1

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

Do not try what you're about to see at home.

2

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

We're what you call experts.

3

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

On this car crazy episode of Mythbusters, the obscenity begins.

4

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

Adam and Janie think outside the box.

5

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

Pleasure problem.

6

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

As they literally reinvent the wheel.

7

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

Our lives have officially become a cartoon,

8

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

testing the myth that square wheels will give you a smooth ride.

9

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

Provided you drive fast enough.

10

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

Meanwhile, Carrie Torian Grant, tackle a date night movie myth.

11

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

There's something you don't see every day.

12

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

Can two cars stuck bumper to bumper?

13

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

Let's do it.

14

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

Drive city streets.

15

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

I've got no steering.

16

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

I've got no steering.

17

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

Cut corners.

18

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

Do you believe we're getting paid to do this?

19

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

And even do a 180 spin.

20

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

So yeah, that was pretty much the best date I've ever been on.

21

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

Who are the Mythbusters?

22

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

Adam Savage.

23

00:01:06,000 --> 00:01:07,000

And Jamie Hineberg.

24

00:01:07,000 --> 00:01:10,000

Things are going to start to get a little crazy in here.

25

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

Between them more than 30 years of special effects experience,

26

00:01:14,000 --> 00:01:16,000

together with Brad Imahara.

27

00:01:16,000 --> 00:01:18,000

Carrie Byron.

28

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

Margaret.

29

00:01:19,000 --> 00:01:21,000

And Tori Belachie.

30

00:01:22,000 --> 00:01:24,000

They don't just tell the myths.

31

00:01:24,000 --> 00:01:26,000

They put them to the test.

32

00:01:40,000 --> 00:01:42,000

Hey, what, what you doing?

33

00:01:42,000 --> 00:01:43,000

Daydreaming.

34

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

What is a Heidemann daydream about?

35

00:01:46,000 --> 00:01:48,000

Square wheels.

36

00:01:48,000 --> 00:01:51,000

Like, what if you put square wheels on a truck?

37

00:01:51,000 --> 00:01:56,000

I would imagine it would give you the roughest possible ride.

38

00:01:56,000 --> 00:01:59,000

It would be the clunkiest imaginable ride.

39

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

Well, it wouldn't start, but if you went fast enough,

40

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

it would eventually smooth out, wouldn't it?

41

00:02:04,000 --> 00:02:08,000

You're wondering how fast you have to drive with square wheels

42

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

in order to get a smooth ride.

43

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

Yeah.

44

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

That's great.

45

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

I think we should put it to the test.

46

00:02:15,000 --> 00:02:17,000

It may have come from the Heidemann's mind,

47

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

but it's also going gangbusters on the fan site.

48

00:02:21,000 --> 00:02:24,000

Because according to the myth, at a fast enough speed,

49

00:02:24,000 --> 00:02:28,000

the difference between square and round wheels would disappear.

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

But can this really be true?

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00:02:30,000 --> 00:02:34,000

Or is this a myth that's headed back to square one?

52

00:02:34,000 --> 00:02:36,000

So what's your plan for these square wheels?

53

00:02:36,000 --> 00:02:39,000

Well, pretty much everything that we need for this

54

00:02:39,000 --> 00:02:41,000

is going to be really abused.

55

00:02:41,000 --> 00:02:44,000

So the wheels we're going to have to design to be able to take all of the stress.

56

00:02:44,000 --> 00:02:46,000

The truck's going to have to be really heavy duty.

57

00:02:46,000 --> 00:02:50,000

It's going to have to be four-wheel drive and have a big torquey engine in it.

58

00:02:50,000 --> 00:02:52,000

Super BV wheels, super BV truck.

59

00:02:52,000 --> 00:02:55,000

I think we should also add in there some nice objective way

60

00:02:55,000 --> 00:02:58,000

of measuring the smoothness of the ride we get.

61

00:02:58,000 --> 00:03:02,000

Like we compare it to a round wheel drive and see how close we can get.

62

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

Instrumentation.

63

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

Precisely.

64

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

Okay.

65

00:03:05,000 --> 00:03:10,000

What I'm trying to figure out here is that if we took a wheel like this

66

00:03:10,000 --> 00:03:13,000

and changed it into something shaped more like this,

67

00:03:13,000 --> 00:03:20,000

a square, how fast would we have to go to stay on the corners like so

68

00:03:20,000 --> 00:03:23,000

and actually end up with a smooth ride?

69

00:03:23,000 --> 00:03:27,000

Whether that's possible or not, at what speed that occurs,

70

00:03:27,000 --> 00:03:29,000

that's what we're trying to find out.

71

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

And first up comes the brainstorm.

72

00:03:31,000 --> 00:03:34,000

How to design a square wheel in the first place.

73

00:03:34,000 --> 00:03:36,000

How's the square wheel going to look?

74

00:03:36,000 --> 00:03:37,000

It's going to be square.

75

00:03:37,000 --> 00:03:38,000

Right.

76

00:03:38,000 --> 00:03:41,000

Reinventing the wheel is no easy feat.

77

00:03:41,000 --> 00:03:43,000

Obviously we're going to go with steel for this.

78

00:03:43,000 --> 00:03:46,000

What about something like, you know, a straight box?

79

00:03:46,000 --> 00:03:49,000

Well, I think that's a decent place to start.

80

00:03:49,000 --> 00:03:51,000

Every single wheel rotation.

81

00:03:51,000 --> 00:03:53,000

And then we spider out with some gussets.

82

00:03:53,000 --> 00:03:54,000

Exactly.

83

00:03:54,000 --> 00:03:56,000

Could lead to a catastrophic collapse.

84

00:03:56,000 --> 00:03:57,000

That'll start to look pretty sexy.

85

00:03:57,000 --> 00:04:01,000

Because of the 5,000 pound truck that they'll be carrying.

86

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

This is really creepy bizarre.

87

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

Yeah.

88

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

But by thinking inside the square, their idea gets into gear.

89

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

Cool.

90

00:04:10,000 --> 00:04:11,000

Let's get to it.

91

00:04:11,000 --> 00:04:12,000

Yeah.

92

00:04:12,000 --> 00:04:16,000

The final four-sided design has reinforcements at the center and corners,

93

00:04:16,000 --> 00:04:20,000

making it incredibly strong, but also incredibly complex.

94

00:04:20,000 --> 00:04:25,000

And with so many individual pieces of steel, it'll need to be laser cut.

95

00:04:25,000 --> 00:04:28,000

And thanks to the wonders of television, our parts are here.

96

00:04:28,000 --> 00:04:30,000

They're here.

97

00:04:30,000 --> 00:04:32,000

That takes no time at all.

98

00:04:32,000 --> 00:04:34,000

That is gorgeous.

99

00:04:34,000 --> 00:04:36,000

Man, those are so pretty.

100

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

Let's set one up.

101

00:04:37,000 --> 00:04:38,000

Okay.

102

00:04:40,000 --> 00:04:44,000

In order to keep our square wheels from each weighing like 200 pounds a piece,

103

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

we've designed it all out of 3-16 inch steel.

104

00:04:47,000 --> 00:04:52,000

Now that may not seem like much, but the design and the gussets and the distribution of the forces

105

00:04:52,000 --> 00:04:54,000

really ought to be able to take this.

106

00:04:54,000 --> 00:04:58,000

But with steel this thin, you can't just lay in these big fat welding beads.

107

00:04:58,000 --> 00:05:02,000

You actually have to stitch it carefully because the stuff, if it gets too hot, can warp.

108

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

And that's bad.

109

00:05:03,000 --> 00:05:06,000

It's a laborious process, but hopefully it'll be worth it.

110

00:05:06,000 --> 00:05:12,000

And once the Mythbusters get their heads down, their hubs are soon looking like the wheel deal.

111

00:05:12,000 --> 00:05:13,000

Nice.

112

00:05:13,000 --> 00:05:15,000

You want to grab a saw? Let's put it on the ground.

113

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

Yeah, this is how the tire goes on, right?

114

00:05:17,000 --> 00:05:18,000

Hopefully.

115

00:05:21,000 --> 00:05:23,000

That has a satisfying ring to it, doesn't it?

116

00:05:23,000 --> 00:05:26,000

It really does. It rings like a bell. It's so pretty.

117

00:05:26,000 --> 00:05:27,000

I'll be right back.

118

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

It's a square wheel.

119

00:05:33,000 --> 00:05:35,000

Those two words shouldn't go together.

120

00:05:36,000 --> 00:05:39,000

They shouldn't, but this isn't quite up to shape yet.

121

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

Well, there's your problem.

122

00:05:42,000 --> 00:05:46,000

Because next, it's time for the rubber to meet the rim.

123

00:05:46,000 --> 00:05:53,000

When you started this job, did you ever imagine you'd be lubing a square tire to fit a large piece of rubber on it?

124

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

That's been my lifelong dream.

125

00:05:57,000 --> 00:06:01,000

In theory, the guide bars should make levering on the tire easier.

126

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

Go ahead and get a clamp on that.

127

00:06:03,000 --> 00:06:04,000

Yeah.

128

00:06:04,000 --> 00:06:10,000

But trying to fit a square peg into a round hole is just as difficult as it sounds.

129

00:06:12,000 --> 00:06:15,000

My family's been fitting square wheels for two centuries now.

130

00:06:15,000 --> 00:06:17,000

No one's bought one, though.

131

00:06:18,000 --> 00:06:20,000

I bought my square wheels.

132

00:06:22,000 --> 00:06:25,000

Even bringing in a 2,000-pound wrecking ball.

133

00:06:25,000 --> 00:06:27,000

This is like how the Egyptians do it.

134

00:06:27,000 --> 00:06:29,000

The old Egyptian forklift.

135

00:06:29,000 --> 00:06:33,000

Doesn't get the tire onto the square, so Jamie has a solution.

136

00:06:34,000 --> 00:06:35,000

Slightly bigger.

137

00:06:36,000 --> 00:06:37,000

I hope it works.

138

00:06:38,000 --> 00:06:39,000

How's it look?

139

00:06:39,000 --> 00:06:40,000

Much better.

140

00:06:41,000 --> 00:06:42,000

Dude!

141

00:06:42,000 --> 00:06:44,000

I was able to just put it on by hand.

142

00:06:45,000 --> 00:06:46,000

Wow!

143

00:06:49,000 --> 00:06:50,000

That is a square wheel.

144

00:06:50,000 --> 00:06:53,000

That is, without a doubt, a square friggin' wheel.

145

00:06:53,000 --> 00:06:58,000

Thanks to their ingenuity and hard work, the mythbusters have squared the circle.

146

00:06:58,000 --> 00:07:00,000

Doing that makes me nervous.

147

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

Now, they just have to complete another three.

148

00:07:06,000 --> 00:07:08,000

Next up, a conjoined car caper.

149

00:07:11,000 --> 00:07:14,000

Alright, so we have another Hollywood myth, and this one comes from the movie Date Night,

150

00:07:14,000 --> 00:07:17,000

where two cars get into a head-on collision and become conjoined.

151

00:07:17,000 --> 00:07:20,000

Not only that, but they continue to drive around the city.

152

00:07:20,000 --> 00:07:21,000

I know this one.

153

00:07:21,000 --> 00:07:22,000

They actually get stuck together.

154

00:07:22,000 --> 00:07:24,000

They go forward, backward, go around corners.

155

00:07:24,000 --> 00:07:25,000

It's awesome.

156

00:07:25,000 --> 00:07:27,000

A little demolition, a little stunt driving.

157

00:07:27,000 --> 00:07:28,000

I love it.

158

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

It's a date night with a difference.

159

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

According to the movie, two cars crash together.

160

00:07:33,000 --> 00:07:41,000

Then speed down city streets, cut corners, and even manage a 180 spin.

161

00:07:41,000 --> 00:07:48,000

But could two conjoined cars even move, let alone achieve these turbo-charged tricks?

162

00:07:48,000 --> 00:07:53,000

Alright, so we're going to test whether these two conjoined cars can drive all these crazy maneuvers, right?

163

00:07:53,000 --> 00:07:56,000

But are we going to test whether they can become joined that way in the first place?

164

00:07:56,000 --> 00:07:58,000

No, actually we don't have to test that.

165

00:07:58,000 --> 00:08:02,000

I was talking to these guys at the crash test facility, and they were saying that this can happen.

166

00:08:02,000 --> 00:08:04,000

Cars can become connected in a collision.

167

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

It's very rare, like, one in 100,000 chances, but it can happen.

168

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

Which means that could take days and days to replicate.

169

00:08:11,000 --> 00:08:13,000

Not to mention that's quite a chunk of change.

170

00:08:13,000 --> 00:08:16,000

Okay, so we'll join the cars ourselves, and we'll do just like they did in the movie,

171

00:08:16,000 --> 00:08:19,000

nose to nose, and make sure that they never separate.

172

00:08:19,000 --> 00:08:22,000

Cool, because this myth really is about the maneuvers and not whether they can get stuck together.

173

00:08:22,000 --> 00:08:28,000

And we've got to design something that can accelerate, brake, do slide turns, 180s, and safely.

174

00:08:28,000 --> 00:08:32,000

Exactly, and now the real question is, how the heck are we going to do this?

175

00:08:32,000 --> 00:08:38,000

Well, step-wide is to get two cars more or less identical to the ones in the movie.

176

00:08:38,000 --> 00:08:39,000

Here's what we got.

177

00:08:39,000 --> 00:08:43,000

Over here we have our cab, which is a basic sedan, a rear-wheel drive.

178

00:08:43,000 --> 00:08:48,000

And for our sports sedan, since we can't afford a $158,000 car just to wreck,

179

00:08:48,000 --> 00:08:53,000

we got one with equivalent technology, it's got equivalent horsepower, and it's all-wheel drive.

180

00:08:53,000 --> 00:08:57,000

And with that, step two is to turn them into a double-act.

181

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

Whoa, hey.

182

00:09:02,000 --> 00:09:03,000

What's that?

183

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

It's got missiles.

184

00:09:04,000 --> 00:09:06,000

This is the coolest car ever.

185

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

What the heck are these?

186

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

But connecting two cars bumper to bumper was never going to be easy.

187

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

All right, well, problem number one, this car has an all-aluminum frame, so there's no welding to it.

188

00:09:18,000 --> 00:09:19,000

Well, that sucks.

189

00:09:19,000 --> 00:09:24,000

No welding means that the mythbusters will have to come up with a planned V.

190

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

Now, initially we're going to try and connect to the bumper, but that's not the strongest part of the car.

191

00:09:28,000 --> 00:09:30,000

The strongest part of the car is actually the frame.

192

00:09:30,000 --> 00:09:32,000

That's where the driver's cage is.

193

00:09:32,000 --> 00:09:34,000

That's the most rigid part of the car.

194

00:09:34,000 --> 00:09:39,000

So we're going to use that to connect frame to frame instead of bumper to bumper.

195

00:09:39,000 --> 00:09:41,000

Let's put these cars together.

196

00:09:41,000 --> 00:09:43,000

It's a heavy-duty solution.

197

00:09:43,000 --> 00:09:45,000

I'm not using the light stuff.

198

00:09:45,000 --> 00:09:51,000

That'll ensure that their heavy-duty cars stay nose to nose on the track.

199

00:09:51,000 --> 00:09:56,000

Now, each of these cars weighs over two tons, and will have to be stuck together driving over 40 miles an hour.

200

00:09:56,000 --> 00:10:02,000

So we've designed a steel frame that will fuse to the taxi and then will bolt to the sedan. Simple.

201

00:10:02,000 --> 00:10:07,000

And all that serious steel means they've got some serious welding to do.

202

00:10:07,000 --> 00:10:09,000

Glamorous.

203

00:10:09,000 --> 00:10:11,000

Very glamorous.

204

00:10:11,000 --> 00:10:20,000

The guys take a page from Flash Dance as the sparks fly, and slowly the date night frame comes together.

205

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

Cut the muffler off of any car. It sounds cooler.

206

00:10:23,000 --> 00:10:41,000

The cars have got serious muscle, but with the aluminum side bolted in and the other side welded on, the frame should keep that in check.

207

00:10:41,000 --> 00:10:44,000

So, all we need to do is get our cars off the car.

208

00:10:44,000 --> 00:10:46,000

And take it out to locations to test the Smith.

209

00:10:46,000 --> 00:10:48,000

That's all they have to do.

210

00:10:48,000 --> 00:10:51,000

But with the connected cars weighing in at four tons...

211

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

Ho-ho!

212

00:10:52,000 --> 00:10:54,000

I think we've got a problem here with this forklift.

213

00:10:54,000 --> 00:10:57,000

That's not an easy proposition.

214

00:10:57,000 --> 00:10:58,000

Whoa.

215

00:10:58,000 --> 00:10:59,000

What's that?

216

00:10:59,000 --> 00:11:02,000

It's making evil noises, and it's kind of doing like this.

217

00:11:02,000 --> 00:11:07,000

Who would have thought this would be the most difficult for us to get out of the car?

218

00:11:07,000 --> 00:11:10,000

It's making evil noises, and it's kind of doing like this.

219

00:11:12,000 --> 00:11:15,000

Who would have thought this would be the most difficult part of the day?

220

00:11:15,000 --> 00:11:17,000

Just packing up the cars.

221

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

We haven't even started the experiment.

222

00:11:19,000 --> 00:11:22,000

There's something you don't see every day.

223

00:11:22,000 --> 00:11:28,000

Eventually the double wide is loaded up and ready for its turbocharged excursion.

224

00:11:28,000 --> 00:11:30,000

See you there.

225

00:11:31,000 --> 00:11:32,000

Later.

226

00:11:32,000 --> 00:11:33,000

I've got no steering.

227

00:11:33,000 --> 00:11:36,000

Will the date night driving be double or nothing?

228

00:11:37,000 --> 00:11:38,000

That meant it would caught me.

229

00:11:38,000 --> 00:11:39,000

But first...

230

00:11:39,000 --> 00:11:44,000

In a few minutes, we're about to make another little piece in Smith Buster's history.

231

00:11:44,000 --> 00:11:50,000

For who else, I ask you, has attached square wheels to a car?

232

00:11:56,000 --> 00:12:02,000

Since Jamie was just a baby, a circular wheel has been the design of choice for a smooth ride.

233

00:12:03,000 --> 00:12:07,000

But could a square wheel, at speed, be just as comfortable?

234

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

Well, after squaring up a feat of engineering excellence, the Smith Busters are ready to roll on testing.

235

00:12:14,000 --> 00:12:15,000

Let's get out of here.

236

00:12:15,000 --> 00:12:21,000

And with a truck packing plenty of power, they hit the road for a familiar testing ground.

237

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

I love this tarmac.

238

00:12:23,000 --> 00:12:25,000

Nice day for a bouncy ride, huh?

239

00:12:25,000 --> 00:12:27,000

Absolutely it is. Let's get started.

240

00:12:27,000 --> 00:12:33,000

If these babies have any chance at all of giving us a smooth ride, how are we going to know beyond our own subjective experience?

241

00:12:33,000 --> 00:12:38,000

We need an objective measuring system for telling us how smooth our ride is.

242

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

And that's where Jason and Scott come in.

243

00:12:41,000 --> 00:12:46,000

They work at LMS, a software and hardware engineering company that measures the vibration of all sorts of things,

244

00:12:46,000 --> 00:12:52,000

from cars to airplanes to washing machines, and they're going to measure our experiment.

245

00:12:52,000 --> 00:12:57,000

Yep, Jason and Scott position the sensitive sensors in three key areas.

246

00:12:57,000 --> 00:12:58,000

Good to go.

247

00:12:58,000 --> 00:13:04,000

To track the vibration on the suspension, the steering column, and of course, the passengers.

248

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

And with the test track set, that looks faster.

249

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

They'll be put to use first in the round wheel control.

250

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

In three, two, one, go.

251

00:13:18,000 --> 00:13:19,000

There we go.

252

00:13:19,000 --> 00:13:22,000

Feels like a pretty nice ride so far.

253

00:13:22,000 --> 00:13:24,000

As it should be.

254

00:13:27,000 --> 00:13:28,000

55.

255

00:13:28,000 --> 00:13:29,000

55.

256

00:13:29,000 --> 00:13:33,000

And 60.

257

00:13:33,000 --> 00:13:38,000

60 miles an hour. Feels pretty smooth. I think we've got a good metric.

258

00:13:38,000 --> 00:13:39,000

Yeah.

259

00:13:39,000 --> 00:13:42,000

Bring it to a halt and head back to home base. Throw some square wheels on this puppy.

260

00:13:43,000 --> 00:13:46,000

Unsurprisingly, the traditional wheels provide a comfortable ride,

261

00:13:46,000 --> 00:13:49,000

something that's backed up by the sensors.

262

00:13:50,000 --> 00:13:52,000

You guys, we get anything good?

263

00:13:52,000 --> 00:13:53,000

Absolutely.

264

00:13:53,000 --> 00:13:59,000

We went up to about 60 miles an hour, steering column and the seat pad are nice low levels of vibration as we'd expect.

265

00:13:59,000 --> 00:14:01,000

That looks like a really good baseline.

266

00:14:01,000 --> 00:14:03,000

Yep, we expect this to go way up with the square wheels.

267

00:14:03,000 --> 00:14:04,000

So do we.

268

00:14:04,000 --> 00:14:05,000

Yeah.

269

00:14:05,000 --> 00:14:06,000

All right, let's get it.

270

00:14:06,000 --> 00:14:10,000

With the baseline set, it's time for the weirdest wheel change in automobile history.

271

00:14:11,000 --> 00:14:13,000

This is so wrong.

272

00:14:13,000 --> 00:14:16,000

And yet it feels so right.

273

00:14:22,000 --> 00:14:24,000

The obscenity begins.

274

00:14:24,000 --> 00:14:27,000

You know, I don't think you'd need a parking brake with these things.

275

00:14:27,000 --> 00:14:30,000

Yeah, no need to curb your wheels on the hill.

276

00:14:30,000 --> 00:14:31,000

No.

277

00:14:31,000 --> 00:14:32,000

No.

278

00:14:32,000 --> 00:14:35,000

Personally, I don't think we're going to get a smooth ride out of these square wheels,

279

00:14:35,000 --> 00:14:40,000

but more than that, with all of them flat, I seriously imagine that the first quarter turn,

280

00:14:40,000 --> 00:14:46,000

the first time a truck, boom, and lands on that second part of the square,

281

00:14:46,000 --> 00:14:49,000

the truck may look at that as an accident and just shut down.

282

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

We might not even get more than one quarter turn on this test.

283

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

Well, as the Mythbusters mantra goes, there's only one way to find out.

284

00:14:57,000 --> 00:15:01,000

But that's a way that first involves a suit up for safety.

285

00:15:02,000 --> 00:15:06,000

Because with the world's first set of square wheels doing the spinning,

286

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

the Mythbusters are taking no chances.

287

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

Let's do it.

288

00:15:09,000 --> 00:15:10,000

All right.

289

00:15:10,000 --> 00:15:11,000

All right, here we go.

290

00:15:11,000 --> 00:15:12,000

The moment of truth.

291

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

Square wheels, smooth ride, all four wheels flat.

292

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

Eh, three, two, one, go.

293

00:15:21,000 --> 00:15:23,000

They're off to a fucking start.

294

00:15:25,000 --> 00:15:27,000

That's smooth right now.

295

00:15:27,000 --> 00:15:30,000

As Jamie accelerates, the ride seems to get smoother.

296

00:15:35,000 --> 00:15:38,000

At least until it suddenly stops altogether.

297

00:15:39,000 --> 00:15:41,000

Something's dreadfully wrong.

298

00:15:41,000 --> 00:15:43,000

Yeah, we're sitting sideways.

299

00:15:43,000 --> 00:15:45,000

We're sitting sideways and we're not level.

300

00:15:45,000 --> 00:15:46,000

I know.

301

00:15:49,000 --> 00:15:50,000

Whoa.

302

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

Oh crap, Jamie.

303

00:15:52,000 --> 00:15:53,000

It's bad.

304

00:15:58,000 --> 00:16:00,000

There's your problem.

305

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

What happened?

306

00:16:01,000 --> 00:16:03,000

We sheared everything out of that wheel hub.

307

00:16:03,000 --> 00:16:04,000

All the bolts.

308

00:16:04,000 --> 00:16:05,000

All the bolts.

309

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

Well, at least it didn't ruin the wheels.

310

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

Yeah, exactly.

311

00:16:10,000 --> 00:16:13,000

The term of art for that is one hell of a ride.

312

00:16:14,000 --> 00:16:15,000

Whoa!

313

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

Hey!

314

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

That's smooth right now.

315

00:16:18,000 --> 00:16:23,000

And for about five seconds there, it felt like we were actually getting something approaching a smooth ride.

316

00:16:24,000 --> 00:16:26,000

And then everything fell apart.

317

00:16:29,000 --> 00:16:32,000

The fact is, this is one of the most powerful trucks we could get our hands on.

318

00:16:32,000 --> 00:16:36,000

And driving with all four wheels flat, just too much for it.

319

00:16:36,000 --> 00:16:42,000

But even in that 15 second window, the wheels did get up enough speed to spin corner to corner.

320

00:16:42,000 --> 00:16:46,000

However, do the sensors confirm that it was smooth?

321

00:16:47,000 --> 00:16:49,000

All right, Scott, what do you got for us?

322

00:16:49,000 --> 00:16:51,000

Well, you can definitely see some trends here.

323

00:16:51,000 --> 00:16:55,000

As the speed goes up, the vertical acceleration and suspension is definitely going down.

324

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

If I go to the steering column, you see the same trend.

325

00:16:57,000 --> 00:17:01,000

As the speed goes up, vibrational energy definitely goes down.

326

00:17:01,000 --> 00:17:05,000

Well, the data is pretty compelling and it actually seems to match what Jamie and I felt in the truck,

327

00:17:05,000 --> 00:17:10,000

which is that before it destroyed itself, we actually felt the ride smoothing out.

328

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

There might just be something to this, so we're going to keep on testing it.

329

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

Absolutely, because it ain't over until the square wheel spin.

330

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

And don't fall off the truck.

331

00:17:20,000 --> 00:17:24,000

Oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh, oh.

332

00:17:24,000 --> 00:17:25,000

Coming right up.

333

00:17:25,000 --> 00:17:27,000

Hey, what are you doing? Get out of my way.

334

00:17:27,000 --> 00:17:30,000

The conjoined car caper goes straight.

335

00:17:30,000 --> 00:17:32,000

No, no, no.

336

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

The Mythbusters have got double the trouble with a Date Night double driving myth.

337

00:17:43,000 --> 00:17:46,000

And after some ingenious automotive surgery.

338

00:17:46,000 --> 00:17:53,000

The conjoined cars are at Alameda ready for the maneuvering man.

339

00:17:53,000 --> 00:17:58,400

As we're testing myth in the movie Date Night, where two cars get in a head-on collision

340

00:17:58,400 --> 00:18:00,280

and they become linked together.

341

00:18:00,280 --> 00:18:03,520

During this whole three-minute sequence, they drive around and around back and forth.

342

00:18:03,520 --> 00:18:08,120

We're going to start with the straight line test because potentially that is the safest

343

00:18:08,120 --> 00:18:09,560

and the easiest on the cars.

344

00:18:09,560 --> 00:18:12,560

That's right, they're breaking the scene into its elements.

345

00:18:12,600 --> 00:18:16,600

The straight line test, the 90 degree turn and the 180 spin.

346

00:18:16,600 --> 00:18:19,880

And first up, they're going straight.

347

00:18:19,880 --> 00:18:24,720

With the cabin neutral, can the sports sedan really shove it backwards at 40 miles an hour

348

00:18:24,720 --> 00:18:26,720

from a standing start?

349

00:18:26,720 --> 00:18:27,720

Yeah!

350

00:18:27,720 --> 00:18:32,200

Well, once the cab gets its obligatory myth busters makeover...

351

00:18:32,200 --> 00:18:33,920

Now that's a taxi.

352

00:18:33,920 --> 00:18:35,200

It's time to find out.

353

00:18:35,200 --> 00:18:36,200

Let's go.

354

00:18:36,200 --> 00:18:39,920

So our sports sedan, it's fast and it's got a lot of torque.

355

00:18:39,920 --> 00:18:40,920

And you know what?

356

00:18:40,920 --> 00:18:43,120

It's designed for a specific load.

357

00:18:43,120 --> 00:18:46,040

And by connecting our taxi cab to this car...

358

00:18:46,040 --> 00:18:47,040

Hey, what are you doing?

359

00:18:47,040 --> 00:18:49,040

Get out of my way!

360

00:18:49,040 --> 00:18:52,440

Essentially, we're doubling that load and making it even harder.

361

00:18:52,440 --> 00:18:56,080

And that means that all the torque that this car has, it's going to need all of that to

362

00:18:56,080 --> 00:18:57,560

push this car out of the way.

363

00:18:57,560 --> 00:19:02,600

Yep, the sports sedan may have the power, but can it shove the weight of the 4,000-pound

364

00:19:02,600 --> 00:19:04,120

taxi too?

365

00:19:04,120 --> 00:19:07,800

And can this double-act max out at 40 miles an hour?

366

00:19:07,800 --> 00:19:08,800

Ready?

367

00:19:08,800 --> 00:19:09,800

Ready!

368

00:19:10,680 --> 00:19:13,040

Alright, putting it into neutral.

369

00:19:13,040 --> 00:19:14,040

Parking break off.

370

00:19:14,040 --> 00:19:16,040

And on the left.

371

00:19:16,040 --> 00:19:20,040

In three, two, one, go!

372

00:19:23,040 --> 00:19:28,040

Amazingly, just like the movie, the sports car takes the taxi for a ride.

373

00:19:28,040 --> 00:19:30,040

But there's a slight problem.

374

00:19:30,040 --> 00:19:32,040

I've got no steering.

375

00:19:32,040 --> 00:19:33,040

30 miles an hour.

376

00:19:33,040 --> 00:19:34,040

I've got no steering.

377

00:19:34,040 --> 00:19:36,040

Brakes, brakes, no steering, brakes, brakes, brakes.

378

00:19:36,040 --> 00:19:38,040

We've only got brakes.

379

00:19:39,040 --> 00:19:42,040

We went off course pretty fast.

380

00:19:42,040 --> 00:19:44,040

Off course, is an understatement.

381

00:19:44,040 --> 00:19:47,040

The tandem cars only narrowly miss the fence.

382

00:19:48,040 --> 00:19:52,040

So we got up to speed, and I guess you could call this straight line.

383

00:19:52,040 --> 00:19:54,040

A man that was scary.

384

00:19:54,040 --> 00:19:58,040

The problem is that the turning axle is the control the steering on our tandem car is

385

00:19:58,040 --> 00:19:59,040

actually in the middle.

386

00:19:59,040 --> 00:20:02,040

And what used to be the rear wheels are at the front, which means you're very little

387

00:20:02,040 --> 00:20:04,040

control over where you're going.

388

00:20:04,040 --> 00:20:07,040

And of course, with the sports sedan pushing double the load, the brakes have to work twice

389

00:20:07,040 --> 00:20:11,040

as hard, and you need twice the space to come to a stop.

390

00:20:11,040 --> 00:20:14,040

Who knows what's going to happen when we try to do this in reverse.

391

00:20:14,040 --> 00:20:17,040

All right, 40 miles an hour in reverse.

392

00:20:17,040 --> 00:20:20,040

In three, two, one, go!

393

00:20:25,040 --> 00:20:26,040

20 miles an hour.

394

00:20:26,040 --> 00:20:28,040

Look at that, we're already off course.

395

00:20:28,040 --> 00:20:32,040

Once again, steering the four ton monstrosity is almost impossible.

396

00:20:33,040 --> 00:20:35,040

40 miles an hour!

397

00:20:36,040 --> 00:20:38,040

Oh no!

398

00:20:39,040 --> 00:20:41,040

Woo hoo hoo hoo!

399

00:20:41,040 --> 00:20:42,040

That's 40!

400

00:20:42,040 --> 00:20:45,040

But the twin cars pull off the reverse.

401

00:20:45,040 --> 00:20:47,040

Right now it's looking very good for the myth.

402

00:20:47,040 --> 00:20:51,040

With connected cars, you can drive forwards and backwards at high speeds.

403

00:20:51,040 --> 00:20:54,040

You don't have much control, but it is possible.

404

00:20:54,040 --> 00:20:56,040

Oh no!

405

00:20:57,040 --> 00:21:02,040

Driving at a straight line may be confirmed, but there's still plenty of double driving.

406

00:21:02,040 --> 00:21:03,040

Start turning now.

407

00:21:03,040 --> 00:21:05,040

And dating to come.

408

00:21:09,040 --> 00:21:12,040

So can we call it, was that our smooth ride?

409

00:21:12,040 --> 00:21:18,040

Well, it started to smooth out, but then the truck broke and the wheel came off.

410

00:21:21,040 --> 00:21:23,040

That was almost bone shattering.

411

00:21:23,040 --> 00:21:29,040

But it occurs to me, instead of all wheels being flat, we offset two of them to a 45 degree angle.

412

00:21:29,040 --> 00:21:34,040

Increasing the periodicity of the points hitting the ground might make the ride smoother and easier on the truck.

413

00:21:34,040 --> 00:21:39,040

Yeah, that makes sense, but I start to worry that making things less symmetrical like that

414

00:21:39,040 --> 00:21:45,040

might set up some sort of an oscillation and a certain orientation that would end up flipping the truck.

415

00:21:45,040 --> 00:21:46,040

And that'd suck.

416

00:21:46,040 --> 00:21:47,040

You're totally right.

417

00:21:47,040 --> 00:21:51,040

That then says to me that we want to do some small scale testing.

418

00:21:51,040 --> 00:21:55,040

Try different wheel orientations and see which one we feel is both the safest for us,

419

00:21:55,040 --> 00:21:57,040

but also might be easiest on the truck.

420

00:21:57,040 --> 00:21:58,040

I agree.

421

00:22:00,040 --> 00:22:04,040

After a bone shaking ride with all four wheels in the same orientation,

422

00:22:04,040 --> 00:22:07,040

it's time to experiment with some different configurations.

423

00:22:08,040 --> 00:22:12,040

Now this is the orientation we had our wheels in for our most recent ride,

424

00:22:12,040 --> 00:22:15,040

and a bumpy ride it was.

425

00:22:15,040 --> 00:22:18,040

But this is not the only orientation we need to have our four wheels.

426

00:22:18,040 --> 00:22:21,040

We could mount two of our wheels at a 45 degree offset to the other two,

427

00:22:21,040 --> 00:22:27,040

thus doubling the frequency with which one of the points of the squares hits the ground for every rotation.

428

00:22:27,040 --> 00:22:32,040

Or we could offset each wheel by 22 and a half degrees for every rotation,

429

00:22:32,040 --> 00:22:35,040

thus quadrupling the frequency with which one of the points hits the ground.

430

00:22:35,040 --> 00:22:38,040

Which one of these is going to give us the smoothest ride?

431

00:22:38,040 --> 00:22:40,040

I haven't the slightest idea.

432

00:22:40,040 --> 00:22:43,040

That's why we're about to test this in small scale.

433

00:22:43,040 --> 00:22:45,040

After that, they'll need a set of wheels.

434

00:22:45,040 --> 00:22:48,040

So Adam brings this out of the woodwork.

435

00:22:50,040 --> 00:22:51,040

I think that's a good start.

436

00:22:51,040 --> 00:22:55,040

Then it's time to tune up the treadmill to give it a run.

437

00:22:56,040 --> 00:22:58,040

Alright, let's try this.

438

00:22:58,040 --> 00:23:03,040

First off, a little recap of why four in-sync wheels are so uncomfortable.

439

00:23:03,040 --> 00:23:04,040

Ow!

440

00:23:04,040 --> 00:23:10,040

But while offsetting the wheels by 45 degrees, decrease the jolt factor.

441

00:23:11,040 --> 00:23:12,040

Much better.

442

00:23:12,040 --> 00:23:13,040

Wow!

443

00:23:13,040 --> 00:23:15,040

I didn't expect that to be so nice.

444

00:23:15,040 --> 00:23:17,040

Let's ramp it up.

445

00:23:17,040 --> 00:23:18,040

Alright.

446

00:23:19,040 --> 00:23:24,040

Two wheels offset diagonally at 45 degrees is a clear improvement.

447

00:23:24,040 --> 00:23:25,040

Yeah!

448

00:23:25,040 --> 00:23:29,040

But will the 22.5 degree combination be even better?

449

00:23:29,040 --> 00:23:33,040

The way this works is that one's always flat, one's always at 45,

450

00:23:33,040 --> 00:23:34,040

and the other two are in the middle.

451

00:23:34,040 --> 00:23:35,040

Okay.

452

00:23:37,040 --> 00:23:38,040

Ooh!

453

00:23:38,040 --> 00:23:40,040

That's the oscillation I was worried about.

454

00:23:40,040 --> 00:23:41,040

Yeah.

455

00:23:41,040 --> 00:23:45,040

That's what we don't want to do because that's what is going to flip the truck at speed.

456

00:23:45,040 --> 00:23:52,040

A closer look at the 22.5 proves that the chassis is bouncing up and down and side to side.

457

00:23:52,040 --> 00:23:56,040

Making the 45 degree offset the most stable configuration.

458

00:23:56,040 --> 00:24:02,040

Our small scale test showed that the best configuration was to have two opposing corners with their points down,

459

00:24:02,040 --> 00:24:05,040

the opposite two corners with their flats down.

460

00:24:05,040 --> 00:24:10,040

That balances things out the best and so that's what we're going to do full scale.

461

00:24:16,040 --> 00:24:19,040

Do not try what you're about to see at home.

462

00:24:19,040 --> 00:24:21,040

Wear what you call experts.

463

00:24:22,040 --> 00:24:32,040

Next, the Mythbusters are going round the bend.

464

00:24:32,040 --> 00:24:34,040

All right, you ready to do this on the street?

465

00:24:34,040 --> 00:24:36,040

We're all going to crash.

466

00:24:36,040 --> 00:24:42,040

So far our two car monstrosity works great, but that's only in a straight line.

467

00:24:42,040 --> 00:24:44,040

Now it's time to take it to a curb.

468

00:24:44,040 --> 00:24:50,040

That's why we're here on an unmarked intersection to see how well our cars do in a real city street on a turn.

469

00:24:50,040 --> 00:24:53,040

Carrie and I will be in the sports sedan or we'll be in the taxi.

470

00:24:53,040 --> 00:24:57,040

Based on what we've seen so far, I'm not entirely sure how well this is going to work.

471

00:24:57,040 --> 00:25:00,040

But hey, if we hit the curb, at least the taxi is leading.

472

00:25:00,040 --> 00:25:02,040

Get off my cab!

473

00:25:02,040 --> 00:25:08,040

In the movie with the sedan providing the power, the tandem cars take turns at speed.

474

00:25:08,040 --> 00:25:14,040

But we're getting double the trouble round a 90 degree bend, be that straightforward.

475

00:25:14,040 --> 00:25:15,040

Taking it to the streets.

476

00:25:15,040 --> 00:25:19,040

In three, two, one, go!

477

00:25:20,040 --> 00:25:29,040

Grant gets the conjoined car up to 40 miles per hour and then with the corner approaching, yanks the wheel.

478

00:25:29,040 --> 00:25:33,040

So our turning radius is nothing.

479

00:25:33,040 --> 00:25:40,040

But with the turning axles stuck in the middle of the cars, it's not looking good for the myth.

480

00:25:40,040 --> 00:25:42,040

This doesn't seem to be working.

481

00:25:42,040 --> 00:25:48,040

After repeated attempts, the mythbusters and the cars are still behind the curve.

482

00:25:48,040 --> 00:25:52,040

Well, you know, we're fighting so many things here, including traction.

483

00:25:52,040 --> 00:25:56,040

Well, in the movie it was wet outside and we do have a fire truck on site.

484

00:25:56,040 --> 00:25:58,040

So how about we slip slide around the corner?

485

00:25:58,040 --> 00:26:06,040

By matching the road conditions of the movie, the theory is that water will reduce the grip of the tires and let the car drift around the bend.

486

00:26:06,040 --> 00:26:11,040

Slip through and away. In three, two, one, go!

487

00:26:11,040 --> 00:26:17,040

Once again, the car gets up to 40 miles per hour.

488

00:26:17,040 --> 00:26:22,040

But doesn't achieve the wet and wild slide.

489

00:26:22,040 --> 00:26:27,040

And it's clear that water alone doesn't make a difference.

490

00:26:27,040 --> 00:26:31,040

Dry road or wet road, we're still not making the turn.

491

00:26:31,040 --> 00:26:37,040

But in the movie, although the sports sedan was brand new, the taxi, not so much.

492

00:26:37,040 --> 00:26:42,040

So we're going to replicate what you might see on a taxi that's done thousands of miles of city driving,

493

00:26:42,040 --> 00:26:47,040

balled rear tires.

494

00:26:47,040 --> 00:26:51,040

Tori lays down some rubber.

495

00:26:51,040 --> 00:26:56,040

And soon enough, the tires look like they've seen serious action.

496

00:26:56,040 --> 00:27:01,040

So this is our last ditch attempt to get this turning to work.

497

00:27:01,040 --> 00:27:08,040

And we've balled to the tires, we're going to have a wet road, thus reducing the traction of this set of tires.

498

00:27:08,040 --> 00:27:12,040

My prediction, probably still not going to work.

499

00:27:12,040 --> 00:27:17,040

We might get a better turn out of it, but look, there's no way we're making a 93 turn.

500

00:27:17,040 --> 00:27:19,040

Well, let's find out.

501

00:27:19,040 --> 00:27:25,040

Alright, here we come, taking the corner. In three, two, one, go!

502

00:27:25,040 --> 00:27:28,040

Once again, Grant takes it to 40.

503

00:27:28,040 --> 00:27:29,040

Start turning down.

504

00:27:29,040 --> 00:27:33,040

And then, nothing.

505

00:27:33,040 --> 00:27:36,040

Not much of a difference.

506

00:27:36,040 --> 00:27:42,040

Just like the movie, the sports sedan does all the steering, but there's still nowhere close to corner.

507

00:27:42,040 --> 00:27:46,040

Meaning there's only one movie variable left to try.

508

00:27:46,040 --> 00:27:50,040

Now we're going to switch it up. This time we're going to have the taxi pushing the sports car.

509

00:27:50,040 --> 00:27:55,040

We're thinking, because the taxi is a two-wheel drive and it has balled tires, that we'll be sliding more

510

00:27:55,040 --> 00:27:58,040

and hopefully pivot around the sports car to make the turn.

511

00:27:58,040 --> 00:28:00,040

It's the last chance for the myth.

512

00:28:00,040 --> 00:28:05,040

If the taxi can't slip the corner, then this date night bend is busted.

513

00:28:05,040 --> 00:28:11,040

Tori guns the cap, pulls the wheel, and the cars don't turn left.

514

00:28:11,040 --> 00:28:16,040

Instead, 50 yards downstream, they suddenly veer right.

515

00:28:16,040 --> 00:28:19,040

Yeah! Yeah!

516

00:28:19,040 --> 00:28:21,040

Okay, stop, stop, stop!

517

00:28:21,040 --> 00:28:22,040

Woo!

518

00:28:22,040 --> 00:28:28,040

By pure flute, Tori finally got the cars around the corner, even if it was the wrong one.

519

00:28:28,040 --> 00:28:30,040

We made the turn!

520

00:28:30,040 --> 00:28:34,040

Alright, maybe not the turn I wanted to make, but it still made the turn.

521

00:28:34,040 --> 00:28:37,040

So why did we turn the wrong way? Well, here's my theory.

522

00:28:37,040 --> 00:28:40,040

See, the taxi is a regular rear-wheel drive car.

523

00:28:40,040 --> 00:28:45,040

Where Tori yanked the wheel, the front wheels lost traction, and that made the car unstable.

524

00:28:45,040 --> 00:28:51,040

Because of the wet road and the balled tires, that instability eventually resulted in the rear wheels sliding out.

525

00:28:51,040 --> 00:28:56,040

They happened to slide out to the left, and that meant the car turned to the right.

526

00:28:56,040 --> 00:28:58,040

Driving in a straight line forward, confirmed.

527

00:28:58,040 --> 00:29:01,040

Driving in a straight line backwards, confirmed.

528

00:29:01,040 --> 00:29:08,040

Cornering busted. We may have made the corner, but it was the wrong one, which is pretty much going to get you killed.

529

00:29:08,040 --> 00:29:13,040

So the real question is, can we do the most spectacular maneuver? The 180 spin.

530

00:29:13,040 --> 00:29:15,040

High for one cannot wait for this one.

531

00:29:15,040 --> 00:29:17,040

After the break.

532

00:29:17,040 --> 00:29:21,040

These tracks are very interesting. They repeat about every 18 inches.

533

00:29:21,040 --> 00:29:26,040

A truck with square wheels passed this way less than 20 minutes ago.

534

00:29:31,040 --> 00:29:37,040

Hey, we've been testing how fast we need to go in a vehicle that's got square wheels to get a smooth ride.

535

00:29:37,040 --> 00:29:41,040

We've determined already that it's not as simple as just putting square wheels on your car.

536

00:29:41,040 --> 00:29:44,040

We put some on our truck and we broke it.

537

00:29:49,040 --> 00:29:53,040

Then we figured there might be other orientations than just all four wheels flat that would give us a smoother ride.

538

00:29:53,040 --> 00:29:55,040

So we've tried a bunch of those out in small scale.

539

00:29:55,040 --> 00:29:59,040

We've got the pattern we think is going to work and we've come back out here to the Alameda runway.

540

00:29:59,040 --> 00:30:00,040

We're going to try it again.

541

00:30:00,040 --> 00:30:03,040

Our lives have officially become a cartoon.

542

00:30:03,040 --> 00:30:10,040

With the wheel hubs back in shape after their last outing, it's time for the truck to get squared.

543

00:30:10,040 --> 00:30:11,040

There it is.

544

00:30:11,040 --> 00:30:16,040

And this time two diagonal wheels are offset by 45 degrees.

545

00:30:16,040 --> 00:30:21,040

Our creation. She's ready to take a live.

546

00:30:21,040 --> 00:30:24,040

But will that configuration make all the difference?

547

00:30:24,040 --> 00:30:29,040

Square wheels, smooth ride, 45 degree diamond formation.

548

00:30:29,040 --> 00:30:32,040

And three, two, one, go!

549

00:30:42,040 --> 00:30:45,040

To begin with, the offset wheels are smoother.

550

00:30:45,040 --> 00:30:47,040

Holy s***!

551

00:30:47,040 --> 00:30:48,040

Wow!

552

00:30:48,040 --> 00:30:51,040

And as lead-footed hotman gets the truck up to speed...

553

00:30:51,040 --> 00:30:53,040

Dude, this is not bad!

554

00:30:54,040 --> 00:30:56,040

18 miles per hour!

555

00:30:56,040 --> 00:30:57,040

Keep going!

556

00:30:57,040 --> 00:30:58,040

Wow!

557

00:30:58,040 --> 00:30:59,040

Come on, go for it!

558

00:30:59,040 --> 00:31:01,040

It continues to improve.

559

00:31:01,040 --> 00:31:04,040

That is, until the wheels can take it no more.

560

00:31:04,040 --> 00:31:05,040

Wow!

561

00:31:07,040 --> 00:31:08,040

Woo-hoo-hoo!

562

00:31:08,040 --> 00:31:09,040

Wow!

563

00:31:09,040 --> 00:31:10,040

That was intense!

564

00:31:10,040 --> 00:31:14,040

That wasn't half bad when you got up to 20 miles an hour.

565

00:31:14,040 --> 00:31:15,040

I've got no brakes though.

566

00:31:15,040 --> 00:31:17,040

I think the truck didn't like it too much.

567

00:31:17,040 --> 00:31:19,040

I don't think it did either.

568

00:31:20,040 --> 00:31:23,040

Did we lose all four tires?

569

00:31:23,040 --> 00:31:28,040

I think so, although one of them just sort of stayed on the truck and just not on the wheel.

570

00:31:28,040 --> 00:31:32,040

Once we were up to speed, once we were up to the fastest speed we could get,

571

00:31:32,040 --> 00:31:34,040

which turns out to be about 18 miles an hour,

572

00:31:34,040 --> 00:31:38,040

I have to admit that I am impressed with how smooth that ride was.

573

00:31:38,040 --> 00:31:42,040

It was smoother than I thought it was going to be.

574

00:31:42,040 --> 00:31:43,040

Let's put it that way.

575

00:31:43,040 --> 00:31:45,040

So how does the data look?

576

00:31:45,040 --> 00:31:48,040

Well, here's your speed in red, and you can see where you kind of slow down,

577

00:31:48,040 --> 00:31:49,040

and there's a lot of vibration.

578

00:31:49,040 --> 00:31:53,040

Once you sped up, the vibration of the steering column really starts to trend off.

579

00:31:53,040 --> 00:31:55,040

Well, that's pretty much just what we felt in the cab.

580

00:31:55,040 --> 00:31:56,040

Yeah.

581

00:31:56,040 --> 00:31:57,040

Awesome!

582

00:31:57,040 --> 00:31:59,040

The ride was progressively smoother,

583

00:31:59,040 --> 00:32:02,040

but it was also progressively destructive,

584

00:32:02,040 --> 00:32:05,040

with the tires and brake pads coming off completely.

585

00:32:05,040 --> 00:32:08,040

Well, that was one of the worst things that ever happened to that car.

586

00:32:08,040 --> 00:32:09,040

It was fun though.

587

00:32:09,040 --> 00:32:11,040

Yes, it was.

588

00:32:11,040 --> 00:32:13,040

It does make me think though.

589

00:32:13,040 --> 00:32:15,040

You got an idea?

590

00:32:15,040 --> 00:32:16,040

I do.

591

00:32:16,040 --> 00:32:17,040

Awesome.

592

00:32:20,040 --> 00:32:23,040

At the other end of the runway...

593

00:32:23,040 --> 00:32:25,040

You ready for the fun maneuvers?

594

00:32:25,040 --> 00:32:26,040

Oh yeah.

595

00:32:26,040 --> 00:32:31,040

The tandem car trio are taking the date night myth for its final spin.

596

00:32:31,040 --> 00:32:33,040

So we have one more test to perform,

597

00:32:33,040 --> 00:32:36,040

and this is the finale of this sequence.

598

00:32:36,040 --> 00:32:40,040

Now in a desperate attempt to finally get the two cars free,

599

00:32:40,040 --> 00:32:42,040

one driver turns the wheel in one direction,

600

00:32:42,040 --> 00:32:44,040

the other driver turns the wheel in the other direction,

601

00:32:44,040 --> 00:32:47,040

and instead of breaking apart, they spin around in a circle.

602

00:32:49,040 --> 00:32:52,040

But before we attempt that with this two car freak show,

603

00:32:52,040 --> 00:32:54,040

what we need is a little practice.

604

00:32:54,040 --> 00:32:57,040

A little practice with practice defensive driver,

605

00:32:57,040 --> 00:33:00,040

Alameda County Sheriff Marvin Ruff.

606

00:33:02,040 --> 00:33:03,040

Hi!

607

00:33:03,040 --> 00:33:04,040

Hey!

608

00:33:04,040 --> 00:33:06,040

You ready to teach me to drive dangerously, safely?

609

00:33:06,040 --> 00:33:07,040

I am ready.

610

00:33:07,040 --> 00:33:12,040

The guys will get to grips with the 180 spin technique on a normal car first.

611

00:33:12,040 --> 00:33:14,040

Hand on the gear, she has spin wheel.

612

00:33:14,040 --> 00:33:19,040

Yeah!

613

00:33:19,040 --> 00:33:21,040

Only when they've mastered this...

614

00:33:21,040 --> 00:33:22,040

Nice and smooth.

615

00:33:22,040 --> 00:33:24,040

...will they unleash their two car beast.

616

00:33:24,040 --> 00:33:27,040

Look at your focal point.

617

00:33:27,040 --> 00:33:29,040

Snap and roll, baby.

618

00:33:29,040 --> 00:33:32,040

And just like that, schools out.

619

00:33:32,040 --> 00:33:35,040

So bring on this myth's grand finale.

620

00:33:35,040 --> 00:33:37,040

All right, water, engage.

621

00:33:37,040 --> 00:33:41,040

My big concern on this next test is flipping the cars.

622

00:33:41,040 --> 00:33:44,040

I mean, we've done this maneuver with one car,

623

00:33:44,040 --> 00:33:46,040

and it felt like it was going to flip.

624

00:33:46,040 --> 00:33:48,040

Now that we have two, that's a lot more weight

625

00:33:48,040 --> 00:33:51,040

that could potentially cause these cars to roll.

626

00:33:51,040 --> 00:33:55,040

Flipping out is a very real possibility for this test,

627

00:33:55,040 --> 00:34:00,040

particularly because this time, the cars are going to peak at 50 miles an hour.

628

00:34:00,040 --> 00:34:03,040

Okay, this is date night.

629

00:34:03,040 --> 00:34:05,040

Spin around.

630

00:34:05,040 --> 00:34:08,040

Three, two, one, go!

631

00:34:08,040 --> 00:34:11,040

For the last time, Tori puts the pedal to the metal

632

00:34:11,040 --> 00:34:14,040

and pushes their conjoined colossus up to speed.

633

00:34:14,040 --> 00:34:16,040

40, 50 miles.

634

00:34:16,040 --> 00:34:18,040

Then, the moment they hit the wet patch,

635

00:34:18,040 --> 00:34:22,040

Tori and Carrie turn their steering wheels in opposite directions.

636

00:34:22,040 --> 00:34:23,040

And...

637

00:34:23,040 --> 00:34:24,040

Yeah!

638

00:34:24,040 --> 00:34:25,040

Yeah!

639

00:34:25,040 --> 00:34:27,040

That's what I'm talking about!

640

00:34:27,040 --> 00:34:29,040

How do you know a 180 spin?

641

00:34:29,040 --> 00:34:32,040

Not quite as clean as the movie,

642

00:34:32,040 --> 00:34:35,040

but a 180 non-malacian.

643

00:34:35,040 --> 00:34:38,040

Woo! That's a bit of a copy!

644

00:34:38,040 --> 00:34:40,040

Woo!

645

00:34:40,040 --> 00:34:42,040

I think I popped my back tire.

646

00:34:42,040 --> 00:34:44,040

It's true that both retires pop,

647

00:34:44,040 --> 00:34:47,040

but they're the only things worse for wear.

648

00:34:47,040 --> 00:34:48,040

It works!

649

00:34:48,040 --> 00:34:51,040

We got the cars to spin just like in the movie.

650

00:34:51,040 --> 00:34:54,040

That was awesome! I think we have to call that confirmed.

651

00:34:54,040 --> 00:34:57,040

We've done a little research, and as it turns out,

652

00:34:57,040 --> 00:34:59,040

in order to achieve this effect in the movie,

653

00:34:59,040 --> 00:35:04,040

the Special Effects artist built one giant single chassis for both cars.

654

00:35:04,040 --> 00:35:06,040

All wheels had steering,

655

00:35:06,040 --> 00:35:09,040

and they had caster wheels underneath to stabilize.

656

00:35:09,040 --> 00:35:13,040

The actors weren't driving, the driver was actually in the trunk.

657

00:35:13,040 --> 00:35:15,040

And we achieved the very same effect,

658

00:35:15,040 --> 00:35:17,040

with nothing but good old ball tires.

659

00:35:17,040 --> 00:35:20,040

Well, that was good fun!

660

00:35:20,040 --> 00:35:22,040

Well, it ain't a date with the Mythbuster till the wheels come off.

661

00:35:22,040 --> 00:35:23,040

So it was a good date.

662

00:35:23,040 --> 00:35:25,040

It was a good date.

663

00:35:35,040 --> 00:35:39,040

In the ultimate square wheel finale, Jamie's got a dirty idea.

664

00:35:39,040 --> 00:35:41,040

Coming up on Mythbusters.

665

00:35:41,040 --> 00:35:43,040

We literally reinvent the wheel.

666

00:35:43,040 --> 00:35:45,040

Maybe.

667

00:35:50,040 --> 00:35:52,040

No one knows when the wheel was invented,

668

00:35:52,040 --> 00:35:55,040

but the oldest known wheel was discovered in Mesopotamia

669

00:35:55,040 --> 00:36:00,040

and was likely built by the Sumerians around 5,500 years ago.

670

00:36:05,040 --> 00:36:08,040

At the waste management facility in Ultimon,

671

00:36:08,040 --> 00:36:10,040

this is like the weirdest sport ever.

672

00:36:10,040 --> 00:36:15,040

Sorry, it's like bowling towards a Hoosier with witches hats.

673

00:36:15,040 --> 00:36:17,040

I don't know what you would call that.

674

00:36:17,040 --> 00:36:22,040

The Mythbusters are making the Earth move for Jamie's big idea.

675

00:36:22,040 --> 00:36:24,040

They look great from here, Jamie.

676

00:36:24,040 --> 00:36:26,040

Good.

677

00:36:26,040 --> 00:36:30,040

Let's face it, there's a very good reason they don't put square wheels on cars.

678

00:36:30,040 --> 00:36:32,040

Come on, go!

679

00:36:33,040 --> 00:36:36,040

But you know, that started me thinking.

680

00:36:36,040 --> 00:36:40,040

Maybe there are circumstances where square wheels would be the best thing.

681

00:36:40,040 --> 00:36:42,040

Like, what if you had a really steep hill

682

00:36:42,040 --> 00:36:44,040

covered with loose dirt that you wanted to climb?

683

00:36:44,040 --> 00:36:46,040

And that is where this comes in!

684

00:36:46,040 --> 00:36:49,040

A smooth slope leading to an almost vertical wall

685

00:36:49,040 --> 00:36:51,040

and filled with loose dirt.

686

00:36:51,040 --> 00:36:57,040

This is the ultimate testing ground to compare the efficacy of square wheels versus round wheels.

687

00:36:58,040 --> 00:37:01,040

50 feet high and with varying degrees of steepness,

688

00:37:01,040 --> 00:37:03,040

this ought to be fun.

689

00:37:03,040 --> 00:37:06,040

This hill has exactly the kind of off-road conditions

690

00:37:06,040 --> 00:37:10,040

for the ultimate test of the Mythbusters square wheels.

691

00:37:10,040 --> 00:37:12,040

Here's how this test is going to go.

692

00:37:12,040 --> 00:37:14,040

First, we are going to take the truck with its round wheels

693

00:37:14,040 --> 00:37:17,040

and we're going to drive it up that slope as far as we can make it.

694

00:37:17,040 --> 00:37:20,040

Let's say we make it about halfway up.

695

00:37:20,040 --> 00:37:23,040

Editors, will you give me a dotted line halfway up the slope?

696

00:37:23,040 --> 00:37:24,040

Thank you.

697

00:37:24,040 --> 00:37:27,040

Then we're going to bolt the square wheels to the truck

698

00:37:27,040 --> 00:37:29,040

and you're going to take the same slope

699

00:37:29,040 --> 00:37:31,040

and see if we can make it farther.

700

00:37:31,040 --> 00:37:35,040

If we can, we have literally reinvented the wheel.

701

00:37:35,040 --> 00:37:37,040

I think everything's in place.

702

00:37:37,040 --> 00:37:39,040

So we suit up and do the round wheel test?

703

00:37:39,040 --> 00:37:40,040

I don't see why not.

704

00:37:40,040 --> 00:37:43,040

If we can't, we've just proven what we already suspected.

705

00:37:43,040 --> 00:37:45,040

Square wheels are stupid.

706

00:37:46,040 --> 00:37:47,040

It's a simple plan.

707

00:37:47,040 --> 00:37:48,040

You ready?

708

00:37:48,040 --> 00:37:49,040

I am now.

709

00:37:49,040 --> 00:37:52,040

And it all comes down to Jamie's theory

710

00:37:52,040 --> 00:37:56,040

on why square wheels could work better on loose ground.

711

00:37:56,040 --> 00:37:59,040

When it comes to soft surfaces, the thing about round wheels

712

00:37:59,040 --> 00:38:03,040

is that all of the weight of the vehicle is right here

713

00:38:03,040 --> 00:38:05,040

where it contacts the ground.

714

00:38:05,040 --> 00:38:07,040

The PSI there is very high.

715

00:38:07,040 --> 00:38:11,040

That means that it will easily sink through soft stuff and get buried.

716

00:38:11,040 --> 00:38:13,040

Also, as it tries to roll forward,

717

00:38:13,040 --> 00:38:16,040

it tends to plow that soft stuff ahead of it,

718

00:38:16,040 --> 00:38:19,040

which makes it hard to climb out of things.

719

00:38:19,040 --> 00:38:23,040

And that's why in things like sand or snow or loose dirt,

720

00:38:23,040 --> 00:38:25,040

when we're stuck, you get stuck.

721

00:38:26,040 --> 00:38:29,040

On the other hand, our square wheel has this entire surface

722

00:38:29,040 --> 00:38:33,040

contacting the ground, which means that the PSI is going to be

723

00:38:33,040 --> 00:38:36,040

a small fraction of what it would be under a round tire.

724

00:38:36,040 --> 00:38:38,040

And then when you try to move forward,

725

00:38:38,040 --> 00:38:40,040

instead of just plowing into the dirt,

726

00:38:40,040 --> 00:38:42,040

it's going to actually cut into it

727

00:38:42,040 --> 00:38:46,040

and actually lever the whole vehicle ahead.

728

00:38:46,040 --> 00:38:48,040

At least that's the theory.

729

00:38:48,040 --> 00:38:50,040

That's the theory.

730

00:38:50,040 --> 00:38:52,040

So it's time to get truckin'.

731

00:38:52,040 --> 00:38:55,040

Round wheel hill climbing control test

732

00:38:55,040 --> 00:38:58,040

in three, two, one.

733

00:39:06,040 --> 00:39:08,040

Do you think that's as high as you can go?

734

00:39:08,040 --> 00:39:10,040

I think so.

735

00:39:10,040 --> 00:39:12,040

That's pretty darn high.

736

00:39:12,040 --> 00:39:13,040

Yeah.

737

00:39:13,040 --> 00:39:15,040

At way up the hill,

738

00:39:15,040 --> 00:39:17,040

and the round wheels can't get a grip on the loose earth,

739

00:39:17,040 --> 00:39:20,040

so the benchmark to beat has been set.

740

00:39:20,040 --> 00:39:22,040

What do we do now?

741

00:39:22,040 --> 00:39:23,040

I don't know.

742

00:39:23,040 --> 00:39:25,040

Back down slowly?

743

00:39:25,040 --> 00:39:26,040

If I can.

744

00:39:26,040 --> 00:39:30,040

Which means the Mythbusters must return to the start line.

745

00:39:30,040 --> 00:39:33,040

That is intense.

746

00:39:33,040 --> 00:39:35,040

And swap out the wheels.

747

00:39:35,040 --> 00:39:37,040

It's time.

748

00:39:37,040 --> 00:39:38,040

It's like one of those,

749

00:39:38,040 --> 00:39:41,040

what are we doing moments?

750

00:39:41,040 --> 00:39:44,040

Our round wheels got us about halfway up the loose dirt

751

00:39:44,040 --> 00:39:46,040

on the steep part.

752

00:39:46,040 --> 00:39:48,040

Now, we're never going to get all the way up

753

00:39:48,040 --> 00:39:50,040

because, well, it's vertical up there,

754

00:39:50,040 --> 00:39:52,040

and we just can't do that.

755

00:39:52,040 --> 00:39:53,040

The square wheels,

756

00:39:53,040 --> 00:39:56,040

I think they're going to get us most of the way there.

757

00:39:56,040 --> 00:39:59,040

This is square wheels final hill climb.

758

00:39:59,040 --> 00:40:03,040

And three, two, one, go!

759

00:40:03,040 --> 00:40:05,040

Go!

760

00:40:05,040 --> 00:40:07,040

Go!

761

00:40:07,040 --> 00:40:09,040

Yes!

762

00:40:09,040 --> 00:40:11,040

Yes!

763

00:40:11,040 --> 00:40:13,040

Go!

764

00:40:13,040 --> 00:40:15,040

Yes!

765

00:40:15,040 --> 00:40:17,040

Go!

766

00:40:17,040 --> 00:40:19,040

No!

767

00:40:19,040 --> 00:40:21,040

Ah!

768

00:40:21,040 --> 00:40:23,040

Just like the round wheels,

769

00:40:23,040 --> 00:40:26,040

the spinning square wheels can't get purchase on the loose ground.

770

00:40:26,040 --> 00:40:27,040

All right.

771

00:40:27,040 --> 00:40:28,040

We're going up real slow now.

772

00:40:28,040 --> 00:40:30,040

Hill climbing and square wheels.

773

00:40:30,040 --> 00:40:31,040

Go!

774

00:40:31,040 --> 00:40:32,040

So for take two,

775

00:40:32,040 --> 00:40:35,040

the Heinemann goes for a slow and steady approach.

776

00:40:35,040 --> 00:40:37,040

This is promising.

777

00:40:37,040 --> 00:40:42,040

Woo!

778

00:40:42,040 --> 00:40:44,040

Woo!

779

00:40:44,040 --> 00:40:46,040

We're moving forward.

780

00:40:46,040 --> 00:40:48,040

We're driving forward.

781

00:40:48,040 --> 00:40:50,040

Whoa!

782

00:40:50,040 --> 00:40:53,040

You know what?

783

00:40:53,040 --> 00:40:54,040

What?

784

00:40:54,040 --> 00:40:56,040

I don't think they're working.

785

00:40:56,040 --> 00:40:58,040

I don't think they're working either.

786

00:40:58,040 --> 00:41:00,040

We tied at best.

787

00:41:00,040 --> 00:41:03,040

It seems the mythbusters had to reinvent the wheel

788

00:41:03,040 --> 00:41:08,040

to discover that square wheels are just too, well, squared.

789

00:41:08,040 --> 00:41:09,040

Woo!

790

00:41:09,040 --> 00:41:12,040

Well, that was fricking spectacular.

791

00:41:12,040 --> 00:41:15,040

We stuck climb in the hill.

792

00:41:15,040 --> 00:41:17,040

I'm feeling really good.

793

00:41:17,040 --> 00:41:19,040

I can only imagine the volume,

794

00:41:19,040 --> 00:41:21,040

booster tail of dust we're taking up.

795

00:41:21,040 --> 00:41:23,040

We get up to the tape.

796

00:41:23,040 --> 00:41:24,040

We're touching the tape.

797

00:41:24,040 --> 00:41:26,040

I think we're going to break the tape.

798

00:41:26,040 --> 00:41:28,040

And then we just stayed stationary.

799

00:41:28,040 --> 00:41:31,040

We made it exactly as far up this hill

800

00:41:31,040 --> 00:41:33,040

as we did in our round wheels.

801

00:41:33,040 --> 00:41:35,040

I can't think of any better test to demonstrate

802

00:41:35,040 --> 00:41:38,040

that there isn't really a specific advantage

803

00:41:38,040 --> 00:41:40,040

to the square tires.

804

00:41:40,040 --> 00:41:41,040

Well, there you have it.

805

00:41:41,040 --> 00:41:43,040

At best, our square wheels did the same job

806

00:41:43,040 --> 00:41:46,040

the round wheels did on this course.

807

00:41:46,040 --> 00:41:48,040

I got to say I'm disappointed in it, though,

808

00:41:48,040 --> 00:41:52,040

because I really think there's something to these wheels.

809

00:41:52,040 --> 00:41:55,040

There may be other environments out there

810

00:41:55,040 --> 00:41:58,040

where they would actually prove superior to round wheels,

811

00:41:58,040 --> 00:42:03,040

but as of this point, they're not.

812

00:42:03,040 --> 00:42:05,040

So how do you want to call this?

813

00:42:05,040 --> 00:42:07,040

Do square wheels give you a smooth ride?

814

00:42:07,040 --> 00:42:09,040

Well, as ridiculous as it may seem,

815

00:42:09,040 --> 00:42:11,040

I think we got to call that one plausible.

816

00:42:11,040 --> 00:42:12,040

What about hill climbing?

817

00:42:12,040 --> 00:42:14,040

That one, that's so much.

818

00:42:14,040 --> 00:42:16,040

The square wheels didn't provide any kind of

819

00:42:16,040 --> 00:42:18,040

significant advantage over the round wheels.

820

00:42:18,040 --> 00:42:20,040

Yeah, well, what are you going to do?

821

00:42:20,040 --> 00:42:21,040

You want to drive back to the shop?

822

00:42:21,040 --> 00:42:22,040

No, let's walk.

823

00:42:22,040 --> 00:42:23,040

It's more comfortable.

824

00:42:23,040 --> 00:42:24,040

Okay.

825

00:42:24,040 --> 00:42:27,040

I think this is the last we'll see of the square wheels.

826

00:42:27,040 --> 00:42:29,040

Not by a long shot.