

1

00:00:00,000 --> 00:00:03,340

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

2

00:00:03,340 --> 00:00:05,340

We're what you call experts.

3

00:00:05,340 --> 00:00:06,180

Ow!

4

00:00:09,180 --> 00:00:11,380

On this episode of Mythbusters,

5

00:00:11,380 --> 00:00:15,380

the Heinemann and Captain Redbeard

6

00:00:15,380 --> 00:00:18,580

take a swing at a pirate movie myth.

7

00:00:18,580 --> 00:00:22,220

It's another remote control rig for making Jamie dance.

8

00:00:22,220 --> 00:00:23,620

Act yourself out, buddy.

9

00:00:23,620 --> 00:00:26,020

Imprisoned inside a bone cage,

10

00:00:26,020 --> 00:00:28,000

can you swing across a ravine?

11

00:00:28,000 --> 00:00:29,160

I think I'm gonna throw up.

12

00:00:29,960 --> 00:00:31,460

And climb to safety.

13

00:00:33,260 --> 00:00:34,160

They're at!

14

00:00:34,160 --> 00:00:35,160

Meanwhile,

15

00:00:35,960 --> 00:00:37,340

Carrie Torian Grant

16

00:00:38,600 --> 00:00:40,500

rolled out the mythical barrel.

17

00:00:40,500 --> 00:00:42,600

Is a honing me bar in the hall, doesn't it?

18

00:00:42,600 --> 00:00:44,180

Attesting the urban legend

19

00:00:44,180 --> 00:00:46,440

that a drum, mythenal, and a flang

20

00:00:47,540 --> 00:00:49,240

could send a barrel ballistic...

21

00:00:52,240 --> 00:00:53,780

That thing might explode!

22

00:00:53,780 --> 00:00:55,880

...and turn a go-kart turbo.

23

00:01:00,160 --> 00:01:02,160

Who are the Mythbusters?

24

00:01:03,160 --> 00:01:04,160

Adam Savage

25

00:01:04,160 --> 00:01:06,160

I reject your reality and substitute my own.

26

00:01:06,160 --> 00:01:07,160

And Jamie Heinemann

27

00:01:07,160 --> 00:01:09,160

We're gonna have an adventure.

28

00:01:09,160 --> 00:01:13,160

Between them more than 30 years of special effects experience,

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00:01:13,160 --> 00:01:15,160

together with Tori Belachie

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00:01:15,160 --> 00:01:17,160

Let's torch this thing!

31

00:01:17,160 --> 00:01:18,160

Grant Imahara

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00:01:18,160 --> 00:01:19,160

Save yourselves!

33

00:01:19,160 --> 00:01:20,160

And Carrie Byron

34

00:01:20,160 --> 00:01:22,160

Best job ever!

35

00:01:23,160 --> 00:01:25,160

They don't just tell the myths,

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00:01:26,160 --> 00:01:28,160

they put them to the top.

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00:01:29,160 --> 00:01:30,160

Test.

38

00:01:36,160 --> 00:01:40,160

First up, Adam and Jamie get savvy with a movie myth.

39

00:01:42,160 --> 00:01:43,160

Great. Pirates again.

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00:01:43,160 --> 00:01:44,160

Yes, pirates!

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00:01:44,160 --> 00:01:46,160

What could be the matter with that?

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00:01:46,160 --> 00:01:47,160

Well, what's the story?

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00:01:47,160 --> 00:01:50,160

Alright, the story we're doing this time comes from Pirates of the Caribbean 2.

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00:01:50,160 --> 00:01:52,160

There's this sequence in which our heroes

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00:01:52,160 --> 00:01:54,160

are imprisoned in a cage,

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00:01:54,160 --> 00:01:56,160

sort of like a hamster ball made of bones

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00:01:56,160 --> 00:01:57,160

that's hanging in a ravine.

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00:01:57,160 --> 00:01:58,160

It's quite similar to this toy,

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00:01:58,160 --> 00:01:59,160

released in conjunction with the film.

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00:01:59,160 --> 00:02:01,160

At any rate, they start using their body weight

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00:02:01,160 --> 00:02:04,160

to swing this bone cage over to the side of the cliff

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00:02:04,160 --> 00:02:06,160

and catch onto it, holding onto the vines.

53

00:02:06,160 --> 00:02:09,160

Then they're able to climb the cliff using the vines

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00:02:09,160 --> 00:02:11,160

and engineer their escape.

55

00:02:11,160 --> 00:02:12,160

That's what we've gotta do.

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00:02:12,160 --> 00:02:15,160

You're not gonna be using that pirate voice the whole time, are you?

57

00:02:15,160 --> 00:02:18,160

I don't have to, but I like to.

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00:02:18,160 --> 00:02:20,160

Some of the time at least.

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00:02:21,160 --> 00:02:23,160

By rattling their cage,

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00:02:23,160 --> 00:02:26,160

this band of buccaneers swings to the cliff.

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00:02:26,160 --> 00:02:29,160

But, do the filmic physics check out?

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00:02:29,160 --> 00:02:32,160

Could you really create enough momentum to swing high

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00:02:32,160 --> 00:02:35,160

and then peg-leg it up a precipice?

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00:02:37,160 --> 00:02:38,160

So what's the plan?

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00:02:38,160 --> 00:02:41,160

Well, everything about this story involves the bone cage,

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00:02:41,160 --> 00:02:43,160

so I think we need to start there.

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00:02:43,160 --> 00:02:45,160

And it's gotta be pretty strong,

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00:02:45,160 --> 00:02:47,160

because in the movie it's holding up to six people

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00:02:47,160 --> 00:02:48,160

and I think we should plan for that.

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00:02:48,160 --> 00:02:50,160

And it's gotta be really light,

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00:02:50,160 --> 00:02:52,160

because we're gonna have to haul it up a cliff.

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00:02:52,160 --> 00:02:54,160

Exactly, and it should look like bones.

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00:02:54,160 --> 00:02:55,160

I think we can achieve that.

74

00:02:55,160 --> 00:02:57,160

Let's go downstairs and build it.

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00:02:57,160 --> 00:02:58,160

Alright.

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00:02:58,160 --> 00:03:02,160

Ultimately, the mythbusters will be incarcerated inside a bone cage.

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00:03:02,160 --> 00:03:04,160

Run, Xavi, I'm ready for testing!

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00:03:04,160 --> 00:03:05,160

Whoa!

79

00:03:05,160 --> 00:03:08,160

But first, they've gotta create it.

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00:03:09,160 --> 00:03:10,160

Ta-da!

81

00:03:10,160 --> 00:03:12,160

That is beautiful!

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00:03:12,160 --> 00:03:13,160

105.

83

00:03:13,160 --> 00:03:14,160

Great.

84

00:03:14,160 --> 00:03:17,160

Eight struts are bent and welded together

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00:03:17,160 --> 00:03:19,160

to form a giant pumpkin-like globe.

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00:03:20,160 --> 00:03:22,160

This is our sphere, or at least it will be.

87

00:03:22,160 --> 00:03:24,160

And right now it's kind of flimsy,

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00:03:24,160 --> 00:03:26,160

but by the time we're done with it,

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00:03:26,160 --> 00:03:28,160

we're gonna triangulate all over the place

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00:03:28,160 --> 00:03:31,160

and it'll be kind of like an organic geodesic dome,

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00:03:31,160 --> 00:03:33,160

and it should be quite sturdy.

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00:03:33,160 --> 00:03:35,160

Yep, the latticework of steel supports

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00:03:35,160 --> 00:03:37,160

is welded into place to strengthen the ball.

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00:03:37,160 --> 00:03:39,160

And although it looks simple,

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00:03:39,160 --> 00:03:43,160

it's engineered to ensure that failure is not an option.

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00:03:44,160 --> 00:03:46,160

We've gone with this construction method,

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00:03:46,160 --> 00:03:48,160

the lightweight thin-walled steel tube

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00:03:48,160 --> 00:03:49,160

and washers at every apex

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00:03:49,160 --> 00:03:50,160

to make this thing super strong,

100

00:03:50,160 --> 00:03:53,160

because we're gonna hang six people in it.

101

00:03:53,160 --> 00:03:55,160

We also want it to be as light as possible.

102

00:03:55,160 --> 00:03:58,160

We've gotta try and walk it up the wall at the end.

103

00:03:58,160 --> 00:04:00,160

When I'm evil, overlord,

104

00:04:00,160 --> 00:04:03,160

I will certainly keep my prisoners in something just like this.

105

00:04:03,160 --> 00:04:04,160

And I think we've done it.

106

00:04:04,160 --> 00:04:06,160

But to make sure we're gonna hang it from the ceiling,

107

00:04:06,160 --> 00:04:09,160

Jamie and I are gonna get inside of it and see how we feel,

108

00:04:09,160 --> 00:04:10,160

we're also going to try and swing it

109

00:04:10,160 --> 00:04:12,160

and see if that's remotely possible.

110

00:04:12,160 --> 00:04:14,160

Like a steampunk Cinderella,

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00:04:14,160 --> 00:04:17,160

Adam needs to test out his giant pumpkin

112

00:04:17,160 --> 00:04:19,160

before the pirate ball.

113

00:04:20,160 --> 00:04:21,160

Whoa!

114

00:04:21,160 --> 00:04:23,160

Oh, holy crap.

115

00:04:25,160 --> 00:04:27,160

Yeah, all right, come on in.

116

00:04:27,160 --> 00:04:29,160

This is a crucial proof of concept.

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00:04:30,160 --> 00:04:33,160

Well, it certainly seems like it's supporting us.

118

00:04:33,160 --> 00:04:35,160

And it's so far so good.

119

00:04:35,160 --> 00:04:36,160

And back.

120

00:04:36,160 --> 00:04:38,160

So now, will it swing?

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00:04:38,160 --> 00:04:39,160

Out.

122

00:04:39,160 --> 00:04:41,160

And back.

123

00:04:41,160 --> 00:04:42,160

And out.

124

00:04:42,160 --> 00:04:44,160

It's swinging.

125

00:04:44,160 --> 00:04:45,160

Yeah.

126

00:04:45,160 --> 00:04:46,160

Hey, it's working.

127

00:04:46,160 --> 00:04:48,160

Surprisingly, getting the cage to move

128

00:04:48,160 --> 00:04:50,160

appears to be child's play.

129

00:04:50,160 --> 00:04:53,160

This is like my dream jungle gym when I was 10 years old.

130

00:04:54,160 --> 00:04:55,160

And...

131

00:04:55,160 --> 00:04:58,160

But will it be this easy when they take it full scale?

132

00:04:58,160 --> 00:05:00,160

This isn't bad.

133

00:05:01,160 --> 00:05:04,160

Well, Jamie and I have run our bone cage through enough paces

134

00:05:04,160 --> 00:05:08,160

where we're really confident in it from a mechanical and safety standpoint.

135

00:05:08,160 --> 00:05:10,160

Now the only question is,

136

00:05:10,160 --> 00:05:11,160

it doesn't quite look like a bone cage.

137

00:05:11,160 --> 00:05:14,160

So now we're gonna do a little aestheticizing of it.

138

00:05:14,160 --> 00:05:16,160

Seems like we're spending a lot of time

139

00:05:16,160 --> 00:05:18,160

pulling tape off of rolls these days.

140

00:05:18,160 --> 00:05:20,160

And it's gonna give us some padding

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00:05:20,160 --> 00:05:22,160

so we're not beating our hands against the steel.

142

00:05:22,160 --> 00:05:24,160

And once the cage is padded,

143

00:05:24,160 --> 00:05:26,160

it's time to bone up.

144

00:05:30,160 --> 00:05:34,160

The skulls and crossbones give it that cinematic cannibalistic feel.

145

00:05:34,160 --> 00:05:36,160

Yeah, man, that tells the story.

146

00:05:36,160 --> 00:05:37,160

Yeah.

147

00:05:37,160 --> 00:05:41,160

And before long, the cage is fit for a pirate.

148

00:05:41,160 --> 00:05:42,160

It's done?

149

00:05:42,160 --> 00:05:43,160

It's done.

150

00:05:43,160 --> 00:05:44,160

Can we get it out of here?

151

00:05:44,160 --> 00:05:45,160

Sure.

152

00:05:48,160 --> 00:05:53,160

Okay, so I've got a myth about oil drums, go-karts, and jet fuel.

153

00:05:53,160 --> 00:05:55,160

Gee, sounds like a recipe for disaster to me.

154

00:05:55,160 --> 00:05:56,160

Pretty much.

155

00:05:56,160 --> 00:05:59,160

Okay, this is a myth that comes from some of our European fans.

156

00:05:59,160 --> 00:06:03,160

Apparently this guy was watching a video about whoosh rockets on the Internet.

157

00:06:03,160 --> 00:06:07,160

Oh yeah, those are those things where instead of using water pressure for thrust,

158

00:06:07,160 --> 00:06:09,160

they use jet fuel, right?

159

00:06:09,160 --> 00:06:10,160

Oh!

160

00:06:10,160 --> 00:06:13,160

Yeah, well this guy was watching something like you described,

161

00:06:13,160 --> 00:06:16,160

but he decided he was gonna take it up a notch

162

00:06:16,160 --> 00:06:19,160

by using a 55 gallon oil drum,

163

00:06:19,160 --> 00:06:22,160

strapping it to a go-kart and adding jet fuel.

164

00:06:22,160 --> 00:06:23,160

And don't tell me.

165

00:06:23,160 --> 00:06:26,160

He jumps on, lights it, and goes for the ride of his life.

166

00:06:26,160 --> 00:06:27,160

At crazy speeds.

167

00:06:27,160 --> 00:06:30,160

Well, if this works, I say we all go for a ride, huh?

168

00:06:30,160 --> 00:06:31,160

Of course you do.

169

00:06:31,160 --> 00:06:34,160

The details of this urban life are on the internet.

170

00:06:34,160 --> 00:06:36,160

And the story of the day is that

171

00:06:36,160 --> 00:06:37,160

I'll go for a ride, huh?

172

00:06:37,160 --> 00:06:38,160

Of course you do.

173

00:06:38,160 --> 00:06:42,160

The details of this urban myth are surprisingly precise.

174

00:06:42,160 --> 00:06:47,160

Four gallons of methanol inside a 55 gallon drum plus a flame.

175

00:06:47,160 --> 00:06:49,160

And you'll get the rocket ride of your life.

176

00:06:49,160 --> 00:06:54,160

But is a great neck barrel run realistic, or is this all pot air?

177

00:06:54,160 --> 00:06:57,160

Alright, on the surface, this sounds pretty straight forward to test.

178

00:06:57,160 --> 00:07:00,160

We take a go-kart, strap a 55 gallon drum to it, fill it with fuel,

179

00:07:00,160 --> 00:07:02,160

jump on it, light it, and go.

180

00:07:02,160 --> 00:07:04,160

Or we don't jump on it.

181

00:07:04,160 --> 00:07:07,160

We light it remotely and we stand really far back.

182

00:07:07,160 --> 00:07:08,160

Yeah, that's probably safer.

183

00:07:08,160 --> 00:07:13,160

Now, it's not all that outlandish to think that someone would super size this concept

184

00:07:13,160 --> 00:07:15,160

into a full-size barrel.

185

00:07:15,160 --> 00:07:18,160

Because the whoosh rocket is a fairly common science demonstration.

186

00:07:18,160 --> 00:07:19,160

Let me show you.

187

00:07:19,160 --> 00:07:26,160

Take your methanol, agitate, and ignite.

188

00:07:26,160 --> 00:07:28,160

Just like that.

189

00:07:28,160 --> 00:07:31,160

What happens is that you ignite the vapor inside the bottle.

190

00:07:31,160 --> 00:07:34,160

Those expanding gases push out of the nozzle.

191

00:07:34,160 --> 00:07:38,160

That creates thrust and it sends you right across the parking lot.

192

00:07:40,160 --> 00:07:43,160

But the question is, if you super size those ingredients,

193

00:07:43,160 --> 00:07:47,160

will you get the crazy speeds of the myth?

194

00:07:47,160 --> 00:07:50,160

Okay, yeah, it rolls. This will work.

195

00:07:50,160 --> 00:07:51,160

This will be awesome.

196

00:07:51,160 --> 00:07:55,160

To get the drum rolling, it's off to location.

197

00:07:55,160 --> 00:07:58,160

A jet go-kart with methanol.

198

00:07:58,160 --> 00:08:00,160

I love it.

199

00:08:01,160 --> 00:08:04,160

We've come out to the Alameda County Sheriff's Bomb Range.

200

00:08:04,160 --> 00:08:07,160

So we can test our methanol go-kart.

201

00:08:07,160 --> 00:08:10,160

Which basically requires a 55 gallon drum.

202

00:08:10,160 --> 00:08:12,160

Oh, eee.

203

00:08:12,160 --> 00:08:13,160

So it rolls.

204

00:08:13,160 --> 00:08:19,160

Fashioned like a go-kart and powered with four gallons of methanol as per the myth.

205

00:08:19,160 --> 00:08:22,160

I'm really curious to see if this is going to shoot down the road

206

00:08:22,160 --> 00:08:25,160

or possibly just blow up into a million pieces.

207

00:08:25,160 --> 00:08:27,160

Don't worry, this ain't going to hurt a bit.

208

00:08:27,160 --> 00:08:30,160

With a risk-taking rider strapped on,

209

00:08:30,160 --> 00:08:33,160

it's time to add the mythical methanol to the mix.

210

00:08:34,160 --> 00:08:36,160

Alright, that's four gallons.

211

00:08:36,160 --> 00:08:38,160

Let's agitate it a little bit.

212

00:08:38,160 --> 00:08:41,160

Just like the mini-wush rocket, the fuel needs a notch.

213

00:08:41,160 --> 00:08:43,160

Looks like you've done this before.

214

00:08:43,160 --> 00:08:45,160

Agitate? Yes.

215

00:08:45,160 --> 00:08:48,160

To create a potentially explosive mix through the air.

216

00:08:48,160 --> 00:08:49,160

Cool.

217

00:08:49,160 --> 00:08:52,160

Finally, Grant fits a flare to a remote control car

218

00:08:52,160 --> 00:08:56,160

to trigger ignition and possibly send the barrel rocketing.

219

00:08:57,160 --> 00:08:59,160

Alright, here we go.

220

00:08:59,160 --> 00:09:01,160

This is barrel go-kart.

221

00:09:01,160 --> 00:09:03,160

In three, two, one.

222

00:09:08,160 --> 00:09:09,160

We have achieved the hole.

223

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

The fire is in the hole.

224

00:09:11,160 --> 00:09:13,160

Doesn't it look like it's going in the hole?

225

00:09:13,160 --> 00:09:15,160

Yeah, like a ignition.

226

00:09:15,160 --> 00:09:17,160

Fire in the hole!

227

00:09:17,160 --> 00:09:19,160

I think it's in the hole there.

228

00:09:19,160 --> 00:09:20,160

Yeah.

229

00:09:20,160 --> 00:09:21,160

Yeah.

230

00:09:21,160 --> 00:09:25,160

Unlike the myth, the flare doesn't ignite the fuel and the cart goes nowhere.

231

00:09:25,160 --> 00:09:28,160

That was anticlimactic.

232

00:09:28,160 --> 00:09:30,160

Anticlimactic is an understatement.

233

00:09:30,160 --> 00:09:32,160

The car may be on fire.

234

00:09:32,160 --> 00:09:34,160

But if at first you don't succeed...

235

00:09:34,160 --> 00:09:39,160

Maybe the guy in the myth just got lucky and had the right air to fuel ratio

236

00:09:39,160 --> 00:09:42,160

so that way when he did introduce the flame, it took off flying.

237

00:09:42,160 --> 00:09:43,160

There you go.

238

00:09:43,160 --> 00:09:44,160

So we're going to reset this time.

239

00:09:44,160 --> 00:09:46,160

We're going to agitate the barrel a little bit longer

240

00:09:46,160 --> 00:09:49,160

and we're going to put the flare inside the barrel.

241

00:09:49,160 --> 00:09:51,160

It gives a whole new me fire in the hole, doesn't it?

242

00:09:51,160 --> 00:09:54,160

Hopefully this time we'll get enough thrust

243

00:09:54,160 --> 00:09:56,160

and this thing gets fired up.

244

00:09:56,160 --> 00:10:00,160

In theory, more agitation should mean a more explosive mix of fuel and air.

245

00:10:00,160 --> 00:10:03,160

But will it get them a rocket barrel?

246

00:10:03,160 --> 00:10:07,160

Fire in the hole in three, two, one...

247

00:10:07,160 --> 00:10:09,160

Hey!

248

00:10:09,160 --> 00:10:11,160

There's a little bit of air still!

249

00:10:11,160 --> 00:10:13,160

It's still going!

250

00:10:13,160 --> 00:10:15,160

It's still going!

251

00:10:15,160 --> 00:10:20,160

Push the barrel out and it actually ran up the road a little.

252

00:10:20,160 --> 00:10:23,160

It's not going to beat any land speed records.

253

00:10:23,160 --> 00:10:27,160

But the team has not even scraped the bottom of this ballistic barrel.

254

00:10:27,160 --> 00:10:29,160

You know what I'd like to see now?

255

00:10:29,160 --> 00:10:33,160

I think we should take this to small scale and find out if we have the perfect amount of fuel,

256

00:10:33,160 --> 00:10:36,160

maybe less, maybe more, if we can actually get enough thrust to make the go-kart go.

257

00:10:36,160 --> 00:10:39,160

Alright, so back to the shop, back to the shop.

258

00:10:39,160 --> 00:10:40,160

Coming up...

259

00:10:40,160 --> 00:10:42,160

We got a boat tank full of pirates!

260

00:10:42,160 --> 00:10:45,160

We're going to do some scientific experiments on them.

261

00:10:45,160 --> 00:10:48,160

And later...

262

00:10:48,160 --> 00:10:52,160

This thing is going to be insane.

263

00:10:54,160 --> 00:11:01,160

At the end of their road, six scurvy dogs sway themselves to freedom.

264

00:11:01,160 --> 00:11:05,160

But is this daring, filmic feat a swing and a myth?

265

00:11:05,160 --> 00:11:09,160

To find out, Adam and Jamie have picked their bones.

266

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

So now to get them suspended.

267

00:11:11,160 --> 00:11:14,160

If we're going to test this ball of bones swing from the Pirates of the Caribbean,

268

00:11:14,160 --> 00:11:16,160

we're going to need a big cliff.

269

00:11:16,160 --> 00:11:18,160

Found one!

270

00:11:18,160 --> 00:11:20,160

That ought to do.

271

00:11:20,160 --> 00:11:23,160

I'm standing in the fire training tower of the Santa Rosa Fire Department.

272

00:11:23,160 --> 00:11:27,160

This is a building they repeatedly set on fire and then put out.

273

00:11:27,160 --> 00:11:35,160

It's 75 feet tall and it makes a perfect, configurable cliff face for our swinging bone cage experiments.

274

00:11:35,160 --> 00:11:36,160

What's next?

275

00:11:36,160 --> 00:11:38,160

Well, this is about pirates, isn't it?

276

00:11:38,160 --> 00:11:39,160

Yeah.

277

00:11:39,160 --> 00:11:41,160

I don't see any pirate costume.

278

00:11:41,160 --> 00:11:43,160

Oh, you little faith.

279

00:11:43,160 --> 00:11:45,160

Give me a second.

280

00:11:45,160 --> 00:11:48,160

Alright, Jamie, I'm ready for testing.

281

00:11:48,160 --> 00:11:50,160

What, no gold teeth?

282

00:11:50,160 --> 00:11:52,160

Oh, crap, I forgot about that part.

283

00:11:52,160 --> 00:11:54,160

Right, let's get in!

284

00:11:54,160 --> 00:11:55,160

Okay.

285

00:11:55,160 --> 00:11:59,160

Well, you want to try your swing thing like we did in the shop with just our legs dangling through?

286

00:11:59,160 --> 00:12:00,160

Yeah.

287

00:12:00,160 --> 00:12:01,160

Alright.

288

00:12:01,160 --> 00:12:02,160

Ready?

289

00:12:02,160 --> 00:12:03,160

Yeah.

290

00:12:03,160 --> 00:12:04,160

Okay.

291

00:12:04,160 --> 00:12:07,160

Freshly imprisoned, the scurvy dogs try to strike up some momentum.

292

00:12:07,160 --> 00:12:12,160

This is without a doubt the strangest dance we've ever done.

293

00:12:12,160 --> 00:12:17,160

By moving back and forth, they should create enough push to get to the wall.

294

00:12:17,160 --> 00:12:18,160

Come on.

295

00:12:18,160 --> 00:12:20,160

Come on.

296

00:12:20,160 --> 00:12:23,160

But unlike their success in the shop, they're not budging.

297

00:12:23,160 --> 00:12:25,160

I have an idea.

298

00:12:25,160 --> 00:12:28,160

So they change tactics to the standing swing.

299

00:12:28,160 --> 00:12:29,160

Whoa!

300

00:12:29,160 --> 00:12:33,160

Oh, I almost lost me at.

301

00:12:33,160 --> 00:12:35,160

That would have been ugly.

302

00:12:35,160 --> 00:12:37,160

Grab my arm like this.

303

00:12:37,160 --> 00:12:43,160

Now, what if I went like this and then you came like that and let go over there?

304

00:12:43,160 --> 00:12:49,160

In theory, to get the bone cage swinging, Adam and Jamie need to raise and lower the center

305

00:12:49,160 --> 00:12:52,160

of gravity of the ball by using their own mask.

306

00:12:52,160 --> 00:12:53,160

Come on.

307

00:12:53,160 --> 00:12:57,160

We don't seem to be moving at all.

308

00:12:57,160 --> 00:12:59,160

We're pushing in the right direction.

309

00:12:59,160 --> 00:13:01,160

This is not work.

310

00:13:01,160 --> 00:13:07,160

However, so far, no matter how they throw their weight around, it's not enough to get a significant swing.

311

00:13:07,160 --> 00:13:10,160

Adam even tries thinking outside the cage.

312

00:13:10,160 --> 00:13:12,160

That's more promising.

313

00:13:13,160 --> 00:13:16,160

But cheating still doesn't get the ball right.

314

00:13:16,160 --> 00:13:18,160

I'm not sure, Jamie.

315

00:13:18,160 --> 00:13:22,160

We seem to have a lot more luck in the shop than we are here, and I thought it would be easier on the longer arm.

316

00:13:22,160 --> 00:13:25,160

Yeah, it seems like it might actually be harder.

317

00:13:25,160 --> 00:13:26,160

It does.

318

00:13:26,160 --> 00:13:29,160

And the lack of swing isn't the only problem.

319

00:13:29,160 --> 00:13:31,160

I think I'm going to throw up.

320

00:13:31,160 --> 00:13:32,160

Uh-oh.

321

00:13:32,160 --> 00:13:35,160

I'm having a kind of a powerful, nauseous reaction.

322

00:13:35,160 --> 00:13:36,160

Well, why don't you hop out?

323

00:13:36,160 --> 00:13:37,160

Yeah.

324

00:13:37,160 --> 00:13:43,160

With Adam benched from ball cage duty, it's over to Jamie to swing solo.

325

00:13:43,160 --> 00:13:45,160

Well, Adam threw in the towel.

326

00:13:45,160 --> 00:13:48,160

He got a little seasick, I guess.

327

00:13:48,160 --> 00:13:52,160

So I'm going to see if I can do anything by myself.

328

00:13:52,160 --> 00:13:57,160

The idea being that if you remove the variables, maybe you can figure out what actually makes this thing work.

329

00:13:57,160 --> 00:14:01,160

Adam being a variable, which he usually is.

330

00:14:01,160 --> 00:14:08,160

And although Jamie experiments with a variety of techniques, the problem remains the same.

331

00:14:08,160 --> 00:14:15,160

I don't seem to be having a lot of luck getting this thing to swing from a dead stop, but then it weighs more than I do.

332

00:14:15,160 --> 00:14:20,160

So maybe the problem is that there's not enough mass moving around to dominate what it does.

333

00:14:20,160 --> 00:14:27,160

In the movie, after all, they had a number of people doing this, and so maybe that's what we need to do.

334

00:14:27,160 --> 00:14:32,160

Maybe because although the dimensions match the movie, their mass doesn't.

335

00:14:32,160 --> 00:14:33,160

What's next?

336

00:14:33,160 --> 00:14:35,160

Next is more bodies.

337

00:14:35,160 --> 00:14:39,160

More bodies! More bodies!

338

00:14:42,160 --> 00:14:53,160

Inspired by the Internet, supposedly this drum daredevil filled his barrel go-kart with fuel, lit a match, and took off at incredible speeds.

339

00:14:53,160 --> 00:14:57,160

But so far, getting that rocket-powered rush...

340

00:14:57,160 --> 00:14:59,160

That's kind of anticlimactic.

341

00:14:59,160 --> 00:15:02,160

...hasn't been that easy.

342

00:15:02,160 --> 00:15:11,160

So the mythbusters have come back to the shop to replicate the barrel rodeo in small scale and test the parameters one by one.

343

00:15:11,160 --> 00:15:12,160

Yee-haw!

344

00:15:12,160 --> 00:15:16,160

Starting with fuel, how much methanol gets optimal thrust?

345

00:15:16,160 --> 00:15:18,160

Let's agitate it a little bit.

346

00:15:18,160 --> 00:15:22,160

First off, they're trying the same ratio as the myth, 7%.

347

00:15:22,160 --> 00:15:24,160

Fully agitated.

348

00:15:24,160 --> 00:15:25,160

Here we go.

349

00:15:25,160 --> 00:15:27,160

In three, two, one...

350

00:15:29,160 --> 00:15:30,160

Yee-haw!

351

00:15:30,160 --> 00:15:31,160

We got some thrust!

352

00:15:32,160 --> 00:15:39,160

Just like the range test, 7% didn't send the cart far, but will having the fuel change that.

353

00:15:39,160 --> 00:15:43,160

Alright, 3.5%. Here we go in three, two, one...

354

00:15:45,160 --> 00:15:46,160

Ooh!

355

00:15:46,160 --> 00:15:47,160

We got about the same.

356

00:15:47,160 --> 00:15:48,160

Yeah, not much difference.

357

00:15:49,160 --> 00:15:55,160

3.5% gives them the same result, so they take the fuel ratio all the way down.

358

00:15:55,160 --> 00:16:01,160

Now in the past, when we've used gases to create some sort of thrust like propane rocket,

359

00:16:01,160 --> 00:16:06,160

we found that once we got down to just fumes and used just a little bit of fuel,

360

00:16:06,160 --> 00:16:08,160

we actually got a lot of thrust.

361

00:16:08,160 --> 00:16:15,160

So I expect the less fuel we use, the more fumes, and we're actually going to see this rocket shoot down the track.

362

00:16:15,160 --> 00:16:17,160

In three, two, one...

363

00:16:19,160 --> 00:16:20,160

Oh!

364

00:16:20,160 --> 00:16:25,160

Alright, well, it went about two feet, so we got some thrust.

365

00:16:25,160 --> 00:16:29,160

The good news is that less than 1% doubled the thrust.

366

00:16:29,160 --> 00:16:33,160

The bad news is that it was still more of a putter than a projectile.

367

00:16:33,160 --> 00:16:38,160

No matter what kind of air to fuel ratio we're coming up with, this thing is not rocketing like the myth talks about.

368

00:16:38,160 --> 00:16:44,160

I don't really want to stop here. I want to see a rocket go-kart. I mean, can't we make some modifications?

369

00:16:44,160 --> 00:16:46,160

Let's try some stuff and see what happens.

370

00:16:46,160 --> 00:16:47,160

I like it.

371

00:16:47,160 --> 00:16:55,160

Although the myth clearly states that the barrel was unmodified, to give this rocket a fighting chance, it's time to bend the rules.

372

00:16:55,160 --> 00:17:00,160

And bend number one is to transform the liquid fuel into that flammable fuel vapor.

373

00:17:00,160 --> 00:17:04,160

We're going to try a new technique of agitating the methanol using air.

374

00:17:04,160 --> 00:17:09,160

Now that's going to do two things. It's going to introduce more oxygen and it's going to create more fumes.

375

00:17:09,160 --> 00:17:12,160

Hopefully that combination will give us more thrust.

376

00:17:12,160 --> 00:17:16,160

But that's not the only modification the guys have in mind.

377

00:17:16,160 --> 00:17:21,160

We're going to add a nozzle. This should accelerate the escaping gases and give us more thrust.

378

00:17:21,160 --> 00:17:27,160

With a built-in agitator and thrust focusing nozzle, will this mini barrel go ballistic?

379

00:17:27,160 --> 00:17:29,160

Alright, here we go. Bubbling up.

380

00:17:30,160 --> 00:17:33,160

At 5 psi.

381

00:17:35,160 --> 00:17:36,160

Hit it again!

382

00:17:37,160 --> 00:17:39,160

Yeah, that nozzle's great.

383

00:17:39,160 --> 00:17:42,160

It's a thrust in the right direction for the barrel.

384

00:17:43,160 --> 00:17:46,160

The modifications triple the distance.

385

00:17:48,160 --> 00:17:55,160

The only problem is after making it down the track in three blasts, it sets everything on fire.

386

00:18:03,160 --> 00:18:07,160

Luckily the safety officer is on hand to defuse the situation.

387

00:18:08,160 --> 00:18:10,160

Well that was exciting.

388

00:18:12,160 --> 00:18:17,160

That thing could have kept going if the track hadn't caught on fire and everything got really

dangerous.

389

00:18:17,160 --> 00:18:20,160

Dangerous? Yes, but also a good start.

390

00:18:20,160 --> 00:18:25,160

So now the team can focus on making their mods safer and more efficient.

391

00:18:25,160 --> 00:18:32,160

Now my theory is that we're losing a lot of energy as the expanding gases have to turn this height corner and then come out of the nozzle.

392

00:18:32,160 --> 00:18:37,160

So what I'm going to try is to make a funnel shape and relocate the bunghole to the center.

393

00:18:37,160 --> 00:18:43,160

That way the gases can expand, smoothly accelerate and then come out the nozzle for even more thrust.

394

00:18:43,160 --> 00:18:50,160

And while Grant is working on a more efficient nozzle, Tori's injecting some oomph into the fuel

injection.

395

00:18:50,160 --> 00:18:53,160

This is what's going to be going on inside the barrel.

396

00:18:53,160 --> 00:18:58,160

Now originally we had the fuel in the bottom of the barrel and we pumped air through it creating vapors.

397

00:18:58,160 --> 00:19:04,160

But I thought it would be kind of cool if we introduced the fuel through an auto body spray gun.

398

00:19:04,160 --> 00:19:09,160

That way we're getting air and we're atomizing the methanol making it much easier to ignite.

399

00:19:09,160 --> 00:19:14,160

After optimizing the design, the barrel go-kart is rolled out once again.

400

00:19:14,160 --> 00:19:22,160

Okay, this is longer nozzle with aerated fuel and cone. Here we go, 3, 2, 1.

401

00:19:23,160 --> 00:19:26,160

Oh! Yeah!

402

00:19:28,160 --> 00:19:35,160

Amazingly the combination of nozzle and aerated fuel propels the barrel 15 feet down the track.

403

00:19:35,160 --> 00:19:39,160

We got some serious distance. I think it's time we take this full scale.

404

00:19:39,160 --> 00:19:41,160

Yeah, I think that is the winning combo.

405

00:19:41,160 --> 00:19:45,160

Oh yeah, we got the long nozzle, the aeration, the crazy cone shape.

406

00:19:45,160 --> 00:19:47,160

This is going to be so cool. We get a larger scale.

407

00:19:47,160 --> 00:19:49,160

I think this is going to work.

408

00:19:49,160 --> 00:19:52,160

How are we going to stop it? That's the question.

409

00:19:52,160 --> 00:20:00,160

After a lot of testing and several new improvements, we've gone from our simple barrel go-kart to this crazy thing here.

410

00:20:00,160 --> 00:20:10,160

We actually added a nozzle, a cone shape and an aeration system for the fuel so that we can propel this little dude down the track 15 times the length of our go-kart.

411

00:20:10,160 --> 00:20:15,160

I think when we take this to full scale we've got a really good chance it's a really sick thrust.

412

00:20:20,160 --> 00:20:29,160

Swing it. It's so easy even a dog can do it.

413

00:20:29,160 --> 00:20:31,160

Come on.

414

00:20:31,160 --> 00:20:34,160

But that's not the case for our scurvy dogs.

415

00:20:34,160 --> 00:20:36,160

I think I'm going to throw up.

416

00:20:36,160 --> 00:20:40,160

Which is why the mythbusters have drafted some help into service.

417

00:20:41,160 --> 00:20:47,160

Well, we've assembled a new crew to escape from the bow tags.

418

00:20:47,160 --> 00:20:52,160

They've got over 53 years of circus experience among them.

419

00:20:52,160 --> 00:20:58,160

The life, the limbo, the scurvy dogs and they're ready to help us get swinging.

420

00:20:58,160 --> 00:21:02,160

Earlier, Adam and Jamie were a few-mate short of a 34-foot swing.

421

00:21:02,160 --> 00:21:04,160

Come on up and try it after size.

422

00:21:04,160 --> 00:21:11,160

But now with four trapeze professionals and two mythbusters, they've got the six-man crew of the film.

423

00:21:11,160 --> 00:21:14,160

The pirate posse start with the movie method.

424

00:21:14,160 --> 00:21:15,160

Go.

425

00:21:15,160 --> 00:21:16,160

You all right?

426

00:21:16,160 --> 00:21:18,160

Yep. I got knee pads.

427

00:21:18,160 --> 00:21:21,160

But that technique doesn't seem to have legs.

428

00:21:21,160 --> 00:21:22,160

You okay?

429

00:21:22,160 --> 00:21:23,160

Yep.

430

00:21:23,160 --> 00:21:24,160

All right.

431

00:21:24,160 --> 00:21:26,160

Ready? One more time. Let's go back.

432

00:21:26,160 --> 00:21:27,160

Go up.

433

00:21:27,160 --> 00:21:28,160

All right.

434

00:21:28,160 --> 00:21:29,160

All right.

435

00:21:29,160 --> 00:21:33,160

So the movie technique of running from side to side is totally not working here.

436

00:21:33,160 --> 00:21:37,160

First of all, we can't do it in unison and we keep falling through the holes.

437

00:21:37,160 --> 00:21:40,160

So it's not very safe and not very effective.

438

00:21:40,160 --> 00:21:43,160

But we do know that in order to get this thing moving,

439

00:21:43,160 --> 00:21:46,160

we need to concentrate our efforts on changing the center of mass.

440

00:21:46,160 --> 00:21:52,160

Like a kid on a swing, we need to raise the center on the upswing and lower it on the downswing.

441

00:21:52,160 --> 00:21:57,160

That way, we might just be able to build the momentum we need to get the distance we want.

442

00:21:57,160 --> 00:21:58,160

Yep.

443

00:21:58,160 --> 00:22:02,160

And to get to grips with that center of mass, they enlist a tie strap.

444

00:22:02,160 --> 00:22:03,160

Push.

445

00:22:03,160 --> 00:22:04,160

Yeah.

446

00:22:04,160 --> 00:22:08,160

Creating a coordinated rhythm, either side of the center of gravity.

447

00:22:08,160 --> 00:22:09,160

Hey.

448

00:22:09,160 --> 00:22:11,160

That seems to get them swinging.

449

00:22:11,160 --> 00:22:12,160

Weed.

450

00:22:12,160 --> 00:22:14,160

Where does it work out ever?

451

00:22:14,160 --> 00:22:15,160

Push in his.

452

00:22:15,160 --> 00:22:16,160

Push.

453

00:22:16,160 --> 00:22:23,160

But after over 40 minutes of the old Eve hoe, they're nowhere near the cliff.

454

00:22:23,160 --> 00:22:26,160

At this point, we've had some success, but eventually we lose the battle.

455

00:22:27,160 --> 00:22:34,160

The cable and the sphere seem to be absorbing all of our energy into flexing and twisting

456

00:22:34,160 --> 00:22:40,160

and bobbing around instead of letting us focus it in one specific direction for the swing.

457

00:22:40,160 --> 00:22:44,160

So the only thing that we can think of to do is to shorten the cable.

458

00:22:44,160 --> 00:22:46,160

Hopefully that'll get us where we want to go.

459

00:22:46,160 --> 00:22:52,160

Shortening the cable makes the change to the center of gravity in comparison to the length larger

460

00:22:52,160 --> 00:22:54,160

and should amplify the swing.

461

00:22:54,160 --> 00:22:55,160

But will it be enough?

462

00:22:55,160 --> 00:22:56,160

Right.

463

00:22:56,160 --> 00:22:57,160

Short of cable.

464

00:22:57,160 --> 00:22:58,160

See if it swings.

465

00:22:58,160 --> 00:22:59,160

Push it.

466

00:22:59,160 --> 00:23:00,160

Push it.

467

00:23:00,160 --> 00:23:01,160

Push it.

468

00:23:01,160 --> 00:23:04,160

Initially, it seems that building up power is easier.

469

00:23:04,160 --> 00:23:05,160

Push.

470

00:23:05,160 --> 00:23:07,160

Oh, it seems to be working.

471

00:23:07,160 --> 00:23:08,160

Yeah.

472

00:23:08,160 --> 00:23:09,160

Then.

473

00:23:09,160 --> 00:23:10,160

That's it.

474

00:23:10,160 --> 00:23:11,160

You scurry dog swing.

475

00:23:11,160 --> 00:23:12,160

Then.

476

00:23:12,160 --> 00:23:18,160

But after another hour of effort, it's clear that they are sustaining rather than gaining

477

00:23:18,160 --> 00:23:19,160

momentum.

478

00:23:19,160 --> 00:23:20,160

Any higher?

479

00:23:20,160 --> 00:23:21,160

No.

480

00:23:21,160 --> 00:23:24,160

Guys, that was a fantastic effort.

481

00:23:24,160 --> 00:23:26,660

I feel like we're just not going to get that thing swinging.

482

00:23:26,660 --> 00:23:30,160

So it's just not your average strappy swing with this big, heavy cage to try to move it.

483

00:23:30,160 --> 00:23:31,160

It's just not possible.

484

00:23:31,160 --> 00:23:33,160

Yeah, and it's not going to get any lighter than that.

485

00:23:33,160 --> 00:23:34,160

No.

486

00:23:34,160 --> 00:23:37,160

If we can't make it work with these guys, we can't make it work.

487

00:23:37,160 --> 00:23:41,160

I think it's safe to say that swinging a bone cage with six people from inside is busted.

488

00:23:41,160 --> 00:23:42,160

It's busted.

489

00:23:42,160 --> 00:23:43,160

Busted.

490

00:23:43,160 --> 00:23:44,160

Busted.

491

00:23:44,160 --> 00:23:53,160

But there's still more pirate pandemonium to come.

492

00:23:53,160 --> 00:23:58,160

Everyone knows things are better when they're turbocharged.

493

00:23:58,160 --> 00:24:00,160

Three, two, one.

494

00:24:00,160 --> 00:24:05,160

But the Mythbusters first ballistic barrel was anything but.

495

00:24:05,160 --> 00:24:07,160

And nothing's happening.

496

00:24:07,160 --> 00:24:14,320

However, after a few small scale modifications, they've upped the thrust and they're ready

497

00:24:14,320 --> 00:24:17,160

to take this myth full scale.

498

00:24:17,160 --> 00:24:22,160

So now with our modifications and small scale, we've gotten our go-kart to rocket across

499

00:24:22,160 --> 00:24:23,160

the shop.

500

00:24:23,160 --> 00:24:28,160

But our design has evolved from a whoosh rocket into what's called a pulse jet.

501

00:24:28,160 --> 00:24:33,160

We know that a whoosh rocket ignites fuel in a chamber and the gases expand to create

502

00:24:33,160 --> 00:24:34,160

thrust.

503

00:24:34,160 --> 00:24:37,160

But after one big burst, it's pretty much over.

504

00:24:37,160 --> 00:24:41,160

The difference with the pulse jet is that the thrust is continuous.

505

00:24:41,160 --> 00:24:45,160

The escaping gases create an air of low pressure inside the chamber.

506

00:24:45,160 --> 00:24:50,160

Air is then sucked in to build a gap and starts to combustion again so that the cycle of thrust

507

00:24:50,160 --> 00:24:54,160

will repeat as long as there's fuel in a source of ignition.

508

00:24:54,160 --> 00:24:59,160

Indeed, but to supersize their pulse jet go-kart, there's a lot to do, starting with

509

00:24:59,160 --> 00:25:01,160

portable fuel injection.

510

00:25:01,160 --> 00:25:04,160

Now for this to work, we need constant air entering the barrel.

511

00:25:04,160 --> 00:25:08,160

So to make it portable, I'm going to use a scuba tank.

512

00:25:08,160 --> 00:25:11,160

The air pressure coming out of here is 3000 psi.

513

00:25:11,160 --> 00:25:17,160

I need to get it down to 100 psi so that it actually pump fuel through our spray gun.

514

00:25:17,160 --> 00:25:21,160

So what I'm going to do is take this old regulator, put it through this regulator,

515

00:25:21,160 --> 00:25:26,160

and hopefully get it down to a safe enough pressure so we get the fuel injection into the barrel

516

00:25:26,160 --> 00:25:28,160

and this thing gets fired up.

517

00:25:28,160 --> 00:25:31,160

We're about to go diving into science.

518

00:25:31,160 --> 00:25:36,160

Come along for the journey.

519

00:25:36,160 --> 00:25:38,160

We have portable air.

520

00:25:38,160 --> 00:25:44,160

With the fuel injection invention sorted, Cary gets on a roll with the go-kart.

521

00:25:44,160 --> 00:25:46,160

I'm designing the cart.

522

00:25:46,160 --> 00:25:50,160

Now I want this to roll really, really easily so that all the thrusts make it shoot down the runway.

523

00:25:50,160 --> 00:25:54,160

To do that, I'm going to use tires from a bicycle.

524

00:25:54,160 --> 00:25:58,160

I figured that has a low rolling resistance and it will be a lot easier to just push it.

525

00:25:58,160 --> 00:26:02,160

Now I also want to make the cart really lightweight so I'm going to use a minimal amount of material

526

00:26:02,160 --> 00:26:07,160

to try to create a cart that actually will have no problem turning into a rocket.

527

00:26:07,160 --> 00:26:13,160

Cary's streamlined the design, but the main element of turning the go-kart rocket is the back end.

528

00:26:13,160 --> 00:26:16,160

And given the success of the cone of the longer nozzle and small scale,

529

00:26:16,160 --> 00:26:20,160

we're going to do exactly the same thing in large scale.

530

00:26:20,160 --> 00:26:23,160

Looks like a doughnut now, but soon it'll be a cone.

531

00:26:23,160 --> 00:26:29,160

And while Grant gets bent out of shape, Torry creates the nozzle.

532

00:26:29,160 --> 00:26:32,160

That's one big nozzle.

533

00:26:32,160 --> 00:26:38,160

With the nozzle and cone complete and the barrel on board, Cary decides to add a little personality.

534

00:26:44,160 --> 00:26:46,160

Demon dog.

535

00:26:48,160 --> 00:26:51,160

Drumroll, please.

536

00:26:51,160 --> 00:26:57,160

Meet the rolling drum rocket or the Mythbusters pulse jet go-kart.

537

00:26:57,160 --> 00:26:59,160

Oh my god, that is insanity.

538

00:26:59,160 --> 00:27:01,160

You know one thing we forgot?

539

00:27:01,160 --> 00:27:02,160

What?

540

00:27:02,160 --> 00:27:03,160

Brakes.

541

00:27:03,160 --> 00:27:05,160

Where we're going, we don't need brakes.

542

00:27:05,160 --> 00:27:06,160

Coming up on Mythbusters!

543

00:27:06,160 --> 00:27:08,160

Can you make a go-kart out of a barrel?

544

00:27:08,160 --> 00:27:11,160

You're not going to want to miss this!

545

00:27:14,160 --> 00:27:20,160

At Alameda, the team has arrived locked stock and pulse jet barrel.

546

00:27:20,160 --> 00:27:23,160

You know, after that first test, I really didn't think this had much promise,

547

00:27:23,160 --> 00:27:26,160

but after building this thing, I cannot wait to see what it does.

548

00:27:26,160 --> 00:27:29,160

Oh come on, this is Mythbusters. You knew how this was going to end.

549

00:27:29,160 --> 00:27:32,160

It's either going to explode or it's going to zoom down the runway.

550

00:27:32,160 --> 00:27:35,160

That's the plan and the team is feeling optimistic.

551

00:27:35,160 --> 00:27:39,160

After going through our small scale tests, coming up with modifications to give us more thrust,

552

00:27:39,160 --> 00:27:43,160

and then finally getting to this stage where we have this crazy vehicle,

553

00:27:43,160 --> 00:27:47,160

I think we have a very good chance of replicating the results today.

554

00:27:47,160 --> 00:27:50,160

Just like last time, the kart gets an uneasy rider.

555

00:27:50,160 --> 00:27:54,160

Those eyes are creeping me out. I'm going to make them look a little scary.

556

00:27:57,160 --> 00:27:58,160

Nice touch.

557

00:27:58,160 --> 00:28:01,160

Oh, that's perfect because it wasn't weird enough.

558

00:28:02,160 --> 00:28:05,160

With the rider on board and the fuel fueled.

559

00:28:05,160 --> 00:28:07,160

Alright, let's light them up.

560

00:28:07,160 --> 00:28:10,160

Tori takes care of their sophisticated ignition system.

561

00:28:10,160 --> 00:28:11,160

Right!

562

00:28:11,160 --> 00:28:14,160

Lighting the blow torch and running for it.

563

00:28:14,160 --> 00:28:15,160

Yeah!

564

00:28:15,160 --> 00:28:16,160

Here we go.

565

00:28:16,160 --> 00:28:17,160

Fire it!

566

00:28:17,160 --> 00:28:18,160

One, two, one.

567

00:28:18,160 --> 00:28:19,160

Yeah!

568

00:28:20,160 --> 00:28:21,160

Hey!

569

00:28:21,160 --> 00:28:23,160

We got some thrust!

570

00:28:23,160 --> 00:28:24,160

Look at that!

571

00:28:24,160 --> 00:28:26,160

Yeah, it's working!

572

00:28:27,160 --> 00:28:29,160

Do you think it'll just keep adding speed in that speed?

573

00:28:29,160 --> 00:28:31,160

It's starting to pick up speed.

574

00:28:31,160 --> 00:28:32,160

Come on!

575

00:28:33,160 --> 00:28:34,160

Yeah!

576

00:28:35,160 --> 00:28:38,160

Alright, it's not the fastest vehicle in the world, but it's working.

577

00:28:38,160 --> 00:28:39,160

That's not bad!

578

00:28:39,160 --> 00:28:41,160

It's getting it down the runway.

579

00:28:43,160 --> 00:28:47,160

The pulse jet is pulsing, but it's not the maximum thrust they'd hoped for.

580

00:28:47,160 --> 00:28:50,160

I don't know about you, but I have traded in my car for this.

581

00:28:50,160 --> 00:28:53,160

We are just not getting the thrust that we expected.

582

00:28:53,160 --> 00:28:58,160

If you look at the initial pulse, you'll see it's not like a whaa, it's like a poof.

583

00:28:59,160 --> 00:29:03,160

Now what we think is happening is that some things just don't scale up.

584

00:29:03,160 --> 00:29:08,160

This larger diameter nozzle and this cone, they're in scale with the small scale, but

585

00:29:08,160 --> 00:29:13,160

when we moved up to the bigger barrel, we didn't necessarily get a bigger explosion.

586

00:29:13,160 --> 00:29:18,160

And so we think some of that energy is being lost in this large diameter.

587

00:29:18,160 --> 00:29:20,160

It's allowing too much gas to escape.

588

00:29:20,160 --> 00:29:26,160

So what we need to do is go back to the shop, cut this off, and put a smaller diameter nozzle on it.

589

00:29:26,160 --> 00:29:30,160

And see if that holds more gas in, and from that, we'll get more thrust.

590

00:29:30,160 --> 00:29:33,160

The mythbusters have the technology, and quick as a flash,

591

00:29:33,160 --> 00:29:34,160

Gorgeous.

592

00:29:34,160 --> 00:29:36,160

Bang, just like that.

593

00:29:36,160 --> 00:29:38,160

They have rebuilt it.

594

00:29:39,160 --> 00:29:45,160

Back at the runway, the question is, will the smaller nozzle on their pulse jet get them rocketing?

595

00:29:45,160 --> 00:29:47,160

Alright, firing the hole.

596

00:29:50,160 --> 00:29:55,160

Here we go, three, two, one, ignition.

597

00:29:56,160 --> 00:29:58,160

Oh, we already got some movement.

598

00:29:58,160 --> 00:30:00,160

Alright, it's a good sign.

599

00:30:00,160 --> 00:30:04,160

It's a good sign, and it is more thrust than previous tests.

600

00:30:08,160 --> 00:30:09,160

But only marginally.

601

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

That is hysterical.

602

00:30:11,160 --> 00:30:12,160

Indurable.

603

00:30:12,160 --> 00:30:14,160

It is adorable, really.

604

00:30:14,160 --> 00:30:16,160

Look out, people.

605

00:30:16,160 --> 00:30:18,160

It's coming through.

606

00:30:18,160 --> 00:30:21,160

I was worried about how we were going to stop it.

607

00:30:21,160 --> 00:30:26,160

And after the slowest fence collision on record, the cart is spent.

608

00:30:28,160 --> 00:30:31,160

That was hilarious.

609

00:30:32,160 --> 00:30:34,160

We get this is the best possible chance of working.

610

00:30:34,160 --> 00:30:40,160

We had a fuel injection system, low rolling resistance tires, continuous triggering,

611

00:30:40,160 --> 00:30:45,160

and still, with all of that, we couldn't go very far or very fast.

612

00:30:45,160 --> 00:30:47,160

This one is well and truly busted.

613

00:30:48,160 --> 00:30:52,160

Their pulse jet barrel may be busted, but as Carrie said earlier,

614

00:30:52,160 --> 00:30:56,160

It's either going to explode, or it's going to zoom down the runway.

615

00:30:56,160 --> 00:31:00,160

There are only two ways this myth can truly end.

616

00:31:03,160 --> 00:31:07,160

After the break, can six dirty seamen swing an escape?

617

00:31:07,160 --> 00:31:10,160

This is dangerous jungle gym antics for adults.

618

00:31:12,160 --> 00:31:16,160

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

619

00:31:16,160 --> 00:31:18,160

We're what you call experts.

620

00:31:18,160 --> 00:31:19,160

Can't you tell?

621

00:31:20,160 --> 00:31:26,160

We've thoroughly tested the first part of the story, which is the swinging,

622

00:31:26,160 --> 00:31:29,160

and we came up totally busted.

623

00:31:30,160 --> 00:31:33,160

You can't get six people in here and get them to move it.

624

00:31:33,160 --> 00:31:35,160

It's just not possible.

625

00:31:35,160 --> 00:31:39,160

But there's a second and a third part to this story, and that's where we're going now.

626

00:31:39,160 --> 00:31:42,160

Yep, there's still the Kling and Clyde.

627

00:31:42,160 --> 00:31:47,160

If they make like pirates and cheat the swing, can they cart the cage up the cliff?

628

00:31:48,160 --> 00:31:51,160

First, they'll need something to get a grip on.

629

00:31:53,160 --> 00:31:54,160

Are you happy with it?

630

00:31:54,160 --> 00:31:55,160

Yeah, we're done.

631

00:31:56,160 --> 00:32:00,160

This crash-matte rigging combo will stand in for the movie vines.

632

00:32:01,160 --> 00:32:04,160

There it is, a gold fit for a pirate.

633

00:32:04,160 --> 00:32:09,160

Topped off with a flag fit for capture, they're ready to get all hands on deck.

634

00:32:10,160 --> 00:32:12,160

Right, lads, it's time to get swinging.

635

00:32:12,160 --> 00:32:16,160

Now, to be correct to the movie, we've re-extended our cables

636

00:32:16,160 --> 00:32:18,160

to be 80 feet long.

637

00:32:18,160 --> 00:32:21,160

The building behind me is a cliff.

638

00:32:21,160 --> 00:32:24,160

The netting is the vines.

639

00:32:24,160 --> 00:32:27,160

We're going to get in our ball and start swinging.

640

00:32:27,160 --> 00:32:30,160

Inside the ball, it's still the same six savvy seamen,

641

00:32:30,160 --> 00:32:35,160

but more importantly, this time, they're getting a lift from some land-loving muscle.

642

00:32:40,160 --> 00:32:41,160

Holy crap.

643

00:32:41,160 --> 00:32:42,160

There we go.

644

00:32:42,160 --> 00:32:45,160

And three, two, one, go.

645

00:32:47,160 --> 00:32:50,160

Ahhhhhhhhhhhhhhhhhhhh!

646

00:32:52,160 --> 00:32:56,160

Rather than risk a full speed cliff collision, the tug squad start the swing gently.

647

00:32:56,160 --> 00:32:57,160

This is fun.

648

00:32:57,160 --> 00:32:58,160

This is really fun.

649

00:32:58,160 --> 00:33:01,160

This is dangerous jungle gym antics for adults.

650

00:33:02,160 --> 00:33:06,160

All right, maggots, let's swing towards that wall.

651

00:33:06,160 --> 00:33:08,160

Three, two, one, go.

652

00:33:13,160 --> 00:33:14,160

Not quite.

653

00:33:14,160 --> 00:33:17,160

By every action as an equal and opposite reaction,

654

00:33:17,160 --> 00:33:22,160

and finding that sweet swing spot takes brains and brawn.

655

00:33:24,160 --> 00:33:25,160

Grat!

656

00:33:25,160 --> 00:33:27,160

Well, this swing testing was exactly what I wanted to see,

657

00:33:27,160 --> 00:33:33,160

because the fact that it's taking four strong guys with all of their strength to pull us back

658

00:33:33,160 --> 00:33:38,160

means that that's about what it's going to take to hold on to the rep when we get to the other side.

659

00:33:38,160 --> 00:33:43,160

But with a little more heave-ho, the muscle manages to give them the swing they need.

660

00:33:52,160 --> 00:33:53,160

We're done!

661

00:33:53,160 --> 00:33:56,160

Give it a self-around of applause.

662

00:33:56,160 --> 00:33:58,160

Wait, no, you can't.

663

00:33:59,160 --> 00:34:01,160

All right, let it go on the count of three.

664

00:34:01,160 --> 00:34:04,160

Two, one, let go.

665

00:34:04,160 --> 00:34:06,160

Yeah!

666

00:34:07,160 --> 00:34:09,160

It's an Ar-Ha moment.

667

00:34:09,160 --> 00:34:12,160

A round of applause for the pirates.

668

00:34:12,160 --> 00:34:17,160

To the crew's surprise, hanging on wasn't as difficult as expected.

669

00:34:20,160 --> 00:34:23,160

So we were successful at swinging up to the wall and holding on,

670

00:34:23,160 --> 00:34:29,160

and it requires quite a bit of strength, but at least we're not having to support our own weight and the weight of the ball.

671

00:34:29,160 --> 00:34:32,160

We're simply restricting ourselves from swinging back.

672

00:34:32,160 --> 00:34:37,160

When we start to have to climb the wall, that's when we're going to have to pull all this weight up,

673

00:34:37,160 --> 00:34:39,160

and that's going to be a different story.

674

00:34:39,160 --> 00:34:42,160

Personally, I don't think we're going to be able to do it.

675

00:34:42,160 --> 00:34:44,160

Well, now to put it all together.

676

00:34:44,160 --> 00:34:47,160

Right through, are you ready?

677

00:34:47,160 --> 00:34:51,160

They'll swing, they'll cling, and attempt to capture the flag.

678

00:34:51,160 --> 00:34:54,160

In three, two, one, go.

679

00:34:54,160 --> 00:34:56,160

Whoa.

680

00:34:56,160 --> 00:34:58,160

Oh, God.

681

00:34:58,160 --> 00:35:01,160

Ah!

682

00:35:01,160 --> 00:35:03,160

Yes!

683

00:35:03,160 --> 00:35:05,160

I've grabbed.

684

00:35:05,160 --> 00:35:07,160

Now try and climb.

685

00:35:07,160 --> 00:35:12,160

With the crew clinging on harder than stark trek extras, the climb commences.

686

00:35:15,160 --> 00:35:19,160

It's hand over hand as everyone pulls their weight.

687

00:35:19,160 --> 00:35:20,160

We're going up.

688

00:35:20,160 --> 00:35:22,160

It's working!

689

00:35:22,160 --> 00:35:27,160

And to both Mythbusters' surprise, the 1,500 pound cage ascends.

690

00:35:27,160 --> 00:35:29,160

It's working!

691

00:35:29,160 --> 00:35:32,160

And the ball climbs first one story and then two.

692

00:35:32,160 --> 00:35:34,160

Grab the flag!

693

00:35:34,160 --> 00:35:36,160

Ah!

694

00:35:36,160 --> 00:35:38,160

Ah!

695

00:35:38,160 --> 00:35:41,160

Ah!

696

00:35:41,160 --> 00:35:46,160

After climbing a vertical 12 feet, victory is theirs.

697

00:35:46,160 --> 00:35:49,160

In three, two, one, let go.

698

00:35:49,160 --> 00:35:51,160

Ah!

699

00:35:51,160 --> 00:35:53,160

Wow.

700

00:35:53,160 --> 00:35:54,160

Nice work.

701

00:35:54,160 --> 00:35:55,160

How about that?

702

00:35:55,160 --> 00:35:57,160

We were totally able to climb.

703

00:35:57,160 --> 00:36:00,160

I love being wrong.

704

00:36:00,160 --> 00:36:04,160

Indeed, because you can't argue with that success.

705

00:36:04,160 --> 00:36:07,160

So I grabbed the vine I'm holding onto, which is a vertical rope,

706

00:36:07,160 --> 00:36:11,160

and I still am thinking at this point, there's no way health is going to work.

707

00:36:11,160 --> 00:36:13,160

And then I start to be able to pull on some rope,

708

00:36:13,160 --> 00:36:15,160

and I noticed everybody else is pulling too,

709

00:36:15,160 --> 00:36:16,160

and all of a sudden we're climbing.

710

00:36:16,160 --> 00:36:19,160

One foot, two foot, three feet, and I look up,

711

00:36:19,160 --> 00:36:22,160

and the Jolly Roger here is within our grasp,

712

00:36:22,160 --> 00:36:24,160

and it was a success.

713

00:36:24,160 --> 00:36:27,160

But after all the efforts of their bodily crew,

714

00:36:27,160 --> 00:36:29,160

where does that leave the myth?

715

00:36:29,160 --> 00:36:31,160

Swinging a bone cage under your own powerful inside of you.

716

00:36:31,160 --> 00:36:32,160

Busted.

717

00:36:32,160 --> 00:36:35,160

Catching onto the vines in the side of the ravine,

718

00:36:35,160 --> 00:36:36,160

once you've swung over to it.

719

00:36:36,160 --> 00:36:37,160

Puzzable.

720

00:36:37,160 --> 00:36:39,160

And climbing out of that ravine,

721

00:36:39,160 --> 00:36:41,160

once you've caught onto those vines.

722

00:36:41,160 --> 00:36:42,160

Surprisingly plausible.

723

00:36:42,160 --> 00:36:43,160

Who would have thought?

724

00:36:43,160 --> 00:36:45,160

Arr, arr.

725

00:36:45,160 --> 00:36:52,160

Next, does this noise mean make or break for the ballistic battle?

726

00:36:55,160 --> 00:37:00,160

On a runway in San Joaquin County,

727

00:37:00,160 --> 00:37:03,160

the Barrow Go-Kart myth is about to go ballistic.

728

00:37:03,160 --> 00:37:05,160

We're at the New Jerusalem Airport runway.

729

00:37:05,160 --> 00:37:06,160

Why?

730

00:37:06,160 --> 00:37:09,160

Because we're mythbusters, and we're not going to be satisfied.

731

00:37:09,160 --> 00:37:12,160

With a five mile an hour run we've got with our Barrow Rocket,

732

00:37:12,160 --> 00:37:13,160

and that's being generous.

733

00:37:13,160 --> 00:37:15,160

We want to see something impressive.

734

00:37:17,160 --> 00:37:19,160

And that is where Bob Maddox comes in.

735

00:37:19,160 --> 00:37:20,160

Absolutely.

736

00:37:20,160 --> 00:37:23,160

Because if Bob's propulsive prowess can make a poison,

737

00:37:23,160 --> 00:37:26,160

if his propulsive prowess can make a push-bike jet-propelled,

738

00:37:26,160 --> 00:37:28,160

imagine what he can do with a barrel.

739

00:37:28,160 --> 00:37:32,160

This thing is going to be insane.

740

00:37:32,160 --> 00:37:35,160

Now Bob is one of the few people in the world,

741

00:37:35,160 --> 00:37:38,160

with the job title, Professional Pulse Jet Builder.

742

00:37:38,160 --> 00:37:42,160

He's been designing and building these jets for over 20 years.

743

00:37:42,160 --> 00:37:46,160

He's taken our Barrow Rocket design and highly modified it.

744

00:37:46,160 --> 00:37:48,160

It may look the same on the outside,

745

00:37:48,160 --> 00:37:50,160

but inside it's completely different.

746

00:37:50,160 --> 00:37:52,160

And it's going to be totally badass.

747

00:37:52,160 --> 00:37:56,160

But just what exactly are these badass modifications?

748

00:37:56,160 --> 00:38:00,160

Now tell us what some of the differences are between ours and yours.

749

00:38:00,160 --> 00:38:04,160

Well the difference is mostly is we have a one-way read valve up here in the front.

750

00:38:04,160 --> 00:38:08,160

When the explosion goes off, it makes all the gases go out the tail,

751

00:38:08,160 --> 00:38:10,160

and won't go out the front.

752

00:38:10,160 --> 00:38:13,160

The one-way valve focuses the thrust more efficiently,

753

00:38:13,160 --> 00:38:18,160

but the major change is that this pulse jet pulses at heart-stopping speed.

754

00:38:18,160 --> 00:38:21,160

And that happens 70 or 80 times a second inside of this one,

755

00:38:21,160 --> 00:38:24,160

where yours was only once every four or five seconds or whatever.

756

00:38:24,160 --> 00:38:28,160

Let's see if yours will match our whopping five mile an hour speed.

757

00:38:29,160 --> 00:38:33,160

Bob's about to fire up the Barrow Rocket car for the first time.

758

00:38:33,160 --> 00:38:35,160

Now it's going to be tethered, we're going to turn it on,

759

00:38:35,160 --> 00:38:37,160

just to make sure everything's working.

760

00:38:37,160 --> 00:38:39,160

Alright Bob, fire it up!

761

00:38:39,160 --> 00:38:41,160

Alright, let's see if we can tear up this runway.

762

00:38:41,160 --> 00:38:44,160

It's an important tethered systems check.

763

00:38:45,160 --> 00:38:47,160

Oh sh**!

764

00:38:50,160 --> 00:38:53,160

Because as the subtitles make clear,

765

00:38:53,160 --> 00:38:58,160

70 pulses a second is a lot more powerful than expected.

766

00:39:00,160 --> 00:39:04,160

Alright, it's a little bit louder, maybe a little more powerful than ours.

767

00:39:04,160 --> 00:39:06,160

That's scary, that's a little scary.

768

00:39:06,160 --> 00:39:11,160

Maybe we should have some safety precautions to keep this thing from flying off into who knows where.

769

00:39:11,160 --> 00:39:13,160

Maybe we should cable it down.

770

00:39:13,160 --> 00:39:15,160

That thing is awesome.

771

00:39:15,160 --> 00:39:18,160

Now we know Bob can build a pulse jet engine,

772

00:39:18,160 --> 00:39:23,160

but he has never attached it to a go kart made out of a barrel and four bicycle wheels.

773

00:39:23,160 --> 00:39:26,160

So we have no idea what's going to happen, I mean this thing could explode,

774

00:39:26,160 --> 00:39:28,160

it could go flying out of control.

775

00:39:28,160 --> 00:39:33,160

So we have taken some extra safety precautions to make sure nothing bad happens.

776

00:39:33,160 --> 00:39:37,160

One, we have a steel cable that will be running down the leg of our runway

777

00:39:37,160 --> 00:39:39,160

so that our kart stays on track.

778

00:39:39,160 --> 00:39:45,160

We also added a kill switch so if it does go out of control, we can shut it down whenever we want.

779

00:39:45,160 --> 00:39:48,160

At the end of the runway we have K-Rail set up,

780

00:39:48,160 --> 00:39:51,160

so that way if it does get out of control it has a barrier to crash into.

781

00:39:51,160 --> 00:39:54,160

We'll be standing behind the blast shield while this all takes place.

782

00:39:54,160 --> 00:39:58,160

This is going to be awesome, but most importantly, it's going to be safe.

783

00:39:58,160 --> 00:40:00,160

4,000 feet of cable.

784

00:40:00,160 --> 00:40:02,160

That should keep our kart in line.

785

00:40:02,160 --> 00:40:07,160

It should, but the pulse jet go kart won't be the only thing on the line.

786

00:40:07,160 --> 00:40:10,160

There's also their previous record.

787

00:40:12,160 --> 00:40:19,160

We're going to have to surpass a record here of the last barrel rocket, five miles an hour.

788

00:40:19,160 --> 00:40:22,160

So for this to be impressive, I want to see highway speeds.

789

00:40:22,160 --> 00:40:25,160

Now Bob has been perfecting his engine for years.

790

00:40:25,160 --> 00:40:30,160

Now we had three days to build ours and we were able to get it to go with five miles an hour.

791

00:40:30,160 --> 00:40:33,160

I'm hoping this can go faster than ours.

792

00:40:33,160 --> 00:40:34,160

I'm pretty sure it will.

793

00:40:34,160 --> 00:40:35,160

Let's go.

794

00:40:35,160 --> 00:40:39,160

Okay, I'm going to measure the speed because I have a feeling he's flying.

795

00:40:39,160 --> 00:40:45,160

The team retires to a safe distance and it's over to Bob to initiate launch.

796

00:40:49,160 --> 00:40:51,160

And run for his life.

797

00:40:51,160 --> 00:40:57,160

Alright, this is pulse jet barrel rocket on steroids. Here we go. In three, two, one.

798

00:40:58,160 --> 00:41:01,160

Then the barrel is unleashed.

799

00:41:02,160 --> 00:41:04,160

Woo hoo hoo!

800

00:41:04,160 --> 00:41:08,160

And it thunders down the runway at speed.

801

00:41:12,160 --> 00:41:13,160

Fifty miles an hour.

802

00:41:13,160 --> 00:41:15,160

Dude, that was awesome.

803

00:41:15,160 --> 00:41:17,160

You know what, this myth is still busted.

804

00:41:17,160 --> 00:41:21,160

I mean, look at what we had to resort to to make this work.

805

00:41:21,160 --> 00:41:22,160

A professional.

806

00:41:22,160 --> 00:41:24,160

Oh Bob, that was awesome.

807

00:41:24,160 --> 00:41:26,160

Nice work.

808

00:41:27,160 --> 00:41:34,160

Finally, after a string of failures, the mythbusters have gotten their happy ending.

809

00:41:34,160 --> 00:41:40,160

The cart jetted a mile down the runway at super speed.

810

00:41:40,160 --> 00:41:45,160

The thing that you don't get and you're probably not going to get to experience this in full at home

811

00:41:45,160 --> 00:41:47,160

is the sound this thing makes.

812

00:41:47,160 --> 00:41:51,160

It's like, noooooooooo!

813

00:41:51,160 --> 00:42:00,160

Finally, we got it to work. We got our barrel jet to go down the runway at 50 miles an hour.

814

00:42:00,160 --> 00:42:04,160

Okay, so we had to bring in an expert with a completely different jet engine.

815

00:42:04,160 --> 00:42:09,160

But still, we got a barrel with a guy on it going down the runway at 50 miles an hour.

816

00:42:09,160 --> 00:42:12,160

This is still busted, but it's pretty awesome.

817

00:42:21,160 --> 00:42:28,160

Want to know why we did what we did and why we didn't do what we didn't?

818

00:42:28,160 --> 00:42:33,160

Go to Discovery.com slash Mythbusters Aftershow and check it out.