action,

134

00:06:34,000 --> 00:06:38,000

it's all systems go for the smoke and wind.

135

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

To the naked eye, it's hard to see a pattern,

136

00:06:43,000 --> 00:06:46,000

but things become crystal clear on the high-speed.

137

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

There's an obvious dead zone,

138

00:06:48,000 --> 00:06:52,000

a protected area where the oncoming smoke doesn't reach,

139

00:06:52,000 --> 00:06:55,000

protecting any following car from drag.

140

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

Smoke was gathering behind the truck,

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00:06:57,000 --> 00:07:00,000

which proves to us that there is a low pressure area.

142

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

What we're going to do now is take a car in the same scale as the truck,

143

00:07:03,000 --> 00:07:05,000

attach it to a force gauge,

144

00:07:05,000 --> 00:07:08,000

and then see what kind of effect that low pressure has on the car.

145

00:07:08,000 --> 00:07:12,000

But just before that, the team first needs a baseline.

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00:07:12,000 --> 00:07:14,000

So the truck is removed from the track

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00:07:14,000 --> 00:07:18,000

to see what the force of the oncoming wind is like on the car alone.

148

00:07:19,000 --> 00:07:22,000

With the smoke off, it may look like nothing's happening,

149

00:07:22,000 --> 00:07:27,000

but the wind is roaring past the car at over 50 miles per hour.

150

00:07:28,000 --> 00:07:30,000

And Grant gets a reading.

151

00:07:30,000 --> 00:07:33,000

Okay, so it looks like we've got a good baseline.

152

00:07:33,000 --> 00:07:34,000

Definitely.

153

00:07:34,000 --> 00:07:39,000

Point 142 pounds, and that is just the wind on the car alone.

154

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

So that's the control.

155

00:07:41,000 --> 00:07:46,000

The question now is, will this figure reduce with a semi-shielding the airstream?

156

00:07:47,000 --> 00:07:49,000

We're now full seven car lengths away.

157

00:07:49,000 --> 00:07:52,000

Do we have any drag whatsoever?

158

00:07:52,000 --> 00:07:55,000

We have 21% drag reduction.

159

00:07:55,000 --> 00:07:56,000

Are you serious?

160

00:07:56,000 --> 00:07:57,000

Yeah.

161

00:07:58,000 --> 00:08:01,000

For Carrie, that was the wow factor.

162

00:08:01,000 --> 00:08:04,000

So how about when the car gets dangerously close?

163

00:08:04,000 --> 00:08:09,000

First, they wind the truck in to decrease the distance to five inches,

164

00:08:09,000 --> 00:08:12,000

or at 10 feet if this were full scale.

165

00:08:12,000 --> 00:08:14,000

Alright, so we're at 10 feet.

166

00:08:14,000 --> 00:08:17,000

That's a 60% reduction in drag.

167

00:08:17,000 --> 00:08:18,000

Whoa!

168

00:08:18,000 --> 00:08:20,000

That is insanity!

169

00:08:20,000 --> 00:08:23,000

Alright, we're at six feet away from the truck.

170

00:08:23,000 --> 00:08:24,000

That is ridiculous.

171

00:08:24,000 --> 00:08:27,000

I don't think I'd want to drive that close to the back of the truck.

172

00:08:27,000 --> 00:08:30,000

Let me tell you, you might want to reconsider.

173

00:08:30,000 --> 00:08:32,000

80% reduction in drag.

174

00:08:32,000 --> 00:08:34,000

Oh my god!

175

00:08:34,000 --> 00:08:37,000

Let's go to the suicide zone.

176

00:08:37,000 --> 00:08:39,000

Alright, let's go to two feet.

177

00:08:39,000 --> 00:08:40,000

What are we reading?

178

00:08:40,000 --> 00:08:41,000

You know what's crazy?

179

00:08:41,000 --> 00:08:44,000

We're reading 93% reduction in drag.

180

00:08:44,000 --> 00:08:45,000

Are you serious?

181

00:08:45,000 --> 00:08:46,000

Yeah.

182

00:08:46,000 --> 00:08:48,000

It's an astounding result.

183

00:08:48,000 --> 00:08:52,000

But would this actually translate to fuel savings on the open road?

184

00:08:52,000 --> 00:08:55,000

Well, there's only one way to find out.

185

00:08:55,000 --> 00:08:59,000

The team will have to go full scale and test this myth for real.

186

00:08:59,000 --> 00:09:03,000

This is great evidence for us to go on to the full scale test.

187

00:09:03,000 --> 00:09:04,000

Absolutely.

188

00:09:04,000 --> 00:09:05,000

We need a big rig.

189

00:09:05,000 --> 00:09:06,000

We need a car.

190

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

And we definitely need to investigate this further.

191

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

And we need a crazy driver.

192

00:09:11,000 --> 00:09:13,000

Who's that going to be?

193

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

Later, can we use this ramp to get into this big rig at highway speeds?

194

00:09:18,000 --> 00:09:20,000

But before all that...

195

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

The boys bring out the big guns on Buster.

196

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

That's a hit man!

197

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

Nicely done!

198

00:09:35,000 --> 00:09:36,000

Welcome back.

199

00:09:36,000 --> 00:09:40,000

The myth we're testing is if you're driving alongside a big rig when it's tire blows,

200

00:09:40,000 --> 00:09:44,000

can that exploding tire kill you or specifically behead you?

201

00:09:44,000 --> 00:09:48,000

So, this is our big rig suspended in midair by our 30,000 pound forklift.

202

00:09:48,000 --> 00:09:51,000

We are going to lower this down onto our dynamometer.

203

00:09:51,000 --> 00:09:53,000

I know it looks like a pickup truck, but in fact it's a dynamometer.

204

00:09:53,000 --> 00:09:54,000

It'll spin up the speed.

205

00:09:54,000 --> 00:09:56,000

Spinning this wheel in the correct direction.

206

00:09:56,000 --> 00:09:59,000

We are going to make this tire fail by hell or high water.

207

00:09:59,000 --> 00:10:04,000

And that failing tire hopefully will knock Buster's head right off his body.

208

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

The reason we're using a motorcycle here is because this is a worst case scenario.

209

00:10:09,000 --> 00:10:12,000

Obviously, in a motorcycle you're a lot more exposed.

210

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

And so if a big tire like this goes off, while we could have put a car there,

211

00:10:16,000 --> 00:10:20,000

we figured this is the nastiest thing we can do with this particular experiment.

212

00:10:20,000 --> 00:10:23,000

Things are only going to get nastier for Buster.

213

00:10:23,000 --> 00:10:28,000

Because to blow the tire, Adam and Jamie are going with the direct approach.

214

00:10:28,000 --> 00:10:29,000

That's the shotgun.

215

00:10:29,000 --> 00:10:33,000

We're using a standard 12 gauge shotgun with a deer slug in it.

216

00:10:33,000 --> 00:10:39,000

The deer slug is actually one of the heavier bullets that is available in any kind of normal civilian weapon.

217

00:10:39,000 --> 00:10:45,000

It'll penetrate the tire and the big question here is whether the air inside the tire,

218

00:10:45,000 --> 00:10:50,000

is enough to actually make it rip or do something violent other than hiss.

219

00:10:50,000 --> 00:10:55,000

And what we're hoping, if everything goes really well, what will happen is that slug will enter the tire,

220

00:10:55,000 --> 00:10:58,000

right about here and compromise the radial.

221

00:10:58,000 --> 00:11:02,000

That's the steel wires that run around the perimeter of the tire.

222

00:11:02,000 --> 00:11:06,000

Once that radial gets compromised, if the gods are shining on us,

223

00:11:06,000 --> 00:11:10,000

this thing will open up like a zipper and fail in a magnificent fashion,

224

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

slicing Buster's head right off.

225

00:11:13,000 --> 00:11:18,000

That's the theory, but in case the impact is not enough to sever Buster's head,

226

00:11:18,000 --> 00:11:22,000

the team has an injury monitoring backup.

227

00:11:22,000 --> 00:11:25,000

Our crash test dummy has shock watch stickers,

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

so by looking at which one of these gets tripped, both on his head and on his torso,

229

00:11:29,000 --> 00:11:33,000

we'll be able to see what kind of damage he sustains during this tire accident.

230

00:11:33,000 --> 00:11:37,000

With the dynamometer spinning, it's time for the magic bullet.

231

00:11:37,000 --> 00:11:41,000

Of course, this isn't a typical way for a truck tire to blow,

232

00:11:41,000 --> 00:11:46,000

but this should result in the catastrophic failure that this myth needs.

233

00:11:46,000 --> 00:11:52,000

Okay, this is tire blowout, shotgun shell, revving the engine.

234

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

That's a hit, man! Nicely done!

235

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

I heard it go up.

236

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

Yup.

237

00:12:01,000 --> 00:12:04,000

But that was not the catastrophic failure we wanted.

238

00:12:04,000 --> 00:12:10,000

Jamie was right on the mark, hitting the tire dead on, but there sure was no explosion.

239

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

That's a neat hole, it's right there.

240

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

That's the hole?

241

00:12:13,000 --> 00:12:15,000

Well, that ought to tell us something.

242

00:12:15,000 --> 00:12:17,000

I mean, that bullet's that big around.

243

00:12:17,000 --> 00:12:21,000

You know, they don't get any bigger than that, and it hit it clean right in the sidewall.

244

00:12:21,000 --> 00:12:23,000

It had to hit some of those cables.

245

00:12:23,000 --> 00:12:26,000

That was full pressure. That was a perfect hit, so...

246

00:12:26,000 --> 00:12:31,000

The high speed shows the moment of impact as the slug pierces the tire,

247

00:12:31,000 --> 00:12:34,000

but Buster's white-knuckle ride is unaffected.

248

00:12:34,000 --> 00:12:38,000

To get a tire explosion, you're going to need a plan B.

249

00:12:38,000 --> 00:12:41,000

We have to come up with a new plan, because what we're doing is working.

250

00:12:41,000 --> 00:12:44,000

These tires are super crazy, incredibly resilient.

251

00:12:48,000 --> 00:12:51,000

Supposing you're silly enough to tailgate a truck,

252

00:12:51,000 --> 00:12:55,000

with this dangerous stunt, really improve your gas mileage.

253

00:12:56,000 --> 00:13:02,000

Tori Granton carries wind tunnel tests have given this myth the thumbs up, in theory.

254

00:13:02,000 --> 00:13:05,000

That is so much more than I expected.

255

00:13:05,000 --> 00:13:09,000

But what about in practice? Time to go full scale.

256

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

We should drive at different distances behind the truck.

257

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

We'll start at 100 feet and move our way up to 2 feet,

258

00:13:16,000 --> 00:13:18,000

and see if we save fuel as we get closer to the truck.

259

00:13:18,000 --> 00:13:21,000

2 feet seems really dangerous. Who's going to drive?

260

00:13:21,000 --> 00:13:24,000

I think Grant should do it, because he just had his middle name legally change to danger.

261

00:13:25,000 --> 00:13:28,000

Grant, danger in Mahara. I like the sound of that.

262

00:13:29,000 --> 00:13:35,000

The Mythbusters also like the look of the impressive beast they've lined up for their full scale test.

263

00:13:35,000 --> 00:13:41,000

At the Portland, Oregon headquarters of one of America's leading rig makers, Freightliner.

264

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

We've got this new Cascadia Freightliner here.

265

00:13:44,000 --> 00:13:50,000

It took 2,500 hours to shape the aerodynamics of this truck to make it the most fuel efficient truck in the world.

266

00:13:50,000 --> 00:13:56,000

It's a brand new truck, and we're anxious to get it out on the track again, and help you with that myth.

267

00:13:56,000 --> 00:14:00,000

Test engineer Matt Markstahler reckons drafting is suicidal,

268

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

especially considering how many blind spots are on a big rig.

269

00:14:04,000 --> 00:14:08,000

But he's agreed to help out under controlled conditions,

270

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

which include a thorough workout for Grant, under the tutelage of Hollywood stunt driver Mike Ryan.

271

00:14:17,000 --> 00:14:24,000

We actually want to build all the way up to a 2 foot distance between us and the truck.

272

00:14:25,000 --> 00:14:28,000

How dangerous is something like that?

273

00:14:28,000 --> 00:14:32,000

Definitely, definitely something you don't want to encourage people to do.

274

00:14:32,000 --> 00:14:43,000

I think the statistic is about three-fourths of all the truck accidents in the world that involve a car and a semi-truck that have fatality were caused by the person driving the car.

275

00:14:43,000 --> 00:14:44,000

It's pretty scary.

276

00:14:44,000 --> 00:14:48,000

One of the things you're going to do right now is put a line across the track. That's going to be their starting point.

277

00:14:49,000 --> 00:14:52,000

Drive down a quarter of a mile, but another mile.

278

00:14:52,000 --> 00:14:57,000

Then we're going to have a half a mile to see how much fuel is being used.

279

00:14:57,000 --> 00:15:03,000

It's on this half mile of track that the team will measure Grant's fuel consumption.

280

00:15:03,000 --> 00:15:07,000

And that's test engineer Andrew Smith's department.

281

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

What we've got here is our data acquisition system, and we're hooked up to the fuel injection system.

282

00:15:13,000 --> 00:15:18,000

In fact, what we're doing is exactly the same as if we were physically measuring the fuel that's going to the engine.

283

00:15:18,000 --> 00:15:23,000

We're recording all that, and we can compare when we're behind the big rig and when we're not.

284

00:15:23,000 --> 00:15:34,000

Once the fuel gauge is in place, Grant will make several runs behind the rig at 55 miles an hour, working his way incrementally from 100 feet down to 2 feet.

285

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

But first up, it's the baseline.

286

00:15:37,000 --> 00:15:39,000

This will be our control test.

287

00:15:39,000 --> 00:15:43,000

I'm going to drive along. I'm going to measure data for half a mile.

288

00:15:43,000 --> 00:15:47,000

I'll see how much fuel I'm using with nothing in front of me.

289

00:15:47,000 --> 00:15:51,000

With Andrew riding shotgun, Grant puts the pedals on the metal.

290

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

Okay, approaching drag strip.

291

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

Holding at 55.

292

00:15:56,000 --> 00:15:58,000

Still holding at 55.

293

00:15:59,000 --> 00:16:01,000

Approaching the stop.

294

00:16:01,000 --> 00:16:02,000

That's it.

295

00:16:02,000 --> 00:16:12,000

Andrew crunches the numbers, and it turns out that driving at 55 miles per hour on the test track gave a fuel consumption of 32 miles per gallon.

296

00:16:12,000 --> 00:16:15,000

Will drafting really cause an increase in MPGs?

297

00:16:15,000 --> 00:16:25,000

We're going to do it at 100 feet, 50 feet, 20 feet, 10 feet, and 2 feet, which I consider somewhat suicidal if you were driving on the highway.

298

00:16:25,000 --> 00:16:28,000

Three, two, one, go.

299

00:16:32,000 --> 00:16:41,000

Grant starts out at a distance of 100 feet behind the truck, but even this is considered outside the safety zone for most road authorities,

300

00:16:41,000 --> 00:16:47,000

who recommend at least 150 feet between vehicles traveling at 55 miles per hour.

301

00:16:47,000 --> 00:16:50,000

Crossing the finish line now.

302

00:16:50,000 --> 00:16:56,000

Okay, so that was a good run at 100 feet, maintained a constant distance at 55 miles per hour.

303

00:16:56,000 --> 00:16:58,000

And the result is pretty dramatic.

304

00:16:58,000 --> 00:17:05,000

With 100 feet between car and rig, fuel consumption improved by over 10%.

305

00:17:05,000 --> 00:17:11,000

Next, Grant gets back up to 55 miles an hour and closes the gap to 50 feet.

306

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

We're going to close this speed, you can collect your data now.

307

00:17:14,000 --> 00:17:20,000

With this size gap, fuel consumption improved by 20% on the control.

308

00:17:20,000 --> 00:17:23,000

Grant moves in even closer to 20 feet.

309

00:17:23,000 --> 00:17:25,000

This is starting to get hairy.

310

00:17:25,000 --> 00:17:29,000

Starting to approach that blind spot, I can't see him.

311

00:17:31,000 --> 00:17:39,000

At 20 feet, the slipstreaming effect of tailing the truck has improved fuel efficiency by an amazing 27%.

312

00:17:39,000 --> 00:17:44,000

But what about tailgating a big rig at 10 feet?

313

00:17:44,000 --> 00:17:47,000

It's getting dangerous now, and that's how we like it.

314

00:17:47,000 --> 00:17:52,000

Later, that is crazy.

315

00:17:52,000 --> 00:17:56,000

Grant earns his stunt driver stripes the crazy way.

316

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

That was crazy.

317

00:17:58,000 --> 00:18:03,000

But next, we want to know if this tire will behead this biker when it blows up.

318

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

In the wrong hands, tires can be downright dangerous.

319

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

But can they kill if they explode?

320

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

Well, for Adam and Jamie, getting a tire to explode in the first place is proving somewhat troublesome.

321

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

That was not the catastrophic failure we wanted.

322

00:18:27,000 --> 00:18:36,000

So to try to turn a tire torpedo, the team is next going to replicate the last moments of a tire that's done way too many miles.

323

00:18:36,000 --> 00:18:42,000

And subjecting another tire to high heat and low pressure should do just that.

324

00:18:42,000 --> 00:18:50,000

Yeah, we need to heat it up with the external heaters, and we need to really reduce the PSI so that we can get the tire flexing, because that adds heat as well.

325

00:18:50,000 --> 00:18:54,000

Flexing is responsible for most blowouts on highway trucks.

326

00:18:54,000 --> 00:19:04,000

If air pressure is too low, the rubber wobbles or flexes, and this flexing can cause rapid, explosive disintegration.

327

00:19:04,000 --> 00:19:11,000

We've got heaters posed on both sides of the tire, and the idea is to bring the overall tire temperature up as high as we can get it with them.

328

00:19:11,000 --> 00:19:17,000

We're going to start off slow, kind of like a chicken on a spit, and we're going to try and roast the tire.

329

00:19:17,000 --> 00:19:25,000

And we'll be looking at this on the thermal imaging camera, and hopefully somewhere in there with all that flexing and all that heat will get a catastrophic failure.

330

00:19:25,000 --> 00:19:33,000

Once the new tire is inflated to 30 PSI, a quarter of its usual pressure, the dynamometer is ready to roll.

331

00:19:33,000 --> 00:19:42,000

Well, we're rotating the tire under stress. It's been going for about five minutes, and it's already at 150 degrees. That's the external outer temperature of the tire.

332

00:19:42,000 --> 00:19:50,000

We know that the tires start to attain their failure mode around 350 degrees, so that's where our butter zone is going to be in this, hopefully.

333

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

We've just got to see how long it takes to get there.

334

00:19:52,000 --> 00:19:58,000

But unfortunately, even after 10 minutes, the butter zone has not been reached.

335

00:19:58,000 --> 00:20:01,000

It's capped there. It's just sticking around 200.

336

00:20:01,000 --> 00:20:09,000

Although heat failed to fire up the low pressure tire, all is not lost because the mythbusters have another trick up their sleeves.

337

00:20:09,000 --> 00:20:16,000

We'll suddenly over-pressurizing the tire, resulting in the biker beheading thereafter.

338

00:20:16,000 --> 00:20:25,000

In this line, it's 150 PSI. When I hook it up, it's just going to pass that onto the tire, and if the tire is sufficiently weakened, it's going to blow.

339

00:20:25,000 --> 00:20:27,000

Exploding tire, hopefully. Final test.

340

00:20:27,000 --> 00:20:29,000

In three, two, one.

341

00:20:31,000 --> 00:20:34,000

Come on, baby! Come on.

342

00:20:37,000 --> 00:20:39,000

There we go. That was it.

343

00:20:39,000 --> 00:20:44,000

That was it? It looks just like a zipper.

344

00:20:44,000 --> 00:20:47,000

It opened up where you cut it.

345

00:20:47,000 --> 00:20:50,000

But it didn't propagate.

346

00:20:50,000 --> 00:20:54,000

No. That wasn't very satisfying.

347

00:20:54,000 --> 00:20:56,000

It wasn't what we're looking for here.

348

00:20:56,000 --> 00:21:01,000

This time, the tire did fail, but it still didn't fail catastrophically.

349

00:21:01,000 --> 00:21:06,000

With this myth deflating fast, Adam has one final plan.

350

00:21:06,000 --> 00:21:13,000

You know, while we've seen the blowout, let's put it under a little pressure on the bottom tire and spin it up to speed.

351

00:21:13,000 --> 00:21:16,000

See if we can get some shrapnel out of it.

352

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

Adam reckons that if the burst tire spins long enough, something's got to give.

353

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

And sure enough, as the dyno picks up speed, rubber shrapnel soon starts flying far and wide.

354

00:21:32,000 --> 00:21:37,000

But have any of these tire torpedoes toppled our wild hog buster?

355

00:21:37,000 --> 00:21:40,000

This is the coolest toy ever!

356

00:21:40,000 --> 00:21:42,000

I better pull rubber!

357

00:21:42,000 --> 00:21:46,000

Although rubber shrapnel did get flung, none of it hit our biker.

358

00:21:46,000 --> 00:21:49,000

So what does this mean for the myth?

359

00:21:49,000 --> 00:21:57,000

If we look at the footage from that camera over there, we'll see one of the large chunks of rubber that flew about 200 feet in that direction.

360

00:21:57,000 --> 00:22:00,000

I watch one piece go like maybe 70, 80 feet straight up.

361

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

We need to actually find out what happens when you do get hit.

362

00:22:03,000 --> 00:22:07,000

Yeah, we need to make it a non-random event. We need to make a rubber chuck.

363

00:22:07,000 --> 00:22:14,000

We need to make something that chunks, chunks, large chunks of rubber right at buster's head to see what kind of damage it'll do.

364

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

But before all that, it's time to get kitted out with another myth.

365

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

Okay, so what do we got now?

366

00:22:25,000 --> 00:22:30,000

Well, I've got a big rig myth of my own. Have you ever seen the show from the early 80s called Night Rider?

367

00:22:30,000 --> 00:22:32,000

Yeah, wasn't the car intelligent or something?

368

00:22:32,000 --> 00:22:36,000

It was. Do you remember how that car came in for repairs?

369

00:22:36,000 --> 00:22:38,000

Yeah, he drove it right up into the back of a big rig.

370

00:22:38,000 --> 00:22:39,000

At speed?

371

00:22:39,000 --> 00:22:40,000

Yeah.

372

00:22:40,000 --> 00:22:47,000

I want to know if that's really possible, or if when your 60 mile an hour drive wheel hits that ramp, boom, launches you right into the container.

373

00:22:47,000 --> 00:22:49,000

Well, where your seatbelt?

374

00:22:49,000 --> 00:22:51,000

I will.

375

00:22:51,000 --> 00:22:56,000

Before the half was the half, he was the Night Rider.

376

00:22:56,000 --> 00:23:02,000

And his ride? Well, this four-wheel black beauty was smarter than your average car.

377

00:23:02,000 --> 00:23:08,000

And if it needed running repairs, there was the famous high-speed entry into the team's mobile HQ.

378

00:23:09,000 --> 00:23:16,000

But in real life, once you hit the ramp, wouldn't you suddenly accelerate and catapult yourself through the cabin?

379

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

You know, obviously we're going to go full scale, but I think we ought to go small scale first.

380

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

Let's get like an RC car and a running treadmill and just do the whole experiment and miniature first.

381

00:23:30,000 --> 00:23:31,000

Okay.

382

00:23:31,000 --> 00:23:35,000

Yep, it's the patented Mythbuster Bench Test.

383

00:23:35,000 --> 00:23:40,000

In this setup, Adam builds the scaled-down remote control car.

384

00:23:40,000 --> 00:23:42,000

Yeah, look at that.

385

00:23:42,000 --> 00:23:49,000

And Jamie vandalizes a treadmill to replicate the rolling surface of the highway. Ingenious.

386

00:23:49,000 --> 00:23:57,000

The treadmill here represents the road surface. We have a miniature representation of a truck. We have a miniature car.

387

00:23:57,000 --> 00:24:06,000

So the main thing that we're looking for here is what happens when the car makes a transition fully from the road surface onto the truck.

388

00:24:06,000 --> 00:24:14,000

If it were to do something like a wheelie or just spin out of control, not get traction or something weird like that.

389

00:24:15,000 --> 00:24:20,000

As Jamie said, the crucial moment is when the tires of the car get traction on the ramp.

390

00:24:21,000 --> 00:24:25,000

At that point, both vehicles are traveling at much the same velocity.

391

00:24:25,000 --> 00:24:32,000

But once it hits the ramp, the car is now moving at speed and in comparison, the truck is stationary.

392

00:24:32,000 --> 00:24:38,000

And the theory is, without a special effects department, wouldn't that cause it to accelerate out of control?

393

00:24:39,000 --> 00:24:42,000

But that's just the theory. How about the practice?

394

00:24:42,000 --> 00:24:46,000

There you go.

395

00:24:46,000 --> 00:24:53,000

No need for practice. In a break with Mithruster tradition, there was first time success with a small scale test.

396

00:24:53,000 --> 00:24:59,000

We've been thinking that the moment those back wheels traveling at this speed hit this ramp, that car goes f-ching.

397

00:24:59,000 --> 00:25:06,000

The high speed camera confirms there's no f-ching factor. The RC car slid into the trailer as smooth as you like.

398

00:25:06,000 --> 00:25:14,000

And even without brakes, its entry was slow enough to prevent a serious fender bender with the back wall of the big rig.

399

00:25:15,000 --> 00:25:21,000

So, I don't know about you, but the small scale experiment really gave me a lot of confidence that this might actually be possible.

400

00:25:21,000 --> 00:25:27,000

Yeah, and when you think about it, you know, the car's got a lot of inertia and for this to crash into the back of the semi,

401

00:25:27,000 --> 00:25:31,000

it'd have to all of a sudden be going twice as fast as it was. It's got to really accelerate.

402

00:25:31,000 --> 00:25:35,000

Well, I mean, the only thing for us to do now is to go full scale.

403

00:25:35,000 --> 00:25:36,000

Yep.

404

00:25:36,000 --> 00:25:37,000

Let's get to building a ramp.

405

00:25:37,000 --> 00:25:38,000

Okay.

406

00:25:39,000 --> 00:25:40,000

Still to come.

407

00:25:40,000 --> 00:25:41,000

That's a nice maneuver.

408

00:25:42,000 --> 00:25:44,000

Night rider goes full scale.

409

00:25:44,000 --> 00:25:45,000

Dude, that was scary.

410

00:25:45,000 --> 00:25:49,000

But first, Grant revs up for the ride of his life.

411

00:25:49,000 --> 00:25:54,000

I think if you were going to try to draft a big rig, you are completely mental.

412

00:25:57,000 --> 00:25:58,000

Give us a break.

413

00:25:58,000 --> 00:26:01,000

Don't try anything you're about to see us do at home.

414

00:26:02,000 --> 00:26:11,000

When driving behind a big rig, if you're too close to see the truck's mirrors, then the truck driver can't see you.

415

00:26:11,000 --> 00:26:15,000

That's why drafting is so dangerous, not to mention illegal.

416

00:26:15,000 --> 00:26:22,000

But as Kari Torian Grant have found out, this suicidal driving technique does increase your miles per gallon.

417

00:26:22,000 --> 00:26:28,000

At a drafting distance of 20 feet, the team has seen their fuel efficiency in the last few years.

418

00:26:29,000 --> 00:26:35,000

But Grant Danger Imahara laughs in the face of his middle name with Mike riding shotgun.

419

00:26:35,000 --> 00:26:36,000

Okay, I'm buckling up.

420

00:26:39,000 --> 00:26:42,000

He's going to tailgate a truck at 10 feet.

421

00:26:42,000 --> 00:26:50,000

I think if you were going to try to draft a big rig at 10 feet behind them, you are completely mental.

422

00:26:50,000 --> 00:26:55,000

Even in a controlled situation, it's really, really scary.

423

00:26:55,000 --> 00:26:56,000

We're ready.

424

00:26:56,000 --> 00:27:00,000

Alright, let's go in 3, 2, 1, go.

425

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

Go.

426

00:27:04,000 --> 00:27:05,000

35.

427

00:27:05,000 --> 00:27:07,000

We have one more shift and then you can go in.

428

00:27:07,000 --> 00:27:10,000

Okay, we've hit 55, we're holding steady.

429

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

It's completely in a reviving spot and we can't see him at all.

430

00:27:15,000 --> 00:27:20,000

The recommended driver reaction time for this speed is 2 seconds.

431

00:27:20,000 --> 00:27:23,000

Meaning 150 feet between vehicles.

432

00:27:23,000 --> 00:27:25,000

We're still with you.

433

00:27:25,000 --> 00:27:30,000

At 10 feet, Grant's reaction time is down to almost a tenth of a second.

434

00:27:30,000 --> 00:27:32,000

Sweet driving, Grant.

435

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

Okay, returning to the start.

436

00:27:34,000 --> 00:27:38,000

It may be madness, but the stats don't lie.

437

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

With a distance of 10 feet between car and truck, fuel efficiency improves by almost 4 seconds.

438

00:27:45,000 --> 00:27:52,000

But this myth ain't over yet as Grant prepares to draft at the insane distance of 2 feet.

439

00:27:52,000 --> 00:27:58,000

At 2 feet, one miscalculation and our myth buster will be 6 feet under.

440

00:27:58,000 --> 00:27:59,000

This is it.

441

00:27:59,000 --> 00:28:03,000

The car is 2 feet behind the truck and they're going to be traveling at 55 miles an hour.

442

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

I mean, this is nuts.

443

00:28:04,000 --> 00:28:06,000

I'm a little freaked out right now.

444

00:28:06,000 --> 00:28:08,000

I mean, we did a lot of training.

445

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

We did a lot of training.

446

00:28:10,000 --> 00:28:12,000

We did a lot of training.

447

00:28:12,000 --> 00:28:14,000

But that was with the minivan.

448

00:28:14,000 --> 00:28:15,000

This is a big rig.

449

00:28:15,000 --> 00:28:17,000

All right, you ready? Let's do it.

450

00:28:17,000 --> 00:28:19,000

All right, man. I'll see you on the other side.

451

00:28:19,000 --> 00:28:20,000

It was nice knowing.

452

00:28:20,000 --> 00:28:24,000

What's not nice knowing is if the rig has to stop suddenly,

453

00:28:24,000 --> 00:28:29,000

Grant will have three one-hundredths of a second to react, faster than the blink of an eye.

454

00:28:29,000 --> 00:28:31,000

Two, one, go.

455

00:28:31,000 --> 00:28:33,000

Okay, here we go.

456

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

We can't even see Grant.

457

00:28:35,000 --> 00:28:36,000

Just hit 55.

458

00:28:36,000 --> 00:28:38,000

Watch your 20, little buddy.

459

00:28:38,000 --> 00:28:40,000

We're at the end of the road.

460

00:28:40,000 --> 00:28:42,000

We're three feet out and closing.

461

00:28:42,000 --> 00:28:44,000

Just bringing it on in.

462

00:28:46,000 --> 00:28:48,000

We are locked into the two-truck.

463

00:28:48,000 --> 00:28:50,000

Oh, you are totally in our blind spot.

464

00:28:50,000 --> 00:28:52,000

Completely riding us.

465

00:28:52,000 --> 00:28:56,000

Matt at the wheel of the big rig can't see Grant's vehicle at all.

466

00:28:56,000 --> 00:28:59,000

That is crazy.

467

00:28:59,000 --> 00:29:01,000

Yeah, boy.

468

00:29:01,000 --> 00:29:03,000

We just crossed it.

469

00:29:03,000 --> 00:29:05,000

Yes, we got it.

470

00:29:05,000 --> 00:29:07,000

Woo!

471

00:29:07,000 --> 00:29:09,000

Oh, my God.

472

00:29:09,000 --> 00:29:11,000

That was crazy.

473

00:29:11,000 --> 00:29:13,000

How much gas am I going to save?

474

00:29:13,000 --> 00:29:15,000

Well, the result comes with a twist.

475

00:29:15,000 --> 00:29:19,000

Up until now, every time Grant's vehicle moved close to the road,

476

00:29:19,000 --> 00:29:21,000

it was a little bit of a mess.

477

00:29:21,000 --> 00:29:23,000

It was a little bit of a mess.

478

00:29:23,000 --> 00:29:25,000

It was a little bit of a mess.

479

00:29:25,000 --> 00:29:27,000

It was a little bit of a mess.

480

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

I was right behind the twist.

481

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

Up until now, every time Grant's vehicle moved closer,

482

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

fuel efficiency increased.

483

00:29:33,000 --> 00:29:36,000

But at two feet, it went down.

484

00:29:36,000 --> 00:29:39,000

The fuel economy actually dropped off a little bit.

485

00:29:39,000 --> 00:29:43,000

And I think the reason was there was such little air drag at that point.

486

00:29:43,000 --> 00:29:45,000

It was so hard to keep that two-foot distance

487

00:29:45,000 --> 00:29:48,000

that you were always kind of feathering the throttle,

488

00:29:48,000 --> 00:29:50,000

getting on the throttle, backing off.

489

00:29:50,000 --> 00:29:52,000

And so that actually hurts fuel economy

490

00:29:52,000 --> 00:29:54,000

when at a really steady foot.

491

00:29:54,000 --> 00:29:56,000

So apart from nervous footwork

492

00:29:56,000 --> 00:29:59,140

on the accelerator when Grant drove like a maniac,

493

00:29:59,140 --> 00:30:02,520

it looks like drafting, as dangerous as it is,

494

00:30:02,520 --> 00:30:05,480

does improve fuel efficiency after all.

495

00:30:05,480 --> 00:30:09,160

But really, it's just not worth risking your life for.

496

00:30:09,160 --> 00:30:11,120

Ah!

497

00:30:11,120 --> 00:30:12,860

Dude, nice job.

498

00:30:12,860 --> 00:30:14,400

You got nerves of steel.

499

00:30:14,400 --> 00:30:16,560

Thanks, you know, it was really intense,

500

00:30:16,560 --> 00:30:18,100

but we got a great result.

501

00:30:18,100 --> 00:30:20,360

You know what, surprisingly, at two feet behind the truck,

502

00:30:20,360 --> 00:30:22,560

it was less fuel efficient because it's so difficult

503

00:30:22,560 --> 00:30:25,240

trying to keep that distance between you and the truck.

504

00:30:25,440 --> 00:30:27,600

That difficult and crazy.

505

00:30:27,600 --> 00:30:30,840

But did you know that even driving at 100 feet is dangerous?

506

00:30:30,840 --> 00:30:33,280

Our researchers found that at 55 miles an hour,

507

00:30:33,280 --> 00:30:35,680

the minimum safe stopping distance you should allow

508

00:30:35,680 --> 00:30:37,000

is 150 feet.

509

00:30:37,000 --> 00:30:38,520

All right, so what are we going to call this one?

510

00:30:38,520 --> 00:30:40,720

I think we have to call this one confirmed.

511

00:30:40,720 --> 00:30:43,280

You do say fuel drafting behind a big rig.

512

00:30:43,280 --> 00:30:46,560

But it's absolutely not worth your life.

513

00:30:46,560 --> 00:30:56,400

You think what Grant did was crazy?

514

00:30:56,400 --> 00:30:58,880

Wait till you see me draft behind a big rig on my bicycle.

515

00:30:58,880 --> 00:31:01,240

Go to discovery.com slash mythbusters.

516

00:31:01,240 --> 00:31:03,640

Check it out.

517

00:31:03,640 --> 00:31:04,800

Up next.

518

00:31:04,800 --> 00:31:06,440

Gentlemen, start your engines.

519

00:31:06,440 --> 00:31:09,800

The night riding rubber meets the road.

520

00:31:09,800 --> 00:31:11,280

Adam, be careful, brother.

521

00:31:11,280 --> 00:31:12,280

It's like.

522

00:31:17,560 --> 00:31:22,560

Incredibly, Adam and Jamie have had reason to doubt the hawk.

523

00:31:22,560 --> 00:31:26,560

They're questioning the signature stunt from his night rider days.

524

00:31:26,560 --> 00:31:29,560

Can you really drive up the ramp of a moving big rig,

525

00:31:29,560 --> 00:31:31,560

or is it a mythical maneuver?

526

00:31:31,560 --> 00:31:34,560

To find out, they followed Carrie Grant and Tori

527

00:31:34,560 --> 00:31:37,560

to the Madras test track in Oregon.

528

00:31:37,560 --> 00:31:40,560

So we've already done this test in small scale in the shop,

529

00:31:40,560 --> 00:31:42,560

and the small scale test really made it clear

530

00:31:42,560 --> 00:31:44,560

that this might actually be feasible,

531

00:31:44,560 --> 00:31:47,560

that the car's inertia would keep it from doing what we thought it might do

532

00:31:47,560 --> 00:31:49,560

in the worst case scenario, which is to shoot up that ramp

533

00:31:49,560 --> 00:31:52,560

and like right into the big rig in a terrible wreck.

534

00:31:52,560 --> 00:31:55,560

So we've come here to try it out full scale

535

00:31:55,560 --> 00:31:57,560

and see if we can do it safely.

536

00:31:57,560 --> 00:31:58,560

It's a simple recipe.

537

00:31:58,560 --> 00:32:02,560

Take one big rig, one 1980s sports car,

538

00:32:02,560 --> 00:32:05,560

and ramp them up at highway speeds.

539

00:32:05,560 --> 00:32:09,560

And not just any ramp, Adam and Jamie have custom built their own.

540

00:32:09,560 --> 00:32:12,560

After all, it's their lives at stake.

541

00:32:12,560 --> 00:32:14,560

And not an inch to spare.

542

00:32:14,560 --> 00:32:16,560

The ramp seems like it's perfect.

543

00:32:16,560 --> 00:32:19,560

It seems to be just long enough to do the job

544

00:32:19,560 --> 00:32:23,560

and not really hit much on the car.

545

00:32:23,560 --> 00:32:29,560

It does a little bit, but it seems like it clears everything just barely.

546

00:32:29,560 --> 00:32:30,560

So I think we're good to go.

547

00:32:30,560 --> 00:32:33,560

We're hoping to get up to highway speeds, but we're going to start slow.

548

00:32:33,560 --> 00:32:36,560

30, 35 miles an hour is what the first test is going to be at.

549

00:32:36,560 --> 00:32:38,560

If that works, then we go to 55.

550

00:32:38,560 --> 00:32:42,560

The question now is who will be first in the driver's seat?

551

00:32:42,560 --> 00:32:45,560

If Adam doesn't die during this experiment,

552

00:32:45,560 --> 00:32:48,560

or maybe if he does, then I'll have to have a go.

553

00:32:48,560 --> 00:32:51,560

But at any rate, Adam will be the first guinea pig,

554

00:32:51,560 --> 00:32:53,560

and if it seems okay, I'll go in.

555

00:32:53,560 --> 00:32:58,560

So Adam, the human guinea pig, suits up for the 35 mile an hour run.

556

00:32:58,560 --> 00:33:04,560

And with just one successful bench test and a 1980s TV show to go on,

557

00:33:04,560 --> 00:33:07,560

they're taking no chances with safety.

558

00:33:08,560 --> 00:33:10,560

There's still a lot that can go wrong,

559

00:33:10,560 --> 00:33:14,560

which is why we've done a bunch of safety procedures to make this as safe as possible.

560

00:33:14,560 --> 00:33:17,560

One, we've added a roll cage into this car.

561

00:33:17,560 --> 00:33:22,560

Two, we've added a five point safety harness so that if I roll, I'm not going anywhere.

562

00:33:22,560 --> 00:33:24,560

And finally, I'm wearing a helmet.

563

00:33:24,560 --> 00:33:26,560

This is it. Test time.

564

00:33:26,560 --> 00:33:28,560

Gentlemen, start your engines.

565

00:33:28,560 --> 00:33:34,560

But just as they get underway, it starts raining, making the road and ramp slick.

566

00:33:34,560 --> 00:33:37,560

It's a challenge, just that little bit tougher.

567

00:33:37,560 --> 00:33:40,560

While Adam is driving up into the back of this truck, hopefully,

568

00:33:40,560 --> 00:33:43,560

I'm going to be driving right alongside with Mike,

569

00:33:43,560 --> 00:33:47,560

who will be coaching Adam in case he sees something going wrong.

570

00:33:47,560 --> 00:33:50,560

Adam accelerates, approaching his target speed.

571

00:33:50,560 --> 00:33:53,560

We're at 25, going to 30.

572

00:33:53,560 --> 00:33:56,560

We're at 35 miles an hour.

573

00:33:56,560 --> 00:33:59,560

He takes his time getting precisely in line with the rent.

574

00:33:59,560 --> 00:34:02,560

And when he's close enough, Mike gives him the cue.

575

00:34:02,560 --> 00:34:04,560

OK, let's go for it.

576

00:34:08,560 --> 00:34:10,560

Look at that.

577

00:34:11,560 --> 00:34:14,560

Well done. Well done.

578

00:34:15,560 --> 00:34:18,560

The high speed camera captures the crucial moment.

579

00:34:18,560 --> 00:34:21,560

As the wheels hit the ramp, they slow down significantly,

580

00:34:21,560 --> 00:34:24,560

which is where the clever science bit comes in.

581

00:34:24,560 --> 00:34:29,560

Any object in motion has a tendency to maintain a constant velocity.

582

00:34:29,560 --> 00:34:33,560

This law of inertia acts against the acceleration of the car

583

00:34:33,560 --> 00:34:37,560

as it hits the stationary ramp, slowing the car to a crawl

584

00:34:37,560 --> 00:34:40,560

and giving Adam plenty of time to stop.

585

00:34:40,560 --> 00:34:42,560

That worked beautifully.

586

00:34:42,560 --> 00:34:44,560

That was a cinch.

587

00:34:44,560 --> 00:34:46,560

That was so easy.

588

00:34:46,560 --> 00:34:48,560

Which means there's only one thing for it.

589

00:34:48,560 --> 00:34:50,560

They're going the whole hop.

590

00:34:50,560 --> 00:34:52,560

I feel like I'm ready to go to 60.

591

00:34:52,560 --> 00:34:54,560

Well, let's make it 55.

592

00:34:54,560 --> 00:34:56,560

That's the legal speed limit, I think, on these things.

593

00:34:56,560 --> 00:34:58,560

Perfect. Let's do it.

594

00:34:58,560 --> 00:35:02,560

Making it safely up that six foot gap at 55 miles per hour

595

00:35:02,560 --> 00:35:05,560

is a tougher proposition than 35

596

00:35:05,560 --> 00:35:08,560

and the rain is coming down harder.

597

00:35:08,560 --> 00:35:10,560

Let's do it.

598

00:35:10,560 --> 00:35:14,560

Adam guns the engine and hits the speed ceiling quickly.

599

00:35:14,560 --> 00:35:16,560

At 55 right now.

600

00:35:16,560 --> 00:35:18,560

Hold it 30 at 55.

601

00:35:18,560 --> 00:35:21,560

Jamie and Mike are once again in support

602

00:35:21,560 --> 00:35:24,560

unless he crashes, then he's on his own.

603

00:35:24,560 --> 00:35:27,560

Adam, are you on? Be careful, brother.

604

00:35:31,560 --> 00:35:33,560

Look at that.

605

00:35:33,560 --> 00:35:35,560

Good job.

606

00:35:38,560 --> 00:35:40,560

Once again, Adam made it look easy.

607

00:35:40,560 --> 00:35:43,560

The increased velocity didn't change a thing.

608

00:35:43,560 --> 00:35:46,560

The wheels hit the ramp, the cars inertia prevents

609

00:35:46,560 --> 00:35:50,560

any crazy acceleration, and Adam parts it.

610

00:35:50,560 --> 00:35:52,560

Nice, man. Good job.

611

00:35:52,560 --> 00:35:54,560

Great. Awesome.

612

00:35:54,560 --> 00:35:56,560

Dude, that was scary.

613

00:35:56,560 --> 00:35:58,560

Yeah, that was pretty...

614

00:35:58,560 --> 00:36:01,560

I was a little nervous there watching you do that.

615

00:36:01,560 --> 00:36:04,560

With the myth confirmed, there's only one thing left to do.

616

00:36:04,560 --> 00:36:06,560

It's Jamie's turn.

617

00:36:06,560 --> 00:36:08,560

This is Jamie. I'm good to go.

618

00:36:08,560 --> 00:36:12,560

And he's going to prove that whatever Adam can do...

619

00:36:13,560 --> 00:36:15,560

Holding...

620

00:36:16,560 --> 00:36:18,560

he can do backwards.

621

00:36:22,560 --> 00:36:25,560

Nice work, Heinemann.

622

00:36:26,560 --> 00:36:28,560

Move over the half.

623

00:36:28,560 --> 00:36:30,560

The Heinemann is here.

624

00:36:31,560 --> 00:36:34,560

So the truck ramp, night rider sequence all worked like a charm.

625

00:36:34,560 --> 00:36:37,560

I mean, we were able to do everything we tried to do.

626

00:36:37,560 --> 00:36:40,560

Absolutely. You know, one of the things I love most about doing this show

627

00:36:40,560 --> 00:36:44,560

is the weird skills we get to learn like stunt driving.

628

00:36:44,560 --> 00:36:47,560

I don't know when I'm going to have a chance to use it next,

629

00:36:47,560 --> 00:36:49,560

but it's nice to know how to do.

630

00:36:49,560 --> 00:36:51,560

Exactly. And the night rider ramp drive up?

631

00:36:51,560 --> 00:36:53,560

Totally confirmed.

632

00:36:53,560 --> 00:36:55,560

It worked, confirmed.

633

00:36:59,560 --> 00:37:00,560

Coming right up.

634

00:37:00,560 --> 00:37:02,560

How you doing, buddy?

635

00:37:02,560 --> 00:37:07,560

Ballistics Buster feels the full force of the exploding Tire of Death.

636

00:37:16,560 --> 00:37:18,560

There's no doubt about it.

637

00:37:18,560 --> 00:37:21,560

Tires can provide hours of entertainment.

638

00:37:21,560 --> 00:37:26,560

But can these innocent rubber donuts become lethal killing machines?

639

00:37:27,560 --> 00:37:30,560

Well, not if the Biffbusters are anything to go by.

640

00:37:30,560 --> 00:37:34,560

Their dynamometer tests sure burnt some rubber.

641

00:37:35,560 --> 00:37:38,560

But Buster came out unscathed.

642

00:37:40,560 --> 00:37:42,560

I have to admit, I'm disappointed.

643

00:37:42,560 --> 00:37:47,560

I really wanted to see our rig make a truck tire fail under pressure at highway speeds.

644

00:37:47,560 --> 00:37:51,560

Well, you know, I felt the same way at first too, but after thinking about it,

645

00:37:51,560 --> 00:37:56,560

the tire disintegrated exactly the way it would on the highway at those speeds.

646

00:37:56,560 --> 00:38:00,560

The only thing we really did not get while we were out there

647

00:38:00,560 --> 00:38:04,560

was seeing an impact from some of those frags into a dummy.

648

00:38:04,560 --> 00:38:06,560

Suppose that's what we do now.

649

00:38:06,560 --> 00:38:10,560

We take our biggest chunk of rubber, we calculate the speed it left our rig at,

650

00:38:10,560 --> 00:38:14,560

and here in the shop we fire it at that speed into a head

651

00:38:14,560 --> 00:38:16,560

and see what kind of damage it would do.

652

00:38:16,560 --> 00:38:20,560

Okay, I think we can modify the same rig that we had to do specifically that

653

00:38:20,560 --> 00:38:23,560

to aim it right at a head and then we'll know whether it works or not.

654

00:38:23,560 --> 00:38:25,560

I think it's a terrific way to finish this up.

655

00:38:25,560 --> 00:38:27,560

Alright, let's do it.

656

00:38:28,560 --> 00:38:29,560

Terrific indeed.

657

00:38:29,560 --> 00:38:35,560

The plan is to hoist up the pickup truck and sit the drive wheel on another freely spinning wheel.

658

00:38:36,560 --> 00:38:40,560

Then a piece of big rig tire will be placed between the wheels.

659

00:38:40,560 --> 00:38:45,560

And when the pickup revs up, the tire will be shot out the other side towards Buster.

660

00:38:47,560 --> 00:38:51,560

So fresh from the mud, the pickup is driven into place.

661

00:38:54,560 --> 00:38:55,560

Looks good, looks good.

662

00:38:56,560 --> 00:38:57,560

Looks good.

663

00:38:58,560 --> 00:38:59,560

I'm here for you buddy.

664

00:38:59,560 --> 00:39:00,560

Okay.

665

00:39:00,560 --> 00:39:05,560

An upturned trailer will provide the lower spin wheel for their rubber chucker.

666

00:39:06,560 --> 00:39:10,560

Adam and Janie slide it into place beneath the pickup truck.

667

00:39:10,560 --> 00:39:12,560

I swear this is the perfect height.

668

00:39:12,560 --> 00:39:17,560

One thing we need to remember is the proclivity of your forklift to drift.

669

00:39:17,560 --> 00:39:21,560

So we'll want to put one of those farm stands underneath it or something.

670

00:39:21,560 --> 00:39:28,560

So Janie welds some crossbars for stability and their rough and ready rubber chucker is up and running.

671

00:39:28,560 --> 00:39:31,560

This whole thing is another lesson in not messing around.

672

00:39:31,560 --> 00:39:35,560

I mean we have a trailer, we have a truck, we got power, we have wheels.

673

00:39:35,560 --> 00:39:41,560

Let's just kind of like put one here, put one there and we'll shoot some tire rubber.

674

00:39:42,560 --> 00:39:46,560

Adam is going to be the driver in charge of the speed at which the wheels spin.

675

00:39:46,560 --> 00:39:50,560

Twenty, twenty five, thirty.

676

00:39:50,560 --> 00:39:57,560

And when he hits forty, Janie will feed a strip of rubber that came off their earlier big rig blowout between the wheels.

677

00:39:59,560 --> 00:40:00,560

Forty.

678

00:40:01,560 --> 00:40:02,560

Oh.

679

00:40:03,560 --> 00:40:05,560

A hole in one on their test board.

680

00:40:05,560 --> 00:40:08,560

Adam can barely contain himself.

681

00:40:08,560 --> 00:40:16,560

Wow, there's nothing left but to get this test set up with the head and just go.

682

00:40:16,560 --> 00:40:18,560

That is awesome.

683

00:40:18,560 --> 00:40:24,560

This one was going forty miles an hour which is by the best math that we could do on its trajectory and the height it went in the air

684

00:40:24,560 --> 00:40:29,560

about how fast that piece of rubber was going when it left our truck out at the ramp.

685

00:40:29,560 --> 00:40:35,560

So if this beheads the guy, I'd say this myth is confirmed.

686

00:40:36,560 --> 00:40:43,560

The human analog for the beheading guy has been molded from ballistics gel with a pink spine neck bone.

687

00:40:43,560 --> 00:40:45,560

Look at that.

688

00:40:45,560 --> 00:40:47,560

Let's grant with a spine.

689

00:40:48,560 --> 00:40:50,560

How you doing buddy?

690

00:40:50,560 --> 00:40:54,560

Adam and Janie place him directly in the path of the tire belt.

691

00:40:54,560 --> 00:41:03,560

We've seen that there's a lot of energy contained in these tires when they're spinning and if they disintegrate they can throw pieces of themselves at high velocity.

692

00:41:03,560 --> 00:41:11,560

So this test is going to see whether these tires can penetrate a car window, whether they can actually break someone's neck.

693

00:41:11,560 --> 00:41:14,560

That's effectively what the myth is about.

694

00:41:14,560 --> 00:41:19,560

With the potential power of this rig, Adam and Janie are taking things to the extreme.

695

00:41:19,560 --> 00:41:30,560

Gone is biker buster and instead they'll be firing a tire belt at forty miles per hour through a car window at the driver's head.

696

00:41:30,560 --> 00:41:34,560

Okay, well let's fire the truck up and see what this puppy will do.

697

00:41:34,560 --> 00:41:36,560

Right.

698

00:41:40,560 --> 00:41:48,560

Thirty five, thirty, thirty five, go!

699

00:41:53,560 --> 00:41:57,560

Wow! That was awesome dude!

700

00:41:57,560 --> 00:42:02,560

Amazingly an almost total headlock, first time at the plate.

701

00:42:02,560 --> 00:42:03,560

His neck is broken.

702

00:42:03,560 --> 00:42:05,560

Oh he's killed, he's completely dead.

703

00:42:05,560 --> 00:42:08,560

Well, pulled his spine out of his head.

704

00:42:08,560 --> 00:42:15,560

Anyone coming upon this scene of an accident would say the body was beheaded.

705

00:42:15,560 --> 00:42:22,560

And any chances for recovery are going, going, gone.

706

00:42:22,560 --> 00:42:26,560

Viewed on high speed, the force of the impact is frightening.

707

00:42:26,560 --> 00:42:32,560

And it's clear that the only driving our ballistics gel dummy would be doing is in a hearse.

708

00:42:32,560 --> 00:42:34,560

Oh, it's a perfect hit.

709

00:42:34,560 --> 00:42:36,560

That's a hit, oh my god.

710

00:42:36,560 --> 00:42:38,560

I mean it's just, it's like there's nothing there.

711

00:42:40,560 --> 00:42:44,560

Final wrap up, what's the verdict on exploding truck tires?

712

00:42:44,560 --> 00:42:47,560

There's not really any two ways about it.

713

00:42:47,560 --> 00:42:51,560

If this thing hits you at forty miles an hour or some other highway speed,

714

00:42:51,560 --> 00:42:53,560

make it cut your head off.

715

00:42:53,560 --> 00:42:54,560

It's confirmed.

716

00:42:54,560 --> 00:42:56,560

I totally agree, confirmed.