

1

00:00:00,000 --> 00:00:06,100

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

2

00:00:06,100 --> 00:00:07,100

You heard him.

3

00:00:07,100 --> 00:00:10,060

Don't do it.

4

00:00:10,060 --> 00:00:16,820

On this episode of Mythbusters, take 10 paces, turn and draw.

5

00:00:16,820 --> 00:00:22,020

Because this is the good, the boss and the ugly.

6

00:00:22,020 --> 00:00:26,220

First, Adam and Jamie fire up an old West classic.

7

00:00:26,220 --> 00:00:28,540

That is scary as hell.

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00:00:28,540 --> 00:00:32,540

Then you shoot the gun right out of the bad guy's hand.

9

00:00:32,540 --> 00:00:38,300

Then Jesse, Keanu and Sandra ramp up the action.

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00:00:38,300 --> 00:00:43,500

To find out can you really jump a bus over a gap in the freeway?

11

00:00:43,500 --> 00:00:46,380

You do not want to miss this.

12

00:00:46,380 --> 00:00:50,980

Who are the Mythbusters?

13

00:00:50,980 --> 00:00:53,540

Adam Savage.

14

00:00:53,540 --> 00:00:54,540

And Jamie Heidemann.

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00:00:54,540 --> 00:00:56,940

Are we going to try and shoot him in the head?

16

00:00:56,940 --> 00:01:01,340

Giving them more than 30 years of special effects experience.

17

00:01:01,340 --> 00:01:05,260

Joining them, Grant Imahara.

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00:01:05,260 --> 00:01:07,260

Carrie Byron.

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00:01:07,260 --> 00:01:08,260

Let's do it.

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00:01:08,260 --> 00:01:09,260

Tori Bellegi.

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00:01:09,260 --> 00:01:10,260

And featuring Jesse Cones.

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00:01:10,260 --> 00:01:11,260

That was awesome.

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00:01:11,260 --> 00:01:12,260

They don't just tell the Myths.

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00:01:12,260 --> 00:01:13,260

They put them to the test.

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00:01:13,260 --> 00:01:37,180

Jamie, I'd like you to cast your mind back to your days in the old West.

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00:01:37,180 --> 00:01:42,020

Okay, supposedly there's a cowboy myth from back then that you could disarm an opponent

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00:01:42,020 --> 00:01:43,940

with your pistol without harming them.

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00:01:43,940 --> 00:01:46,540

You mean you could shoot a gun out of their hand?

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00:01:46,540 --> 00:01:47,540

Exactly.

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00:01:47,540 --> 00:01:49,540

I was wondering when we'd get around to that one.

31

00:01:49,540 --> 00:01:52,900

The time has come.

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00:01:52,900 --> 00:01:59,180

Back in the old West, any good guy gunslinger worthy of a sheriff's badge could supposedly

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00:01:59,180 --> 00:02:03,180

disarm the bad guy with a single sharp shooting shot.

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00:02:03,180 --> 00:02:06,060

But is this really possible?

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00:02:06,060 --> 00:02:11,180

And would you really leave him and any bystanders totally unharmed?

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00:02:11,180 --> 00:02:14,540

I may not be so good the next time.

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00:02:14,540 --> 00:02:18,020

So Cowboys, since you were there, you want to tell us how it worked in the old West?

38

00:02:18,020 --> 00:02:19,620

Well there are two parts to this.

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00:02:19,620 --> 00:02:22,900

The first is unarmed and the second is unharmed.

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00:02:22,900 --> 00:02:23,900

Which do you want to start with?

41

00:02:23,900 --> 00:02:27,700

Well, I'm thinking how much force can you hold onto a gun with?

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00:02:27,700 --> 00:02:31,580

Let's make a plywood cowboy, give him the same amount of holding strength and take some shots

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00:02:31,580 --> 00:02:32,580

at him.

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00:02:32,580 --> 00:02:39,380

Easier said than done, but we can give it a shot.

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00:02:39,380 --> 00:02:44,140

So first up, quick draw, savage, sketches a plywood posse.

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00:02:44,140 --> 00:02:52,620

And to give his trio of tangerine bad guys accurate handgun holding abilities, Jamie knuckles

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00:02:52,620 --> 00:02:54,540

down and gets a grip.

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00:02:54,540 --> 00:02:59,180

This stuff right here is some of our favorite stuff to have around because it's like hook

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00:02:59,180 --> 00:03:02,980

and loop, but it's actually hermaphroditic.

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00:03:02,980 --> 00:03:05,300

It sticks to itself.

51

00:03:05,300 --> 00:03:07,460

Ah, perfect.

52

00:03:08,020 --> 00:03:12,540

Next, the team saddles up and heads on down to the range.

53

00:03:12,540 --> 00:03:14,540

The gun range.

54

00:03:14,540 --> 00:03:16,540

It looks great.

55

00:03:16,540 --> 00:03:18,060

An orange posse of trouble.

56

00:03:18,060 --> 00:03:19,980

Hey Adam, come check this out.

57

00:03:19,980 --> 00:03:20,980

What do you got?

58

00:03:20,980 --> 00:03:23,740

This is my human hand grip simulator.

59

00:03:23,740 --> 00:03:24,740

I love it.

60

00:03:24,740 --> 00:03:25,740

How do you want to test it?

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00:03:25,740 --> 00:03:31,940

If you hold onto this gun and I yank it out of your hand and see what that feels like.

62

00:03:31,940 --> 00:03:32,940

Alright.

63

00:03:32,940 --> 00:03:33,940

Feel like you got something?

64

00:03:33,940 --> 00:03:34,940

Yeah.

65

00:03:34,940 --> 00:03:39,460

If you hold onto this thing just securely and I'll yank it out of there.

66

00:03:39,460 --> 00:03:44,500

And if I feel like they're the same, then we're in business.

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00:03:44,500 --> 00:03:45,500

That's spot on.

68

00:03:45,500 --> 00:03:46,500

Really?

69

00:03:46,500 --> 00:03:47,500

Yeah.

70

00:03:47,500 --> 00:03:49,060

Alright, let's mount it up and shoot at this puppy.

71

00:03:49,060 --> 00:03:50,060

Okay.

72

00:03:50,060 --> 00:03:54,980

The gun is placed in the bad guys grip simulator as if midway through the draw.

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00:03:54,980 --> 00:04:00,900

And with the help of a sharp shooting laser, Adam and Jamie take aim ready to fire.

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00:04:00,900 --> 00:04:01,900

Perfect.

75

00:04:04,940 --> 00:04:12,140

Okay, so we're going to start off this myth with an impersonation.

76

00:04:12,140 --> 00:04:13,540

Oh great, here we go.

77

00:04:13,540 --> 00:04:14,540

Go for it.

78

00:04:14,540 --> 00:04:15,540

Drive straight.

79

00:04:15,540 --> 00:04:16,540

Stay above 50.

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00:04:16,540 --> 00:04:17,540

How about another one?

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00:04:17,540 --> 00:04:18,900

There's a bomb on this bus.

82

00:04:18,900 --> 00:04:20,980

If you slow down, it'll explode.

83

00:04:20,980 --> 00:04:25,340

Alright, well judging from your quotes, I take it we're testing another speed myth.

84

00:04:25,340 --> 00:04:26,340

Right.

85

00:04:26,340 --> 00:04:27,340

Right.

86

00:04:27,340 --> 00:04:31,060

Ever since Adam and Jamie tested whether you can prevent a bus from flipping over by moving

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00:04:31,060 --> 00:04:35,300

all the passengers to one side, everyone has been requesting the bus jump myth.

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00:04:35,300 --> 00:04:36,620

I know this one.

89

00:04:36,620 --> 00:04:39,420

It's where their bus is speeding along and they get on an overpass that's unfinished

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00:04:39,420 --> 00:04:40,940

and there's this huge gap.

91

00:04:40,940 --> 00:04:45,740

But somehow they pull off this leap across the gap, make it to the other side, drive

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00:04:45,740 --> 00:04:48,300

away perfectly and nobody's interested in the process.

93

00:04:48,300 --> 00:04:49,300

Exactly.

94

00:04:49,300 --> 00:04:51,100

You're not going to do this through the whole myth, are you?

95

00:04:51,100 --> 00:04:53,860

Yes, I am.

96

00:04:53,860 --> 00:04:58,300

It's a classic scene from the green screen.

97

00:04:58,300 --> 00:05:05,340

Grants alter ego Keanu and the gorgeous Sandra Bullock jump their famous bus across a 50

98

00:05:05,340 --> 00:05:07,460

foot gap in the LA freeway.

99

00:05:07,460 --> 00:05:12,780

But is it really possible or is it just another example of fake physics on film?

100

00:05:12,780 --> 00:05:13,780

Are you okay?

101

00:05:13,780 --> 00:05:14,780

I think so.

102

00:05:14,780 --> 00:05:15,780

Good job, dude.

103

00:05:15,780 --> 00:05:17,780

Once again, making my family proud.

104

00:05:17,780 --> 00:05:20,020

Alright, so what's the plan?

105

00:05:20,020 --> 00:05:21,020

Get a bus?

106

00:05:21,020 --> 00:05:23,140

Half built freeway and go for it.

107

00:05:23,140 --> 00:05:24,140

Who's driving?

108

00:05:24,140 --> 00:05:25,620

No way, that's way too dangerous.

109

00:05:25,620 --> 00:05:26,620

What are you, scared?

110

00:05:26,620 --> 00:05:27,620

No, I'm not.

111

00:05:27,620 --> 00:05:28,620

Yes, I am.

112

00:05:28,620 --> 00:05:29,620

No, I'm not.

113

00:05:29,620 --> 00:05:30,620

Yes, I am.

114

00:05:30,620 --> 00:05:35,140

I think since gaps in freeways are rare and myth busters are even more rare, we should

115

00:05:35,140 --> 00:05:36,140

start in small scale.

116

00:05:36,140 --> 00:05:40,620

We'll build a scale freeway, build a scale bus and run the bus at scale speed and see

117

00:05:40,620 --> 00:05:41,620

what happens.

118

00:05:41,620 --> 00:05:44,100

And then what we learned from that, we will be going up to full scale because we are going

119

00:05:44,100 --> 00:05:45,900

to be driving a full size bus, right?

120

00:05:45,900 --> 00:05:48,140

Oh yes, we are going full scale.

121

00:05:48,500 --> 00:05:52,100

So what I have here is the same type of bus from the movie.

122

00:05:52,100 --> 00:05:57,860

It's 35 feet long, 8 feet wide and it weighs 24,000 pounds.

123

00:05:57,860 --> 00:06:02,220

So what I have to do is scale that bus down for our small scale test.

124

00:06:02,220 --> 00:06:04,060

What I have here is a toy bus.

125

00:06:04,060 --> 00:06:05,060

Now this isn't going to work.

126

00:06:05,060 --> 00:06:10,980

So what I need to do is make a 112 scale bus that's remotely controlled and has the right

127

00:06:10,980 --> 00:06:12,980

weight distribution.

128

00:06:12,980 --> 00:06:16,540

Now there's one thing in this scale bus that's not going to work.

129

00:06:16,900 --> 00:06:21,420

Now there's one thing in this scale experiment that we can't scale and that's gravity.

130

00:06:21,420 --> 00:06:26,700

We made a few phone calls, we asked people at NASA if we could transport the scale bus

131

00:06:26,700 --> 00:06:30,420

and all of us to the moon where the gravity is lowered to perform the experiment.

132

00:06:30,420 --> 00:06:31,920

They said no.

133

00:06:31,920 --> 00:06:36,740

But what they did say was that if you ran the bus a little bit faster, you could compensate

134

00:06:36,740 --> 00:06:39,820

for the lack of gravity scaling.

135

00:06:39,820 --> 00:06:45,660

Basically what these hieroglyphics mean is that to compensate for the physical impossibility

136

00:06:45,660 --> 00:06:55,540

of scaling gravity, the speed of our 112th scale bus has to be just over 20 miles per

137

00:06:55,540 --> 00:06:56,540

hour.

138

00:06:56,540 --> 00:06:59,580

20.2 miles per hour.

139

00:06:59,580 --> 00:07:03,020

You forgot to carry gravity.

140

00:07:03,020 --> 00:07:04,020

What?

141

00:07:04,020 --> 00:07:13,100

Meanwhile, back at the shop, Jesse is constructing a perfectly scaled world for the soon to be

142

00:07:13,100 --> 00:07:15,860

perfectly scaled bus.

143

00:07:15,860 --> 00:07:18,260

While they scale the bus, I'm scaling the course.

144

00:07:18,260 --> 00:07:21,620

Keanu was told that the gap is 50 feet so we've got that covered.

145

00:07:21,620 --> 00:07:24,540

But just as important is the angle of the road.

146

00:07:24,540 --> 00:07:29,740

We've calculated it to be 1.2 degrees with the exit ramp two feet higher than the landing

147

00:07:29,740 --> 00:07:30,740

ramp.

148

00:07:30,740 --> 00:07:34,260

All of which will be scaled perfectly for this experiment.

149

00:07:34,260 --> 00:07:39,140

Back outside, before Tori builds the shell to cover the engine and chassis, Grant wants

150

00:07:39,140 --> 00:07:40,140

to know...

151

00:07:40,140 --> 00:07:41,140

16.

152

00:07:41,340 --> 00:07:43,380

If it's got the speed he needs.

153

00:07:43,380 --> 00:07:45,380

Not quite 20.

154

00:07:45,380 --> 00:07:48,020

Yeah, we need to get this to go at least four miles faster.

155

00:07:48,020 --> 00:07:50,140

Alright, I got a few ideas.

156

00:07:50,140 --> 00:07:52,300

We break it, you buy it.

157

00:07:52,300 --> 00:07:54,300

Fair enough.

158

00:07:54,300 --> 00:08:01,020

Inside, Grant gets busy souping up the engine so it can hit the required 20 miles per hour.

159

00:08:01,020 --> 00:08:06,500

Plus he's also ensuring it weighs in at a scale accurate 13.8 pounds.

160

00:08:06,500 --> 00:08:10,940

We're going to be ready to go in minutes.

161

00:08:10,940 --> 00:08:16,260

While Tori goes to work on the bus's body by first building an accurate wooden form,

162

00:08:16,260 --> 00:08:18,260

which he then vacu-forms...

163

00:08:18,260 --> 00:08:19,260

Vacu-form, maybe?

164

00:08:19,260 --> 00:08:20,260

It's like magic.

165

00:08:20,260 --> 00:08:24,540

...to produce the lightweight plastic shell he needs.

166

00:08:24,540 --> 00:08:29,860

And there's even time for a little window dressing, both in the bus and on the freeway.

167

00:08:29,860 --> 00:08:37,180

Let me off this bus!

168

00:08:37,180 --> 00:08:40,660

So everything has been scaled down from the freeway to the bus.

169

00:08:40,660 --> 00:08:44,340

This is going to give us a really good idea of what would happen in the real world.

170

00:08:44,340 --> 00:08:49,740

My prediction though is there is no way that bus is going to make it across that gap.

171

00:08:49,740 --> 00:08:51,740

You done saying your last goodbyes?

172

00:08:51,740 --> 00:08:52,740

Yeah.

173

00:08:52,740 --> 00:08:54,740

I think what's going to happen is it's going to crash on the ground and we're going to

174

00:08:54,740 --> 00:08:56,260

have to rebuild it.

175

00:08:56,260 --> 00:08:58,940

That, I can guarantee.

176

00:08:58,940 --> 00:08:59,940

Bus is in position.

177

00:08:59,940 --> 00:09:01,580

This is small scale.

178

00:09:01,580 --> 00:09:02,580

Bus jump, you ready?

179

00:09:02,580 --> 00:09:03,580

Ready!

180

00:09:03,580 --> 00:09:04,580

Alright, here we go.

181

00:09:04,580 --> 00:09:05,580

In three, two, one.

182

00:09:05,580 --> 00:09:06,580

Oh my gosh!

183

00:09:06,580 --> 00:09:12,580

It went way further than I thought it would.

184

00:09:12,580 --> 00:09:26,420

Yeah, but it still didn't land on the other side of the freeway.

185

00:09:26,420 --> 00:09:28,640

This myth is not looking good.

186

00:09:28,640 --> 00:09:29,900

Not at all.

187

00:09:29,900 --> 00:09:33,540

So for a first small scale experiment, the bus mis-missed the other end of the freeway

188

00:09:33,540 --> 00:09:35,060

by two and a half feet.

189

00:09:35,540 --> 00:09:39,180

In scale, that would be 30 feet.

190

00:09:39,180 --> 00:09:41,180

That's a lot to miss, Bob.

191

00:09:41,180 --> 00:09:43,580

Hey look, I survived the crash.

192

00:09:43,580 --> 00:09:45,220

I don't think we did.

193

00:09:45,220 --> 00:09:46,720

That's a shame.

194

00:09:46,720 --> 00:09:52,540

Yep, despite getting every detail down to size, including the required speed of just

195

00:09:52,540 --> 00:09:57,900

over 20 miles per hour, as soon as the bus left the freeway, it started to fall.

196

00:09:57,900 --> 00:09:59,900

Go, go, go, go!

197

00:09:59,900 --> 00:10:04,260

Just to prove the point, the guy set up for another test with the distance of the gap

198

00:10:04,260 --> 00:10:05,260

halved.

199

00:10:05,260 --> 00:10:08,460

Alright, bus is in position.

200

00:10:08,460 --> 00:10:09,460

My prediction?

201

00:10:09,460 --> 00:10:10,980

We're not going to make it.

202

00:10:10,980 --> 00:10:12,140

Alright, here we go.

203

00:10:12,140 --> 00:10:15,140

In three, two, one.

204

00:10:15,140 --> 00:10:18,140

Oh my gosh!

205

00:10:18,140 --> 00:10:27,140

Yep, as Benjamin Franklin almost said, nothing in this world is certain except death, taxes,

206

00:10:27,140 --> 00:10:29,140

and gravity.

207

00:10:30,140 --> 00:10:32,700

Alright, we gave it the best possible chance ever.

208

00:10:32,700 --> 00:10:36,420

Everything was 12 scale and we even halved the gap and it's still not working.

209

00:10:36,420 --> 00:10:40,220

Yeah, I mean as soon as the bus leaves the freeway, gravity takes over and it falls.

210

00:10:40,220 --> 00:10:42,900

I mean there is just no way this bus is going to make this jump.

211

00:10:42,900 --> 00:10:46,180

Yep, we would have had to shorten the gap to not much more than a pothole for the bus

212

00:10:46,180 --> 00:10:47,180

to make it.

213

00:10:47,180 --> 00:10:49,380

I think this part of the myth is definitively busted.

214

00:10:49,380 --> 00:10:50,380

Busted.

215

00:10:50,380 --> 00:10:53,140

Next, shoot first.

216

00:10:53,140 --> 00:10:56,380

Our gun-totend duo take on the plywood possum.

217

00:10:59,900 --> 00:11:18,500

Quick draw, Savage and Harry Jim Heineman want to know if you can shoot the gun out

218

00:11:18,500 --> 00:11:22,700

of the bad guy's hand without harming him.

219

00:11:22,700 --> 00:11:33,620

And by testing three classic configurations, the draw, the shoot out, and the hostage,

220

00:11:33,620 --> 00:11:35,620

we're about to find out.

221

00:11:35,620 --> 00:11:40,620

Here we go, shooting the gun out of the hands on the draw.

222

00:11:40,620 --> 00:11:42,620

Three, two, one.

223

00:11:42,620 --> 00:11:47,980

Wow, it knocked it right out.

224

00:11:47,980 --> 00:11:48,980

So it did.

225

00:11:48,980 --> 00:11:52,220

That might be a result.

226

00:11:52,220 --> 00:11:56,580

But it's a result in more ways than one.

227

00:11:56,580 --> 00:12:01,020

Because although he was disarmed, he was also harmed.

228

00:12:01,020 --> 00:12:02,340

Wow.

229

00:12:02,340 --> 00:12:08,980

That bullet went in all directions, or at least pieces of it did.

230

00:12:08,980 --> 00:12:10,140

It really did.

231

00:12:10,140 --> 00:12:11,140

That is terrifying.

232

00:12:11,140 --> 00:12:12,140

Look at that.

233

00:12:12,140 --> 00:12:15,940

That's a little dose of reality you don't see in the movies.

234

00:12:15,940 --> 00:12:19,260

Deadly shrapnel flying in all directions.

235

00:12:19,260 --> 00:12:25,620

Shooting away unscathed is clearly not a given, meaning the myth is already looking shaky.

236

00:12:25,620 --> 00:12:26,620

But what's next?

237

00:12:26,620 --> 00:12:28,260

Right, here's a scenario.

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00:12:28,260 --> 00:12:33,940

A bad guy's actually gotten his gun out of the draw and into a firing position.

239

00:12:33,940 --> 00:12:34,940

Shoot first.

240

00:12:34,940 --> 00:12:41,020

Our hero still has to try and shoot that pistol out of his hand non-laterally.

241

00:12:41,020 --> 00:12:44,580

Shooting the gun out of the hand in shootout position.

242

00:12:44,580 --> 00:12:49,460

Three, two, one.

243

00:12:49,460 --> 00:12:51,580

I saw shrapnel go everywhere.

244

00:12:51,580 --> 00:12:54,460

Yep, shrapnel went everywhere.

245

00:12:54,460 --> 00:12:58,500

Oh, that is some nasty damage.

246

00:12:58,500 --> 00:13:01,340

And the gun stayed put.

247

00:13:01,340 --> 00:13:05,980

It didn't drop because the profile of the gun meant that there wasn't enough leverage,

248

00:13:05,980 --> 00:13:09,820

meaning this scenario is busted on both counts.

249

00:13:09,820 --> 00:13:13,660

We are positing that he's pointing the gun at someone else and we're going to hit it

250

00:13:13,660 --> 00:13:14,660

in the side.

251

00:13:14,660 --> 00:13:17,660

I personally have high hopes for this one.

252

00:13:17,660 --> 00:13:27,260

Shooting the gun out of the hand in the hostage position, firing in three, two, one.

253

00:13:27,260 --> 00:13:29,460

Success!

254

00:13:29,460 --> 00:13:32,420

Looks like it.

255

00:13:32,420 --> 00:13:33,860

No damage to the hand.

256

00:13:33,860 --> 00:13:34,860

No.

257

00:13:34,860 --> 00:13:37,180

I don't see any damage to the cowboy behind him either.

258

00:13:37,180 --> 00:13:38,180

No.

259

00:13:38,380 --> 00:13:42,460

In the hostage position, we can see that the bullet got caught squarely on the gun and

260

00:13:42,460 --> 00:13:44,260

delivered most of its energy.

261

00:13:44,260 --> 00:13:48,380

Nice shooting, inanimate shooter.

262

00:13:48,380 --> 00:13:53,220

That in combination with the fact that there was a little leverage going like this as a

263

00:13:53,220 --> 00:13:59,100

result of that hit meant that this actually came out of the guy's hand.

264

00:13:59,100 --> 00:14:04,220

So the orientation of the gun drastically alters the disarming outcome.

265

00:14:04,420 --> 00:14:09,660

But as for the unharmed half of the myth, well, there's a whole lot of lead flying around.

266

00:14:09,660 --> 00:14:12,900

Remember, if you're shooting the gun at someone's hand, it's because you don't want to hurt

267

00:14:12,900 --> 00:14:14,820

them and you definitely don't want to kill them.

268

00:14:14,820 --> 00:14:18,540

And our two cowboys here have sustained a lot of damage.

269

00:14:18,540 --> 00:14:23,780

Every piece of yellow tape represents either a graze which would cut you or a hit that

270

00:14:23,780 --> 00:14:25,980

really might kill you.

271

00:14:25,980 --> 00:14:29,460

We've got a lot of time to aim, more time than a cowboy would have.

272

00:14:29,460 --> 00:14:34,020

This leads me to believe this might not be the most efficacious method for disarming

273

00:14:34,020 --> 00:14:36,220

someone safely.

274

00:14:36,220 --> 00:14:40,180

After the break, Adam and Jamie are on target to disarm.

275

00:14:40,180 --> 00:14:42,380

I call it Newton's Law.

276

00:14:42,380 --> 00:14:47,340

Then Tori, Grant and Jesse ramp it up with a ramp and a full-sized bus.

277

00:14:47,340 --> 00:14:49,340

Look, Ma, no hands!

278

00:14:57,940 --> 00:15:01,820

Adam and Jamie have been testing whether you can shoot the gun out of your opponent's

279

00:15:01,820 --> 00:15:06,660

hand, leaving them unarmed and unharmed.

280

00:15:06,660 --> 00:15:09,940

The unarmed department is not looking so good.

281

00:15:09,940 --> 00:15:12,180

That is some nasty damage.

282

00:15:12,180 --> 00:15:17,340

And although the bad guys drop their gun in two out of the three positions, Adam is not

283

00:15:17,340 --> 00:15:20,100

convinced unarmed is working out either.

284

00:15:20,100 --> 00:15:21,900

The gun didn't fall out.

285

00:15:21,900 --> 00:15:24,740

He thinks there's a missing human link.

286

00:15:24,740 --> 00:15:31,100

But with shooting at each other out of the question, how do they test this safely?

287

00:15:31,180 --> 00:15:34,180

So what is it like when one of these gets shot out of your hand?

288

00:15:34,180 --> 00:15:36,460

I think that it would sting like hell.

289

00:15:36,460 --> 00:15:42,340

I think it would be like hitting something hard with a baseball bat.

290

00:15:42,340 --> 00:15:46,780

So what I'm going to do is take this pistol, use it as a template to take an aluminum plate,

291

00:15:46,780 --> 00:15:49,380

put some gun handles on it and a big paddle out here.

292

00:15:49,380 --> 00:15:50,820

You see where I'm going with this?

293

00:15:50,820 --> 00:15:55,420

And then I'm going to have Jamie hit that paddle with something like a baseball bat and

294

00:15:55,420 --> 00:15:57,660

see how hard it is to hold on.

295

00:15:57,660 --> 00:16:00,340

I think I might want to let go immediately.

296

00:16:00,340 --> 00:16:02,260

I'm getting close.

297

00:16:02,260 --> 00:16:05,260

You don't know this about me, but I have a particular penchant for objects that were

298

00:16:05,260 --> 00:16:07,700

clearly made for a very specific function.

299

00:16:07,700 --> 00:16:11,820

And yet what that function might be has been lost to time.

300

00:16:11,820 --> 00:16:15,180

This definitely falls into that category.

301

00:16:15,180 --> 00:16:16,180

Tada!

302

00:16:16,180 --> 00:16:21,420

I'm very pleased.

303

00:16:21,420 --> 00:16:26,060

I can say without reservation this is my favorite thing I've ever built for this show.

304

00:16:26,060 --> 00:16:27,060

Yeah.

305

00:16:27,180 --> 00:16:29,500

If you will hold that.

306

00:16:29,500 --> 00:16:34,380

And with a little help from Slugger Heidemann, Adam is going to put his new favorite toy

307

00:16:34,380 --> 00:16:36,380

to the test.

308

00:16:36,380 --> 00:16:38,380

My eyes are closed.

309

00:16:44,380 --> 00:16:45,380

Eee!

310

00:16:45,380 --> 00:16:46,380

Wow!

311

00:16:46,380 --> 00:16:47,380

Ow!

312

00:16:47,380 --> 00:16:48,380

Yeah!

313

00:16:48,380 --> 00:16:52,780

No, there's no way you'd be holding on to that thing.

314

00:16:52,780 --> 00:16:54,500

God, that hurt!

315

00:16:54,500 --> 00:17:02,540

And here's how much it hurt in glorious, technicolored, thousand frames a second slow motion.

316

00:17:02,540 --> 00:17:05,420

The shock and the pain in Adam's face was really evident.

317

00:17:05,420 --> 00:17:09,700

And may I say also really satisfying, but how does that relate to a bullet hitting a

318

00:17:09,700 --> 00:17:11,700

gun in terms of energy transfer?

319

00:17:11,700 --> 00:17:15,740

Well, on the one hand we have a bat, 800 grams.

320

00:17:15,740 --> 00:17:18,620

It was traveling 85 miles per hour.

321

00:17:18,740 --> 00:17:25,340

That gives us a potential energy of 428 foot pounds force.

322

00:17:25,340 --> 00:17:30,460

On the other hand we have a bullet, 15 grams, traveling 613 miles per hour.

323

00:17:30,460 --> 00:17:35,060

And the potential energy there is 416 foot pounds force.

324

00:17:35,060 --> 00:17:37,380

Those numbers are basically the same.

325

00:17:37,380 --> 00:17:42,620

And yet somehow I'm not going to be satisfied unless I get something really close to an

326

00:17:42,620 --> 00:17:46,900

actual bullet hitting an actual gun and one of us holding onto it.

327

00:17:49,620 --> 00:17:54,460

Alright, so the question is could the bus bridge the gap just like in the movie?

328

00:17:54,460 --> 00:17:55,980

I think we all know the answer.

329

00:17:55,980 --> 00:17:56,980

Nope.

330

00:17:56,980 --> 00:18:00,780

Yeah, you can't just switch off gravity at the moment the front tires leave the edge.

331

00:18:00,780 --> 00:18:01,780

It's going down.

332

00:18:01,780 --> 00:18:03,780

And what you see in the movie is a special effect.

333

00:18:03,780 --> 00:18:07,420

Yeah, they get the bus to take off by using a ramp and then with some clever editing the

334

00:18:07,420 --> 00:18:08,620

rest of it's just fate.

335

00:18:08,620 --> 00:18:11,860

Yeah, but what I want to know is the central premise possible.

336

00:18:11,860 --> 00:18:15,220

Can you get a bus jump just like the one in the movie to actually happen?

337

00:18:15,220 --> 00:18:16,220

Great.

338

00:18:16,220 --> 00:18:19,220

And what does the ramp say as if there was just a pile of dirt sitting at the end of

339

00:18:19,220 --> 00:18:20,220

the freeway?

340

00:18:20,220 --> 00:18:21,220

Perfect.

341

00:18:21,220 --> 00:18:23,860

But since it's still too dangerous for any of us who drive the bus, even channeling

342

00:18:23,860 --> 00:18:27,460

the spirit of Keanu Reeves, we're going to have to radio control full size bus.

343

00:18:27,460 --> 00:18:29,460

Well, let's do it.

344

00:18:29,460 --> 00:18:30,460

Cool.

345

00:18:30,460 --> 00:18:39,300

So as the small scale setup clearly illustrated, the jump as per the movie cannot be made.

346

00:18:39,300 --> 00:18:41,340

But what if there was a ramp?

347

00:18:41,340 --> 00:18:44,620

What if the bus took off with a more realistic trajectory?

348

00:18:44,620 --> 00:18:48,020

Would the 50 foot jump then be possible?

349

00:18:48,020 --> 00:18:52,820

To find out, it's full steam ahead with the full size bus.

350

00:18:52,820 --> 00:18:54,820

Come on board.

351

00:18:54,820 --> 00:18:58,540

Now obviously I'm not going to be driving the bus when we try and jump it and neither

352

00:18:58,540 --> 00:18:59,780

is anyone else.

353

00:18:59,780 --> 00:19:04,060

So the first job is to take the human element out of the equation.

354

00:19:04,060 --> 00:19:06,460

So I got my box of goodies.

355

00:19:06,460 --> 00:19:11,900

High torque electric motor, pneumatic cylinders, pneumatic valves and servo controllers.

356

00:19:11,900 --> 00:19:17,540

Now the trick is to take all of this and replace the driver so we can control the bus remotely.

357

00:19:17,540 --> 00:19:20,860

Adam and Jamie have done this before, but that was a different bus.

358

00:19:20,860 --> 00:19:24,020

So I am starting from scratch.

359

00:19:24,020 --> 00:19:29,380

So using Adam and Jamie's design, Grant will be steering and pressing the pedals from the

360

00:19:29,380 --> 00:19:31,420

trailing pickup truck.

361

00:19:31,420 --> 00:19:35,940

Now to press these pedals, we've got this pneumatic cylinder.

362

00:19:35,940 --> 00:19:40,460

So I'm going to have one each for the throttle and for the brake.

363

00:19:40,460 --> 00:19:41,460

Just be like this.

364

00:19:41,460 --> 00:19:42,460

Whaaaaa.

365

00:19:42,460 --> 00:19:44,460

And then the jump.

366

00:19:44,460 --> 00:19:45,460

Yeah.

367

00:19:45,460 --> 00:19:46,460

Yeah.

368

00:19:46,460 --> 00:19:47,460

Exactly like that.

369

00:19:47,460 --> 00:19:51,580

Except at the end it will be like, yeah, we made it.

370

00:19:51,580 --> 00:19:55,620

What you're not going to hear is, oh my God, it's out of control because I'm going to

371

00:19:55,620 --> 00:19:58,900

make sure that it doesn't go out of control.

372

00:19:58,900 --> 00:20:04,900

With everything almost under control in the remote control department, let's check out

373

00:20:04,980 --> 00:20:05,980

the ramp action.

374

00:20:05,980 --> 00:20:07,980

So this is how we're doing our ramp.

375

00:20:07,980 --> 00:20:12,060

We have a 40 foot container that we're cutting on a diagonal to the angle that we need for

376

00:20:12,060 --> 00:20:13,540

our bus to jump properly.

377

00:20:13,540 --> 00:20:16,500

Right now what we're doing is we're just cutting through the corrugated steel.

378

00:20:16,500 --> 00:20:20,740

Once that's done, we're going to cut through the edges and then pull the whole thing off.

379

00:20:20,740 --> 00:20:22,660

So we'll have two halves and we'll flip them over.

380

00:20:22,660 --> 00:20:24,220

That way we'll have a ramp.

381

00:20:24,220 --> 00:20:27,540

Now Jamie and Adam did this in the Mojave Desert when they were doing the Jato rocket

382

00:20:27,540 --> 00:20:28,540

car.

383

00:20:28,540 --> 00:20:34,380

However, ours has to carry the weight of a 24,000 pound bus.

384

00:20:34,380 --> 00:20:37,260

So we are going to have to reinforce the inside of this with steel.

385

00:20:37,260 --> 00:20:41,260

So that way when the bus hits the ramp, the whole ramp doesn't just crumble underneath

386

00:20:41,260 --> 00:20:43,940

the weight of the bus.

387

00:20:43,940 --> 00:20:50,100

Sounds easy, but the team spends a long, hot, dirty day bracing and reinforcing the structure

388

00:20:50,100 --> 00:20:55,380

before they can move it to the runway for the final touches.

389

00:20:55,380 --> 00:20:57,500

Yo, Biuque!

390

00:20:57,500 --> 00:20:59,540

So the first half of the ramp is loaded on the truck.

391

00:20:59,540 --> 00:21:01,220

It's going out to the runway.

392

00:21:01,220 --> 00:21:05,580

Once we have the other one loaded up, we still have to put the two halves together and then

393

00:21:05,580 --> 00:21:11,620

weld them and then skin the top with plywood so the bus has something to run up.

394

00:21:11,620 --> 00:21:12,620

Back at the shop.

395

00:21:12,620 --> 00:21:13,620

Rise!

396

00:21:13,620 --> 00:21:14,620

Rise!

397

00:21:14,620 --> 00:21:17,140

Grant's almost done.

398

00:21:17,140 --> 00:21:19,580

I think we have steering.

399

00:21:19,580 --> 00:21:23,860

And he's so confident he's ready to put his tool pouch where his mouth is.

400

00:21:23,860 --> 00:21:30,500

There are so many safety interlocks in place that if this bus goes out of control, I'll

401

00:21:30,780 --> 00:21:34,620

eat my multi-tool case.

402

00:21:34,620 --> 00:21:39,180

A confidence that is only bolstered after his arrival at Alameda.

403

00:21:39,180 --> 00:21:42,740

Look, Ma, no hands!

404

00:21:42,740 --> 00:21:47,860

Because out on the runway, early tests of the remote control setup are looking real good.

405

00:21:47,860 --> 00:21:48,860

Yeah!

406

00:21:48,860 --> 00:21:52,820

Well, I hope Grant's having fun with the little bus.

407

00:21:52,820 --> 00:21:55,620

I think I'm getting the hang of this.

408

00:21:55,620 --> 00:21:57,460

Let's see what this baby does at 70.

409

00:21:57,460 --> 00:21:58,820

I can drive a RTD too.

410

00:21:58,820 --> 00:21:59,820

I can drive a bus.

411

00:22:00,260 --> 00:22:02,940

Over there, take it around, stay in clean.

412

00:22:02,940 --> 00:22:07,540

While we're out here welding, getting dirty, breaking our back, doing this ramp.

413

00:22:09,540 --> 00:22:11,540

Alright, maybe I'm a little bitter.

414

00:22:13,540 --> 00:22:16,540

Aren't there any, like, massage therapy myths?

415

00:22:18,540 --> 00:22:19,540

That's it.

416

00:22:19,540 --> 00:22:20,540

We're done.

417

00:22:20,540 --> 00:22:22,540

Can you believe it?

418

00:22:22,540 --> 00:22:25,540

Oh, you done playing with your bus?

419

00:22:25,540 --> 00:22:26,540

Up next.

420

00:22:26,540 --> 00:22:27,540

Kill it!

421

00:22:27,540 --> 00:22:28,540

Kill it!

422

00:22:28,540 --> 00:22:29,540

Kill it!

423

00:22:30,260 --> 00:22:36,420

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

424

00:22:36,420 --> 00:22:38,140

We're what you call experts.

425

00:22:38,140 --> 00:22:39,140

Stay safe.

426

00:22:44,140 --> 00:22:47,140

Jamie enjoyed disarming Adam.

427

00:22:47,140 --> 00:22:48,140

Yeah.

428

00:22:48,140 --> 00:22:53,540

But although the force of that hit is comparable to a bullet, they're not satisfied.

429

00:22:53,540 --> 00:22:57,140

The subjective experience is the same.

430

00:22:57,140 --> 00:23:02,180

So without resorting to shooting at each other, and obvious no-no, Jamie's come up with an

431

00:23:02,180 --> 00:23:06,580

ingenious plan that will exactly recreate the experience.

432

00:23:06,580 --> 00:23:10,500

As we know, Newton's third law says that for every action there's an equal and opposite

433

00:23:10,500 --> 00:23:11,500

reaction.

434

00:23:11,500 --> 00:23:17,980

So, if I were to make a gun that fires a bullet in the exact opposite direction that an incoming

435

00:23:17,980 --> 00:23:23,380

bullet would have hit it at, then my reaction, being the guy that's holding the gun, should

436

00:23:23,380 --> 00:23:25,180

be exactly the same.

437

00:23:25,220 --> 00:23:31,020

A double-barreled handgun that is the perfect embodiment of Newton's third law.

438

00:23:31,020 --> 00:23:35,060

That every action has an equal and opposite reaction.

439

00:23:35,060 --> 00:23:40,780

The bullet fired will push back on the handheld barrel with the same force as the target gun

440

00:23:40,780 --> 00:23:41,780

would receive.

441

00:23:41,780 --> 00:23:44,260

And the word, genius.

442

00:23:44,260 --> 00:23:45,260

What are you calling?

443

00:23:45,260 --> 00:23:47,260

I call it Newton's law.

444

00:23:47,260 --> 00:23:50,180

For every action there's an equal and opposite reaction.

445

00:23:50,180 --> 00:23:51,180

I love it!

446

00:23:51,180 --> 00:23:53,180

Well, let's test it out.

447

00:23:53,180 --> 00:23:54,180

Okay.

448

00:23:56,180 --> 00:24:02,180

But outside in the bunker, the testing reveals an unforeseen design flaw.

449

00:24:06,180 --> 00:24:08,180

Oh, that's a little bit of a let down.

450

00:24:08,180 --> 00:24:10,180

That's a lot of a let down.

451

00:24:10,180 --> 00:24:11,180

It didn't work at all.

452

00:24:11,180 --> 00:24:15,180

Well, Newton's law may work, but this one didn't.

453

00:24:15,180 --> 00:24:20,180

It turns out that these bullets are only made to go off when the primer is hit, and they

454

00:24:20,180 --> 00:24:22,180

don't like to go off with a fuse.

455

00:24:22,180 --> 00:24:25,180

So, I've got to go back to the drawing board.

456

00:24:26,180 --> 00:24:32,180

A subtle modification or two, and our gun guru soon gets a handle on the situation.

457

00:24:32,180 --> 00:24:34,180

Have you got a solution yet?

458

00:24:34,180 --> 00:24:35,180

Actually, I do.

459

00:24:35,180 --> 00:24:37,180

You're going to love this.

460

00:24:37,180 --> 00:24:38,180

It's simple.

461

00:24:38,180 --> 00:24:41,180

We didn't need to go to the trouble of making two separate barrels.

462

00:24:41,180 --> 00:24:45,180

All we need to do is have two separate handles.

463

00:24:45,180 --> 00:24:47,180

It's the same equal and opposite reaction.

464

00:24:47,180 --> 00:24:48,180

Ingenious.

465

00:24:48,180 --> 00:24:50,180

I love it.

466

00:24:50,180 --> 00:24:53,180

So, it's Newton's law, Mark II.

467

00:24:53,180 --> 00:24:54,180

And it works like this.

468

00:24:54,180 --> 00:25:00,180

While holding the handle, the real gun is fired remotely, imparting an equal and opposite

469

00:25:00,180 --> 00:25:03,180

force of the bullet to the hand gripping the handle.

470

00:25:03,180 --> 00:25:04,180

Genius.

471

00:25:04,180 --> 00:25:05,180

Again.

472

00:25:08,180 --> 00:25:14,180

And back down at the gun range, Jamie's design has got Adam's entrepreneurial juices flowing.

473

00:25:15,180 --> 00:25:19,180

Ladies and gentlemen, I have a special surprise for you today from Mitbusters Labs in Heinemannia

474

00:25:19,180 --> 00:25:24,180

where this comes a mix of Hoosier ingenuity and total insanity I bring to you.

475

00:25:24,180 --> 00:25:25,180

The Heinemann Broulette 6000.

476

00:25:25,180 --> 00:25:28,180

Yes, with this gun, not only can you play the most advanced game of the night,

477

00:25:28,180 --> 00:25:33,180

but every shot is a surprise, keeping life on the uncertain footing it was always meant to be.

478

00:25:33,180 --> 00:25:34,180

Buy yours today.

479

00:25:38,180 --> 00:25:41,180

Welcome to the Mythbus 2.

480

00:25:41,180 --> 00:25:42,180

Step on board.

481

00:25:42,180 --> 00:25:43,180

Whoa.

482

00:25:43,180 --> 00:25:48,180

In an attempt to find out if a bus could jump a 50-foot gap in an elevated freeway,

483

00:25:48,180 --> 00:25:54,180

Tori, Grant and Jesse are about to launch this remote control bus off this ramp.

484

00:25:54,180 --> 00:25:57,180

But please, read the small print.

485

00:25:57,180 --> 00:25:58,180

All right.

486

00:25:58,180 --> 00:26:00,180

So, there's something that we want to make very clear about this ramp.

487

00:26:00,180 --> 00:26:04,180

If you watch the DVD extras, you will find that they actually had a ramp with a pneumatic

488

00:26:04,180 --> 00:26:09,180

kicker at the end to help give that bus a little lift and distance that it needed to

489

00:26:09,180 --> 00:26:10,180

make that gap.

490

00:26:10,180 --> 00:26:14,180

Well, we're not trying to recreate movie visual effects here.

491

00:26:14,180 --> 00:26:18,180

We're trying to give you a real-life situation, as if they're just so happened to be a pile

492

00:26:18,180 --> 00:26:21,180

of dirt or sand right at the end of the road.

493

00:26:21,180 --> 00:26:28,180

First up, the guys who have a turbulent relationship with remote control runaway vehicles

494

00:26:32,180 --> 00:26:37,180

want to test Grant's fail-safe, fool-proof override kill switch.

495

00:26:37,180 --> 00:26:38,180

All right.

496

00:26:38,180 --> 00:26:40,180

This is slow speed test.

497

00:26:40,180 --> 00:26:41,180

Checking the brakes.

498

00:26:41,180 --> 00:26:42,180

Here we go.

499

00:26:42,180 --> 00:26:44,180

In three, two, one.

500

00:26:47,180 --> 00:26:48,180

Oh, my God.

501

00:26:48,180 --> 00:26:49,180

This is crazy.

502

00:26:49,180 --> 00:26:50,180

Ten miles an hour.

503

00:26:50,180 --> 00:26:52,180

Twenty miles an hour.

504

00:26:55,180 --> 00:26:58,180

We're at 30 miles an hour and holding.

505

00:26:58,180 --> 00:26:59,180

Kill it.

506

00:26:59,180 --> 00:27:00,180

Kill it in the switch.

507

00:27:01,180 --> 00:27:02,180

Yes.

508

00:27:02,180 --> 00:27:03,180

Great.

509

00:27:03,180 --> 00:27:04,180

Woo-hoo.

510

00:27:04,180 --> 00:27:05,180

Yes.

511

00:27:05,180 --> 00:27:06,180

Good job, Grant.

512

00:27:06,180 --> 00:27:09,180

Unfortunately, no runaway vehicles today.

513

00:27:09,180 --> 00:27:10,180

So what's next?

514

00:27:10,180 --> 00:27:13,180

All right, so we can stop it, but the thing about it, though, is in the movie, the bus

515

00:27:13,180 --> 00:27:15,180

got up to 70 miles an hour.

516

00:27:15,180 --> 00:27:16,180

How fast can this bus go?

517

00:27:16,180 --> 00:27:18,180

As a matter of fact, I have no idea.

518

00:27:18,180 --> 00:27:19,180

Well, let's test it.

519

00:27:19,180 --> 00:27:24,180

Of course, the speed at which the bus is going as it hits the top of the ramp is crucial.

520

00:27:24,180 --> 00:27:26,180

Let's find out what she can do.

521

00:27:27,180 --> 00:27:33,180

So this is full speed test in three, two, one.

522

00:27:33,180 --> 00:27:34,180

Hit it.

523

00:27:37,180 --> 00:27:40,180

Thirty-five miles an hour.

524

00:27:40,180 --> 00:27:42,180

She went off to the right.

525

00:27:42,180 --> 00:27:43,180

Stay, yeah, you stay here.

526

00:27:43,180 --> 00:27:44,180

Good.

527

00:27:44,180 --> 00:27:46,180

Forty-five miles an hour.

528

00:27:46,180 --> 00:27:47,180

It's all over the road.

529

00:27:47,180 --> 00:27:50,180

Come on, get over the back, get back.

530

00:27:50,180 --> 00:27:51,180

There you go.

531

00:27:51,180 --> 00:27:52,180

Good job.

532

00:27:52,180 --> 00:27:54,180

We're at 58 miles per hour.

533

00:27:54,180 --> 00:27:56,180

Looks like that's all she's got.

534

00:27:56,180 --> 00:28:02,180

With the bus swerving wildly and the speedometer topping out at 58 miles per hour, the guys

535

00:28:02,180 --> 00:28:03,180

call it.

536

00:28:03,180 --> 00:28:04,180

Killing it.

537

00:28:04,180 --> 00:28:08,180

And bring the bus and top speed test to a start.

538

00:28:08,180 --> 00:28:12,180

In the movie, their bus is going 70 miles an hour.

539

00:28:12,180 --> 00:28:17,180

Now, we just did a speed test with our bus and ours was going more like 60 miles an hour.

540

00:28:17,180 --> 00:28:22,180

The other significant result was the obvious difficulty Grant was having maintaining a

541

00:28:22,180 --> 00:28:23,180

straight course.

542

00:28:23,180 --> 00:28:27,180

What I'm about to do is paint a shoe with the ramp.

543

00:28:27,180 --> 00:28:30,180

Now, this is going to be our point of no return zone.

544

00:28:30,180 --> 00:28:32,180

Now, the bus is not lined up with the ramp.

545

00:28:32,180 --> 00:28:35,180

At this point, we're going to port the nation.

546

00:28:35,180 --> 00:28:39,180

Grant will have to steer the bus up the ramp and jump it to here.

547

00:28:39,180 --> 00:28:45,180

This is the distance of the gap in the freeway adjusted for the bus's slower top speed.

548

00:28:45,180 --> 00:28:50,180

But where exactly it'll land, there's only one way to find out.

549

00:28:53,180 --> 00:28:58,180

With days and days of work all leading to this one final test.

550

00:28:58,180 --> 00:28:59,180

Very near.

551

00:29:00,180 --> 00:29:02,180

Nerves are on edge and frayed.

552

00:29:02,180 --> 00:29:05,180

Never seen this jump before.

553

00:29:05,180 --> 00:29:07,180

So this is the real deal.

554

00:29:07,180 --> 00:29:08,180

I mean, we are going for it.

555

00:29:08,180 --> 00:29:10,180

There's no more scale models.

556

00:29:10,180 --> 00:29:13,180

If we don't hit that ramp, this is like totally ruined.

557

00:29:13,180 --> 00:29:15,180

We only have one shot at this.

558

00:29:15,180 --> 00:29:16,180

All right.

559

00:29:16,180 --> 00:29:17,180

So this is the real deal.

560

00:29:17,180 --> 00:29:20,180

This is full scale bus jump.

561

00:29:20,180 --> 00:29:22,180

There's no turning back now.

562

00:29:22,180 --> 00:29:23,180

You guys ready?

563

00:29:23,180 --> 00:29:24,180

Ready.

564

00:29:24,180 --> 00:29:25,180

We're ready.

565

00:29:25,180 --> 00:29:26,180

All right.

566

00:29:26,180 --> 00:29:27,180

Let's do it.

567

00:29:27,180 --> 00:29:28,180

Go!

568

00:29:28,180 --> 00:29:30,180

Let's get that bus to jump.

569

00:29:32,180 --> 00:29:34,180

We're in the back, Denny.

570

00:29:34,180 --> 00:29:36,180

20 miles an hour.

571

00:29:36,180 --> 00:29:37,180

There it is.

572

00:29:37,180 --> 00:29:38,180

It went all over the road.

573

00:29:38,180 --> 00:29:39,180

Better though.

574

00:29:39,180 --> 00:29:40,180

Get in the center.

575

00:29:40,180 --> 00:29:41,180

Get in the center.

576

00:29:41,180 --> 00:29:42,180

There you go.

577

00:29:42,180 --> 00:29:43,180

There's your line right there, buddy.

578

00:29:43,180 --> 00:29:44,180

Right there.

579

00:29:44,180 --> 00:29:45,180

35 miles an hour.

580

00:29:45,180 --> 00:29:47,180

40 miles an hour.

581

00:29:47,180 --> 00:29:48,180

Come on.

582

00:29:48,180 --> 00:29:49,180

Get over it.

583

00:29:49,180 --> 00:29:50,180

Get back.

584

00:29:50,180 --> 00:29:51,180

Get back.

585

00:29:51,180 --> 00:29:52,180

There you go.

586

00:29:52,180 --> 00:29:53,180

Good job.

587

00:29:53,180 --> 00:29:54,180

We're at 50 miles an hour.

588

00:29:54,180 --> 00:29:55,180

Come on, Grant.

589

00:29:55,180 --> 00:29:56,180

Kill it.

590

00:29:56,180 --> 00:29:58,180

We are killing the bus.

591

00:29:58,180 --> 00:30:00,180

We lost control.

592

00:30:00,180 --> 00:30:02,180

That was close.

593

00:30:02,180 --> 00:30:04,180

Oh my God.

594

00:30:04,180 --> 00:30:07,180

Tensions are running a little high right now.

595

00:30:07,180 --> 00:30:11,180

We just did the first test and Grant was all over the road.

596

00:30:11,180 --> 00:30:12,180

All right.

597

00:30:12,180 --> 00:30:13,180

Let's reset.

598

00:30:13,180 --> 00:30:15,180

It's not looking good so far.

599

00:30:15,180 --> 00:30:18,180

I'm telling you, you do not want to miss this.

600

00:30:26,180 --> 00:30:27,180

Let's go.

601

00:30:27,180 --> 00:30:28,180

Bingo.

602

00:30:28,180 --> 00:30:29,180

The next.

603

00:30:29,180 --> 00:30:33,180

So let's recap.

604

00:30:33,180 --> 00:30:37,180

We're testing the Old West myth that you can shoot a gun out of your opponent's hand,

605

00:30:37,180 --> 00:30:40,180

leaving him unarmed and unharmed.

606

00:30:40,180 --> 00:30:43,180

I got to say, in the unharmed department, it's not looking very good.

607

00:30:43,180 --> 00:30:48,180

There's a lot of shrapnel crews when a lead bullet hits a steel pistol.

608

00:30:48,180 --> 00:30:52,180

But in the disarmed department, everything we've been testing so far says that it's

609

00:30:52,180 --> 00:30:53,180

looking pretty good.

610

00:30:53,180 --> 00:30:56,180

But pretty good isn't good enough for us.

611

00:30:56,180 --> 00:31:01,180

It's time to put the finishing touches on this myth and finally put it to bed.

612

00:31:01,180 --> 00:31:03,180

Here's how it's going to work.

613

00:31:03,180 --> 00:31:07,180

Adam will be holding Newton's law Mark II by the second handle.

614

00:31:07,180 --> 00:31:10,180

There you go. Like that.

615

00:31:10,180 --> 00:31:15,180

Jamie will pull the trigger remotely, maintaining that crucial element of surprise.

616

00:31:15,180 --> 00:31:19,180

Okay, Tex. If he blinks, shoot him.

617

00:31:19,180 --> 00:31:25,180

And the bullet will push back on Adam's hand with equal force to that of a bullet hitting the gun.

618

00:31:25,180 --> 00:31:30,180

First up is the draw position. In this scenario, I am just pulling my gun out of its holster

619

00:31:30,180 --> 00:31:35,180

when Sheriff Buster there takes a crack shot hitting my sidearm on its top.

620

00:31:35,180 --> 00:31:40,180

From everything we've tested so far, I think I'm going to drop that gun.

621

00:31:40,180 --> 00:31:42,180

Okay, the gun is hot.

622

00:31:42,180 --> 00:31:43,180

Understood.

623

00:31:43,180 --> 00:31:47,180

All right, draw position. Fire one ready, I guess.

624

00:31:50,180 --> 00:31:52,180

Huh!

625

00:31:55,180 --> 00:31:57,180

That is scary as hell.

626

00:31:57,180 --> 00:31:59,180

You didn't drop it though.

627

00:31:59,180 --> 00:32:00,180

Not even close.

628

00:32:00,180 --> 00:32:01,180

And you weren't ready for it.

629

00:32:01,180 --> 00:32:03,180

I was totally not ready for it.

630

00:32:03,180 --> 00:32:08,180

It lacked all the shock of the target pistol hitting the baseball bat.

631

00:32:08,180 --> 00:32:12,180

It didn't have any of that kind of pain aspect to it. It was more like adult thud.

632

00:32:12,180 --> 00:32:15,180

So, I didn't drop that gun.

633

00:32:15,180 --> 00:32:19,180

And from everything we've seen so far, I totally didn't expect that result.

634

00:32:19,180 --> 00:32:21,180

So, James going to have a go with it?

635

00:32:21,180 --> 00:32:22,180

All right.

636

00:32:22,180 --> 00:32:23,180

You ready, Jamie?

637

00:32:23,180 --> 00:32:24,180

Yeah, I'm ready.

638

00:32:24,180 --> 00:32:26,180

And then we'll see where we stand.

639

00:32:29,180 --> 00:32:31,180

He dropped it.

640

00:32:31,180 --> 00:32:34,180

Yep, jumping Jamie Hoderman.

641

00:32:34,180 --> 00:32:35,180

It's a shock.

642

00:32:35,180 --> 00:32:38,180

Was decidedly disarmed.

643

00:32:38,180 --> 00:32:44,180

You can see clearly in this clip how my hand is being twisted by the gun as it received the impact from the bullet.

644

00:32:44,180 --> 00:32:48,180

And it's being pushed right beyond the grasp of my fingers.

645

00:32:48,180 --> 00:32:55,180

With Adam holding on and Jamie surprised into letting go, the draw position ends in a draw.

646

00:32:55,180 --> 00:32:57,180

Next up is the hostage position.

647

00:32:57,180 --> 00:33:01,180

In this scenario, I'm not pointing the gun to Sheriff Buster, but at Jamie here.

648

00:33:01,180 --> 00:33:05,180

And to protect his friend Jamie, Sheriff Buster takes a crack shot at the side of my gun.

649

00:33:05,180 --> 00:33:09,180

And from everything we've seen so far, I think I'm dropping that gun like a hot potato.

650

00:33:09,180 --> 00:33:10,180

Me too.

651

00:33:10,180 --> 00:33:11,180

All right.

652

00:33:11,180 --> 00:33:13,180

All right, hostage position.

653

00:33:13,180 --> 00:33:15,180

You may fire when I'm not ready.

654

00:33:19,180 --> 00:33:20,180

I didn't let go.

655

00:33:20,180 --> 00:33:21,180

I noticed that.

656

00:33:21,180 --> 00:33:23,180

Admit it, you're clenching.

657

00:33:23,180 --> 00:33:24,180

I'm not clenching.

658

00:33:24,180 --> 00:33:25,180

You've got to have a turn.

659

00:33:25,180 --> 00:33:26,180

Your turn.

660

00:33:26,180 --> 00:33:27,180

Here you go.

661

00:33:29,180 --> 00:33:32,180

Mr. Hoderman in a hostage position.

662

00:33:32,180 --> 00:33:34,180

When's it going to be?

663

00:33:37,180 --> 00:33:39,180

And he dropped it again.

664

00:33:39,180 --> 00:33:41,180

This is fascinating.

665

00:33:42,180 --> 00:33:47,180

What I'm seeing is that this isn't so much about the force that it takes to remove this gun from my hand.

666

00:33:47,180 --> 00:33:54,180

It's about the reaction that I have to the jolt that I'm feeling, and it makes me jump and I let go.

667

00:33:55,180 --> 00:33:58,180

Editors, can I get a split screen please of that last test?

668

00:33:58,180 --> 00:33:59,180

Thank you.

669

00:33:59,180 --> 00:34:04,180

Now, you may be wondering, looking at this, why I'm holding onto my pistol while Jamie lets go of his.

670

00:34:04,180 --> 00:34:11,180

This could be explained by the fact that I endured so much pain holding onto the target pistol that I built while Jamie hit it with a baseball bat.

671

00:34:11,180 --> 00:34:12,180

Yeah, like that.

672

00:34:12,180 --> 00:34:16,180

That I'm inured to the shock and pain of this new rig.

673

00:34:16,180 --> 00:34:18,180

But really, I think it comes down to something else.

674

00:34:18,180 --> 00:34:26,180

I think it's just the fact that everyone's a little bit different, and that means that this technique, shooting a gun out of your opponent's hand, is never going to be a surefire technique.

675

00:34:28,180 --> 00:34:29,180

But they're not done yet.

676

00:34:29,180 --> 00:34:31,180

Sheriff Buster.

677

00:34:32,180 --> 00:34:39,180

Jumping Jamie Hondeman and Adam Clench Savage have yet to test the shootout position.

678

00:34:49,180 --> 00:34:51,180

We no longer need the secondary handle.

679

00:34:52,180 --> 00:34:54,180

This is very much like naturally shooting a gun.

680

00:34:54,180 --> 00:35:01,180

I'll be pointing the gun directly at my cowboy down there, except the only difference is Jamie will be activating the trigger without my knowledge.

681

00:35:04,180 --> 00:35:05,180

Ho ho ho ho ho!

682

00:35:06,180 --> 00:35:07,180

That is terrifying!

683

00:35:11,180 --> 00:35:13,180

And that just leaves Jamie.

684

00:35:19,180 --> 00:35:20,180

Yeah, I held onto it.

685

00:35:20,180 --> 00:35:25,180

I mean, it's funny, it shocks you the same way the others do, but it pushes itself deeper into your hand.

686

00:35:25,180 --> 00:35:29,180

Well, the gun is built to take force in exactly that direction.

687

00:35:29,180 --> 00:35:33,180

I think of all the shooting positions, this one's the least likely to be knocked out of your hand.

688

00:35:35,180 --> 00:35:39,180

So it's been a Russian roulette of results, but a result there is.

689

00:35:39,180 --> 00:35:44,180

It's clear from our testing that shooting a gun out of somebody's hand should be your very last option.

690

00:35:44,180 --> 00:35:50,180

For one thing, that gun is a tiny target and you pretty much have to hit it on a bullseye to have any effect.

691

00:35:50,180 --> 00:35:56,180

Secondly, if you do hit the gun, the shrapnel or ricochets are likely to actually hurt your guy.

692

00:35:57,180 --> 00:36:01,180

So if you do ever find yourself in a western duel, know this.

693

00:36:01,180 --> 00:36:09,180

You might be able to shoot the gun out of someone's hand, but chances are, someone's going to get hurt.

694

00:36:09,180 --> 00:36:14,180

Next, how does Grand take his tool pouch?

695

00:36:14,180 --> 00:36:18,180

Maybe fried with a little bit of powdered sugar.

696

00:36:24,180 --> 00:36:29,180

You could say the bus jump test didn't get off to a great start.

697

00:36:29,180 --> 00:36:30,180

Killing, killing.

698

00:36:30,180 --> 00:36:32,180

We are killing the bus.

699

00:36:32,180 --> 00:36:33,180

Hit it.

700

00:36:33,180 --> 00:36:38,180

But it takes more than a wildly out of control remote control bus to stop the Mythbusters.

701

00:36:38,180 --> 00:36:39,180

Q take two.

702

00:36:39,180 --> 00:36:40,180

Come on.

703

00:36:40,180 --> 00:36:41,180

Over to the right, we're killing it.

704

00:36:41,180 --> 00:36:42,180

Killing it, killing it, killing it.

705

00:36:42,180 --> 00:36:43,180

It's killing.

706

00:36:43,180 --> 00:36:44,180

There's the bus.

707

00:36:44,180 --> 00:36:45,180

That's not good.

708

00:36:45,180 --> 00:36:46,180

Yay!

709

00:36:46,180 --> 00:36:47,180

And we took out the fence.

710

00:36:47,180 --> 00:36:48,180

That's an affirmative.

711

00:36:48,180 --> 00:36:53,180

A sudden loss of power to the steering sent the bus into an all too early position.

712

00:36:53,180 --> 00:37:00,180

But there is good news.

713

00:37:00,180 --> 00:37:01,180

The bus is okay.

714

00:37:01,180 --> 00:37:02,180

It's a little fender bender.

715

00:37:02,180 --> 00:37:03,180

It's not even scratch.

716

00:37:03,180 --> 00:37:06,180

Not the first fence we've taken out here at Alameda.

717

00:37:06,180 --> 00:37:07,180

Well, the kill switch worked.

718

00:37:07,180 --> 00:37:08,180

That's good news.

719

00:37:08,180 --> 00:37:09,180

What happened?

720

00:37:09,180 --> 00:37:10,180

Right out of receiver battery.

721

00:37:10,180 --> 00:37:13,180

So we just lost control of steering and whatnot?

722

00:37:13,180 --> 00:37:14,180

Yeah.

723

00:37:14,180 --> 00:37:15,180

There's the bus.

724

00:37:15,180 --> 00:37:17,180

We're going to take the bus out of the bus.

725

00:37:17,180 --> 00:37:18,180

What happened?

726

00:37:18,180 --> 00:37:20,180

Right out of receiver battery.

727

00:37:20,180 --> 00:37:22,180

So we just lost control of steering and whatnot?

728

00:37:22,180 --> 00:37:23,180

Yeah.

729

00:37:23,180 --> 00:37:24,180

There's the bus.

730

00:37:24,180 --> 00:37:27,180

I'm not eating my multi-tool pouch just yet.

731

00:37:27,180 --> 00:37:28,180

Oh.

732

00:37:28,180 --> 00:37:33,180

And I get to choose how I eat it.

733

00:37:33,180 --> 00:37:38,180

Maybe fried with a little bit of powdered sugar.

734

00:37:38,180 --> 00:37:44,180

While Grant contemplates a multi-tool pouch donut and replaces the steering servo's batteries,

735

00:37:44,180 --> 00:37:48,180

the light fades, forcing the team to abandon the runway.

736

00:37:48,180 --> 00:37:54,180

The following day, after a full systems check, there's renewed optimism in the air.

737

00:37:54,180 --> 00:37:56,180

We're back out here.

738

00:37:56,180 --> 00:37:57,180

It's a new day.

739

00:37:57,180 --> 00:37:58,180

I'm feeling confident.

740

00:37:58,180 --> 00:37:59,180

I'm so excited.

741

00:37:59,180 --> 00:38:02,180

We're going to hit that ramp.

742

00:38:02,180 --> 00:38:03,180

Are we going to make the distance?

743

00:38:03,180 --> 00:38:04,180

Don't know.

744

00:38:04,180 --> 00:38:05,180

But we're going to hit that ramp.

745

00:38:05,180 --> 00:38:06,180

This is it.

746

00:38:06,180 --> 00:38:08,180

This is full scale bus jump.

747

00:38:08,180 --> 00:38:11,180

This is not a drill.

748

00:38:11,180 --> 00:38:18,180

In three, two, one, hit it.

749

00:38:18,180 --> 00:38:23,180

20 miles an hour.

750

00:38:23,180 --> 00:38:26,180

30 miles an hour.

751

00:38:26,180 --> 00:38:29,180

Stay on target.

752

00:38:29,180 --> 00:38:31,180

45 miles an hour.

753

00:38:31,180 --> 00:38:32,180

Yeah, Lulee.

754

00:38:32,180 --> 00:38:33,180

Get back on.

755

00:38:33,180 --> 00:38:34,180

Where are you going?

756

00:38:34,180 --> 00:38:35,180

50 miles an hour.

757

00:38:35,180 --> 00:38:36,180

Woo!

758

00:38:36,180 --> 00:38:37,180

Loot control.

759

00:38:37,180 --> 00:38:40,180

Kill, kill, kill, kill, kill.

760

00:38:40,180 --> 00:38:46,180

And chapter after chapter, that's the story for the next few hours.

761

00:38:46,180 --> 00:38:50,180

If it isn't down to the extreme difficulty of steering.

762

00:38:50,180 --> 00:38:51,180

Oh my God.

763

00:38:51,180 --> 00:38:52,180

Kill it, kill it.

764

00:38:52,180 --> 00:38:53,180

Oh my God.

765

00:38:53,180 --> 00:38:56,180

That could have been disastrous.

766

00:38:56,180 --> 00:38:58,180

It's a mechanical failure.

767

00:38:58,180 --> 00:39:00,180

10 miles an hour.

768

00:39:00,180 --> 00:39:01,180

Killing it.

769

00:39:01,180 --> 00:39:03,180

Or a radio signal failure.

770

00:39:03,180 --> 00:39:07,180

I thought I had it and then it wasn't responding.

771

00:39:07,180 --> 00:39:11,180

Or an electrical failure that leads to an electrical fire.

772

00:39:11,180 --> 00:39:13,180

I thought this was a non-smoking bus.

773

00:39:13,180 --> 00:39:15,180

Nope, apparently not.

774

00:39:15,180 --> 00:39:18,180

And you could say it's taking its toll.

775

00:39:18,180 --> 00:39:20,180

Grant seems a little edgy right now.

776

00:39:20,180 --> 00:39:23,180

He's like one of those little grumpy bus drivers.

777

00:39:23,180 --> 00:39:26,180

That's my stop.

778

00:39:26,180 --> 00:39:28,180

Do you ring that bell?

779

00:39:28,180 --> 00:39:30,180

This ain't a stop.

780

00:39:30,180 --> 00:39:31,180

Damn.

781

00:39:31,180 --> 00:39:32,180

Get off this bus.

782

00:39:32,180 --> 00:39:33,180

Get off.

783

00:39:33,180 --> 00:39:35,180

But the team sticks out.

784

00:39:35,180 --> 00:39:38,180

And despite some attractive sounding advice from Tori.

785

00:39:38,180 --> 00:39:43,180

I say we just load this thing up with C4 and if it gets under 50 we blow it up.

786

00:39:43,180 --> 00:39:44,180

Then we have a confirmed myth.

787

00:39:44,180 --> 00:39:45,180

Copy that.

788

00:39:45,180 --> 00:39:47,180

They run through the system once more.

789

00:39:47,180 --> 00:39:50,180

And once again it's all down to Grant.

790

00:39:50,180 --> 00:39:56,180

Can he conquer the over-sensitive steering and guide the bus going at top speed onto

791

00:39:56,180 --> 00:39:59,180

what looks like a very small ramp?

792

00:39:59,180 --> 00:40:00,180

Hit it.

793

00:40:00,180 --> 00:40:01,180

Come on.

794

00:40:01,180 --> 00:40:03,180

10 miles an hour.

795

00:40:03,180 --> 00:40:05,180

20 miles an hour.

796

00:40:05,180 --> 00:40:08,180

Come on dude, get back on line.

797

00:40:08,180 --> 00:40:10,180

30 miles an hour.

798

00:40:10,180 --> 00:40:11,180

Uh-oh.

799

00:40:11,180 --> 00:40:12,180

We're losing it.

800

00:40:12,180 --> 00:40:13,180

We're losing it.

801

00:40:13,180 --> 00:40:14,180

Get back over.

802

00:40:14,180 --> 00:40:15,180

Come on, Grant.

803

00:40:15,180 --> 00:40:16,180

45 miles an hour.

804

00:40:16,180 --> 00:40:17,180

Hold it.

805

00:40:17,180 --> 00:40:18,180

No.

806

00:40:18,180 --> 00:40:20,180

55 miles per hour.

807

00:40:20,180 --> 00:40:22,180

Oh crap.

808

00:40:22,180 --> 00:40:25,180

58 miles per hour.

809

00:40:25,180 --> 00:40:26,180

Return.

810

00:40:26,180 --> 00:40:33,180

Oh my god.

811

00:40:33,180 --> 00:40:38,180

Oh my god.

812

00:40:38,180 --> 00:41:01,180

I think that's it.

813

00:41:01,180 --> 00:41:07,180

That was crazy.

814

00:41:07,180 --> 00:41:12,180

Did that look easy?

815

00:41:12,180 --> 00:41:13,180

Because it wasn't.

816

00:41:13,180 --> 00:41:23,180

It was really, really hard.

817

00:41:23,180 --> 00:41:27,180

Steering on the bus is a little tricky because you're following it.

818

00:41:27,180 --> 00:41:30,180

All you see is kind of the back end swerving and you have to correct for that.

819

00:41:30,180 --> 00:41:34,180

Trying to keep up, keep correcting the bus, keep correcting it.

820

00:41:34,180 --> 00:41:39,680

And it got a little swervy right towards the end, but I saw the ramp coming up and I made

821

00:41:39,680 --> 00:41:44,180

the last move to get us right on the ramp.

822

00:41:44,180 --> 00:41:50,180

Yes, hit the ramp, caught air and that's the important thing.

823

00:41:50,180 --> 00:41:54,180

Did the bus go the entire distance of the gap?

824

00:41:54,180 --> 00:41:56,180

No, unfortunately.

825

00:41:56,180 --> 00:42:01,180

Okay, I think that is where the bus landed.

826

00:42:01,180 --> 00:42:02,180

Look at that.

827

00:42:02,180 --> 00:42:03,180

Impact zone.

828

00:42:03,180 --> 00:42:04,180

That thing is huge.

829

00:42:04,180 --> 00:42:05,180

The couch is massive.

830

00:42:05,180 --> 00:42:08,180

Yeah, but I mean, look at this is our target distance.

831

00:42:08,180 --> 00:42:10,180

Dude, that's a long way.

832

00:42:10,180 --> 00:42:12,180

I mean, we didn't even come close.

833

00:42:12,180 --> 00:42:13,180

Not even halfway.

834

00:42:13,180 --> 00:42:14,180

And you know what?

835

00:42:14,180 --> 00:42:17,180

In the movie, they didn't have a ramp.

836

00:42:17,180 --> 00:42:19,180

Okay, the good news.

837

00:42:19,180 --> 00:42:24,180

Just like the movie, the bus, before hitting the safety barrier at least, was relatively

838

00:42:24,180 --> 00:42:25,180

unharmed.

839

00:42:25,180 --> 00:42:29,180

But here's the but.

840

00:42:29,180 --> 00:42:36,180

Even with a ramp, the bus failed by a long way to clear the gap in the freeway, which

841

00:42:36,180 --> 00:42:41,180

would have meant a tragic and very unholy would like end to the movie.

842

00:42:41,180 --> 00:42:43,180

All right, this was looking busted.

843

00:42:43,180 --> 00:42:45,180

Busted.

844

00:42:45,180 --> 00:42:47,180

Busted.