

1

00:00:30,700 --> 00:00:31,980

BOOMING

2

00:00:38,940 --> 00:00:40,740

Dude, c'mon we got into heavy■■■

3

00:00:42,080 --> 00:00:43,100

I'm ready

4

00:00:45,880 --> 00:00:47,800

E■■, E systems

5

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

No final season of Mythbusters would be complete if we did not tackle our all-time favorite

6

00:01:15,000 --> 00:01:19,840

mechanical cure-all, the miracle material of duct tape.

7

00:01:19,840 --> 00:01:23,120

We built boats more than one.

8

00:01:23,120 --> 00:01:24,120

Bridges.

9

00:01:24,120 --> 00:01:25,640

That really is quite hairy.

10

00:01:25,640 --> 00:01:27,800

We've bladed off of clips.

11

00:01:27,800 --> 00:01:29,320

And we picked up cars.

12

00:01:29,320 --> 00:01:32,000

And we picked you up for that matter and hung you upside down.

13

00:01:32,000 --> 00:01:34,240

Fun for the whole family.

14

00:01:34,240 --> 00:01:35,240

Exactly.

15

00:01:35,240 --> 00:01:39,560

Which begs the question, what do we build in another episode devoted to duct tape?

16

00:01:39,560 --> 00:01:41,640

What haven't we made?

17

00:01:41,640 --> 00:01:42,960

And what did we come up with?

18

00:01:42,960 --> 00:01:47,400

Well, we will be testing whether duct tape is a viable replacement for a car's seatbelt

19

00:01:47,400 --> 00:01:50,120

and how well it holds up in an accident.

20

00:01:50,120 --> 00:01:52,240

So there will be some car crashing.

21

00:01:52,240 --> 00:01:57,560

But first up, we're going to build a weapon of war.

22

00:01:57,560 --> 00:02:02,720

One from back when you were just a little tight, I think we should make a duct tape trebuchet.

23

00:02:02,720 --> 00:02:03,720

That's excellent.

24

00:02:03,720 --> 00:02:06,600

It's got to be the ultimate test for duct tape's abilities.

25

00:02:06,600 --> 00:02:09,560

Plus, I've always wanted to build a trebuchet.

26

00:02:09,560 --> 00:02:11,800

So have I, and it's now or never.

27

00:02:11,800 --> 00:02:12,800

Let's get building.

28

00:02:12,800 --> 00:02:13,800

Okay.

29

00:02:13,800 --> 00:02:16,400

Our death ray doesn't seem to be working.

30

00:02:16,400 --> 00:02:18,160

I'm standing right in it.

31

00:02:18,160 --> 00:02:19,920

And I'm not dead yet.

32

00:02:19,920 --> 00:02:24,880

When it comes to ancient weapons of war, we hit the blue!

33

00:02:24,880 --> 00:02:36,040

The Mythbusters 14-year history is loaded with fun and ammo.

34

00:02:36,040 --> 00:02:42,960

And in this farewell season duct tape finale, not only are they tackling the most mechanically

35

00:02:42,960 --> 00:02:48,440

intricate medieval weapon ever made, they have to stick it all together with nothing

36

00:02:48,440 --> 00:02:51,280

but their all-time favorite material.

37

00:02:51,280 --> 00:02:53,320

I like this.

38

00:02:53,320 --> 00:02:57,840

But first, Adam puts the tape aside to work out how one works.

39

00:02:57,840 --> 00:02:59,360

All right.

40

00:02:59,360 --> 00:03:03,240

I think we have enough built now to talk about the component pieces of a trebuchet and how

41

00:03:03,240 --> 00:03:04,240

they work.

42

00:03:04,240 --> 00:03:05,640

Graphics, can you help me out?

43

00:03:05,640 --> 00:03:12,280

The main parts are the stand, the swing arm, and the fulcrum, the swing arm, pivots on.

44

00:03:12,280 --> 00:03:16,920

Now the swing arm has a weight at one end and a sling at the other.

45

00:03:16,920 --> 00:03:18,840

And here are some important relationships.

46

00:03:18,840 --> 00:03:22,520

There's a relationship between the long part of the swing arm and the short part.

47

00:03:22,520 --> 00:03:25,640

It's 3.75 to one.

48

00:03:25,640 --> 00:03:29,400

And the sling wants to be exactly the length of the long part of the swing arm.

49

00:03:29,400 --> 00:03:33,600

If you get all that right, apparently this thing throws farther than just about any other

50

00:03:33,600 --> 00:03:36,200

medieval weapon of war.

51

00:03:36,200 --> 00:03:41,720

The real long shot will be getting a full-sized trebuchet to work with only duct tape to hold

52

00:03:41,720 --> 00:03:42,720

it together.

53

00:03:42,720 --> 00:03:46,240

So the weight here is the sole of the trebuchet.

54

00:03:46,240 --> 00:03:52,440

The gravitational pull of this weight down causes the whole mechanism to work.

55

00:03:52,440 --> 00:03:57,680

In the toughest duct tape task the team has ever tackled, that counterweight will eventually

56

00:03:57,680 --> 00:04:04,960

weigh 750 pounds and exert more than 3,000 foot-pounds of torque.

57

00:04:04,960 --> 00:04:07,000

That's a fully loaded trebuchet right there.

58

00:04:07,000 --> 00:04:12,000

Let's see what happens.

59

00:04:12,000 --> 00:04:16,840

I'll flung it into the ground.

60

00:04:16,840 --> 00:04:18,240

That's not ideal.

61

00:04:18,240 --> 00:04:20,560

That's not ideal at all.

62

00:04:20,560 --> 00:04:23,440

I love making these demonstration models.

63

00:04:23,440 --> 00:04:28,640

I had ceiling clearly somewhere in the middle of this one.

64

00:04:28,640 --> 00:04:31,800

It's often some of the most fun that I have on the show.

65

00:04:31,800 --> 00:04:35,440

I think I made too much of a cup.

66

00:04:35,440 --> 00:04:39,840

There is nothing better than being able to lay your hands on something even if you're

67

00:04:39,840 --> 00:04:42,080

going to build it ten times as large.

68

00:04:42,080 --> 00:04:44,040

I didn't let go.

69

00:04:44,040 --> 00:04:45,040

Why didn't it let go?

70

00:04:45,040 --> 00:04:46,040

What the hell?

71

00:04:46,040 --> 00:04:48,800

Slightly bigger nut.

72

00:04:48,800 --> 00:04:50,840

That's figure nut.

73

00:04:50,840 --> 00:04:59,520

After several hours of hands-on tinkering, Adam has the mechanics nailed.

74

00:04:59,520 --> 00:05:03,560

And successfully launches his model.

75

00:05:03,560 --> 00:05:04,960

Wow.

76

00:05:04,960 --> 00:05:11,760

So with that knowledge under their collective belt, Jamie gets down to the nuts and bolts

77

00:05:11,760 --> 00:05:17,080

of construction, specifically figuring out how to replace the nuts and bolts with duct

78

00:05:17,080 --> 00:05:18,080

tape.

79

00:05:18,080 --> 00:05:23,080

Taking what Adam has learned about the trebuchet's action, my focus is going to be on construction

80

00:05:23,080 --> 00:05:25,760

logistics and dealing with the forces involved.

81

00:05:25,760 --> 00:05:30,360

At the pivot, our structure has to be able to handle an excess of 3,000 foot-pounds of

82

00:05:30,360 --> 00:05:31,360

torque.

83

00:05:31,360 --> 00:05:34,800

Now that's a heck of a lot of load for a few rolls of tape.

84

00:05:34,800 --> 00:05:36,640

More tape.

85

00:05:36,640 --> 00:05:41,960

Using triangulation on the lens itself to the abilities of the materials we have at hand.

86

00:05:41,960 --> 00:05:43,680

That's going to be fricking strong.

87

00:05:43,680 --> 00:05:47,680

The compressive strength of the wood takes most of the strain, while the flexibility

88

00:05:47,680 --> 00:05:51,680

and adhesion of the duct tape allows us to create a series of bands to lock the whole

89

00:05:51,680 --> 00:05:53,360

structure together.

90

00:05:53,360 --> 00:05:54,520

One.

91

00:05:54,520 --> 00:06:01,640

And of course, the duct tape is also perfect for creating ropes and canvas-like materials

92

00:06:01,640 --> 00:06:03,160

for the sling.

93

00:06:03,160 --> 00:06:04,560

This is all tape and wood.

94

00:06:04,560 --> 00:06:07,280

That's all tape and these are the beams that we'll be working with.

95

00:06:07,280 --> 00:06:08,800

Yeah, they're all to scale.

96

00:06:08,800 --> 00:06:09,800

Nice.

97

00:06:09,800 --> 00:06:13,920

So Jamie was completely building his to scale, including the beams that we're going to be

98

00:06:13,920 --> 00:06:14,920

working with.

99

00:06:14,920 --> 00:06:15,920

I mean, feel it.

100

00:06:15,920 --> 00:06:16,920

I see that.

101

00:06:16,920 --> 00:06:18,080

And yet it's just tape.

102

00:06:18,080 --> 00:06:21,760

So he's done probably 90% of our engineering work that we're going to have to do out in

103

00:06:21,760 --> 00:06:24,920

the field already here in the shop.

104

00:06:24,920 --> 00:06:28,640

Not only is Jamie's design cleverly built to scale.

105

00:06:28,640 --> 00:06:31,640

You made it into the loft.

106

00:06:31,640 --> 00:06:33,360

That is pretty darn good.

107

00:06:33,360 --> 00:06:40,160

It's secured by only duct tape and tosses Adam's ammo an impressive distance.

108

00:06:40,160 --> 00:06:49,160

Question is, can they convert their toy-sized trebuchet into a full-scale weapon of war?

109

00:06:49,160 --> 00:06:55,160

While the team preps, Adam conjures an unusual commuting conundrum.

110

00:06:55,160 --> 00:06:56,160

Let me paint you a picture.

111

00:06:56,160 --> 00:06:57,360

You've arrived at your car.

112

00:06:57,360 --> 00:07:00,080

First thing in the morning, you have a rush hour commute ahead of you and you find that

113

00:07:00,080 --> 00:07:02,920

a rodent has chewed all the way through your seat belt.

114

00:07:02,920 --> 00:07:03,920

Pop quiz.

115

00:07:03,920 --> 00:07:04,920

What do you do?

116

00:07:04,920 --> 00:07:05,920

Make it out of duct tape.

117

00:07:05,920 --> 00:07:06,920

Yeah.

118

00:07:06,920 --> 00:07:10,080

That's, yes, that's exactly what we're going to do.

119

00:07:10,080 --> 00:07:11,560

And they're going to be car crashes then.

120

00:07:11,560 --> 00:07:12,560

Yes, they're on.

121

00:07:12,560 --> 00:07:16,760

We're going to have to test the efficacy of the seat belt by crashing more than one car.

122

00:07:16,760 --> 00:07:18,880

I like it.

123

00:07:18,880 --> 00:07:24,640

Seat belts made of polyester have a breaking strength of 6,000 pounds and save tens of

124

00:07:24,640 --> 00:07:26,640

thousands of lives every year.

125

00:07:27,640 --> 00:07:30,360

We're a seat belt, always.

126

00:07:30,360 --> 00:07:38,200

But in an average 25-mile-an-hour crash, could a duct tape stand in really stay intact?

127

00:07:38,200 --> 00:07:42,840

Or is this myth a stretch too far for the tacky tape?

128

00:07:42,840 --> 00:07:47,360

This lovely stretch of tarmac I'm riding on is the runway at the New Jerusalem airport.

129

00:07:47,360 --> 00:07:51,840

And today, we're going to be setting up some car crashes to see if duct tape can actually

130

00:07:51,840 --> 00:07:52,840

save your life.

131

00:07:57,640 --> 00:08:01,640

The column before the storm.

132

00:08:01,640 --> 00:08:02,640

Car crashes.

133

00:08:02,640 --> 00:08:06,440

Right alongside explosives, they've been one of our specialties on Mythbusters.

134

00:08:06,440 --> 00:08:11,040

We've crashed into cars with trucks.

135

00:08:11,040 --> 00:08:13,840

We've crashed cars in professional facilities.

136

00:08:13,840 --> 00:08:19,640

Heck, we've even crashed cars into barriers made solely of duct tape.

137

00:08:19,640 --> 00:08:20,640

Yeah!

138

00:08:20,640 --> 00:08:24,080

Today, we are trying something brand new for us.

139

00:08:24,080 --> 00:08:29,920

We're going to crash our cars for this experiment into a pair of giant shipping containers with

140

00:08:29,920 --> 00:08:33,520

welded steel plates on their front end.

141

00:08:33,520 --> 00:08:37,440

It's the ultimate test of the tape's tensile talents.

142

00:08:37,440 --> 00:08:41,080

Can it withstand the stopping force of a fatal car crash?

143

00:08:41,080 --> 00:08:43,840

Oh, chunky.

144

00:08:43,840 --> 00:08:47,080

To find out the team is using their crash test dummy...

145

00:08:47,080 --> 00:08:48,080

Nice!

146

00:08:48,080 --> 00:08:51,080

...for its intended purpose.

147

00:08:51,080 --> 00:08:55,080

Buster's going to be driving this car at speed into our trench plates.

148

00:08:55,080 --> 00:08:59,080

But the problem is, well, Buster has no brain.

149

00:08:59,080 --> 00:09:00,080

He can't drive.

150

00:09:00,080 --> 00:09:01,080

The solution?

151

00:09:01,080 --> 00:09:04,080

A familiar Mythbuster method.

152

00:09:04,080 --> 00:09:06,080

The self-steering tow rig.

153

00:09:06,080 --> 00:09:10,080

What we have here is not that much different than a normal steering system.

154

00:09:10,080 --> 00:09:15,080

Like when you turn your steering wheel, you move both wheels evenly back and forth.

155

00:09:15,080 --> 00:09:18,080

We've just got a longer bar extending from them.

156

00:09:18,080 --> 00:09:23,080

And if we put a cable in the middle, this will make both wheels go wherever we pull it.

157

00:09:23,080 --> 00:09:25,080

So part one of our setup is done.

158

00:09:25,080 --> 00:09:27,080

Ready to drive on its own.

159

00:09:27,080 --> 00:09:30,080

Next up is to remove the car windows.

160

00:09:30,080 --> 00:09:33,080

Yeah, that'll do it.

161

00:09:33,080 --> 00:09:36,080

Cut the new sunroof.

162

00:09:36,080 --> 00:09:39,080

This is just like a sardine can.

163

00:09:39,080 --> 00:09:43,080

So we can clearly see what's happening inside there.

164

00:09:43,080 --> 00:09:45,080

Yeah! Yeah!

165

00:09:45,080 --> 00:09:48,080

Come on down to Adam and Jamie's body shop.

166

00:09:53,080 --> 00:09:56,080

Nice stash.

167

00:09:56,080 --> 00:10:01,080

Step three is to put Buster and a passenger in this car.

168

00:10:04,080 --> 00:10:05,080

Yeah, baby.

169

00:10:05,080 --> 00:10:11,080

Remember, the number one thing you want in an accident is clean under-ware.

170

00:10:12,080 --> 00:10:13,080

Why two dummies?

171

00:10:13,080 --> 00:10:16,080

Well, the driver will get a duct tape seat belt,

172

00:10:16,080 --> 00:10:20,080

and for a control and comparison, his passenger has a regular one.

173

00:10:20,080 --> 00:10:25,080

Step four is to replace Buster's seat belt with duct tape.

174

00:10:25,080 --> 00:10:27,080

Let's just do an experiment.

175

00:10:27,080 --> 00:10:30,080

How much duct tape can I fit through?

176

00:10:30,080 --> 00:10:32,080

That's four layers.

177

00:10:32,080 --> 00:10:34,080

That still fits.

178

00:10:34,080 --> 00:10:36,080

Eight layers of duct tape.

179

00:10:36,080 --> 00:10:37,080

Still fits.

180

00:10:37,080 --> 00:10:39,080

Two more.

181

00:10:39,080 --> 00:10:42,080

Here is ten layers of duct tape.

182

00:10:42,080 --> 00:10:43,080

Nope.

183

00:10:43,080 --> 00:10:46,080

That's nine layers of duct tape.

184

00:10:46,080 --> 00:10:47,080

That's it.

185

00:10:47,080 --> 00:10:49,080

Nine layers it is.

186

00:10:49,080 --> 00:10:52,080

So we've arrived at the soul of this story,

187

00:10:52,080 --> 00:10:57,080

that a broken seat belt can be replaced in a pinch with duct tape.

188

00:10:57,080 --> 00:10:59,080

Excellent.

189

00:10:59,080 --> 00:11:00,080

Uh-oh.

190

00:11:00,080 --> 00:11:01,080

What?

191

00:11:01,080 --> 00:11:06,080

I'm going to have to remove some of these layers to fit it through the shoulder buckle.

192

00:11:06,080 --> 00:11:13,080

The improvised seat belt that I've made for Buster is made of between six and nine layers of duct tape.

193

00:11:13,080 --> 00:11:15,080

Now it's time to tie it into the car,

194

00:11:15,080 --> 00:11:18,080

and for the bottom, since I've got this seat belt sitting here,

195

00:11:18,080 --> 00:11:20,080

I'm going to just tie a knot.

196

00:11:21,080 --> 00:11:25,080

Now when we did duct tape bridge, we did some tensile strength testing on duct tape

197

00:11:25,080 --> 00:11:29,080

and found that it had a breaking strength of 67.3 pounds per layer.

198

00:11:29,080 --> 00:11:33,080

When you calculate that out, that means that Buster's got a strap

199

00:11:33,080 --> 00:11:36,080

that has a 400 pound breaking strength at his shoulder

200

00:11:36,080 --> 00:11:40,080

and a 600 pound breaking strength at his waist.

201

00:11:40,080 --> 00:11:44,080

So with the thickest possible duct tape seat belt ready for action,

202

00:11:44,080 --> 00:11:49,080

how will the guys make a post-crash comparison of the damage to the dummies?

203

00:11:50,080 --> 00:11:55,080

We're going to look at the accelerometer readings of G-forces that these guys are experiencing

204

00:11:55,080 --> 00:12:00,080

and see if there's any difference between the one with the seat belt made of duct tape

205

00:12:00,080 --> 00:12:02,080

and the other with the conventional one.

206

00:12:03,080 --> 00:12:09,080

The final step is to crash the car into the containers at a bone-crunching 25 miles an hour

207

00:12:09,080 --> 00:12:15,080

and find out if duct tape can save your life as effectively as a real seat belt.

208

00:12:17,080 --> 00:12:19,080

Well, time to smash a car.

209

00:12:21,080 --> 00:12:23,080

I'm in position, ready to go.

210

00:12:23,080 --> 00:12:24,080

Count it in.

211

00:12:24,080 --> 00:12:32,080

All right, this is duct tape seat belt crash test at 25 miles an hour in three, two, one.

212

00:12:33,080 --> 00:12:37,080

There it is, he's starting.

213

00:12:37,080 --> 00:12:46,080

Coming up in this final season festival, Adam and Jamie together, they're over a hundred and four years old.

214

00:12:46,080 --> 00:12:55,080

The team's biggest ever build begins and Buster finally gets to stretch duct tape to its life-saving limits.

215

00:12:55,080 --> 00:12:56,080

It's beautiful.

216

00:13:03,080 --> 00:13:10,080

Relax. This one hurt a bit.

217

00:13:10,080 --> 00:13:16,080

Adam and Jamie are taking a final season trip down duct tape memory lane.

218

00:13:16,080 --> 00:13:18,080

Oh, it's for real.

219

00:13:18,080 --> 00:13:25,080

Their past is littered with a litany of mythical uses for this miracle mechanical cure-all.

220

00:13:25,080 --> 00:13:27,080

Nice work, sir.

221

00:13:27,080 --> 00:13:33,080

It's been proven plausible, more confirmed, and incredible 21 times.

222

00:13:37,080 --> 00:13:42,080

And back on the seat belt story, Buster's hoping that impressive record continues.

223

00:13:42,080 --> 00:13:47,080

Remember, the heart of this myth is that duct tape could help you survive a car accident,

224

00:13:47,080 --> 00:13:51,080

specifically that if your seat belt failed, you could replace it with duct tape.

225

00:13:51,080 --> 00:13:55,080

Duc tape seat belt 25 mile per hour crash.

226

00:13:55,080 --> 00:13:58,080

So that it would help you survive a car accident.

227

00:13:58,080 --> 00:13:59,080

Go!

228

00:14:02,080 --> 00:14:04,080

Starting slowly.

229

00:14:06,080 --> 00:14:08,080

Yep, here it comes, here it comes.

230

00:14:12,080 --> 00:14:13,080

It's beautiful.

231

00:14:16,080 --> 00:14:18,080

That hit a lot of things.

232

00:14:18,080 --> 00:14:21,080

Woo, woo, ha!

233

00:14:22,080 --> 00:14:26,080

That, uh, yeah, things moved a bit.

234

00:14:26,080 --> 00:14:30,080

That was close to catastrophe.

235

00:14:30,080 --> 00:14:33,080

So what happened?

236

00:14:33,080 --> 00:14:39,080

Well, it veered off to the right and hit only the right-hand container, sending it about a foot back.

237

00:14:39,080 --> 00:14:44,080

It actually came back far enough to bump the boom lift that we were in.

238

00:14:45,080 --> 00:14:47,080

We got a little bit of a ride.

239

00:14:47,080 --> 00:14:50,080

The boom lift was shaken, and Adam was stirred.

240

00:14:52,080 --> 00:14:57,080

But what about the seat belt, the thickest that could possibly be made out of duct tape?

241

00:14:59,080 --> 00:15:00,080

Did it save Buster?

242

00:15:00,080 --> 00:15:03,080

The duct tape seat belt broke. It's nine layers at the belt.

243

00:15:03,080 --> 00:15:07,080

It's only six layers at the shoulder, but that's where it broke.

244

00:15:10,080 --> 00:15:12,080

Remember those accelerometers we put on the dummies?

245

00:15:12,080 --> 00:15:15,080

Well, the date is in, and it's cool.

246

00:15:15,080 --> 00:15:21,080

Our passenger received 30 Gs to his head and 50 Gs to his body.

247

00:15:21,080 --> 00:15:27,080

He wouldn't have been a happy camper. He might have sustained some injuries, but he might have made it.

248

00:15:27,080 --> 00:15:31,080

The guy with the duct tape seat belt, however, is another story.

249

00:15:31,080 --> 00:15:36,080

He got in excess of 130 Gs both in his head and his body.

250

00:15:36,080 --> 00:15:37,080

He's dead.

251

00:15:37,080 --> 00:15:41,080

The traditional duct tape seat belt design failed.

252

00:15:41,080 --> 00:15:44,080

The myth, like Buster, is busted.

253

00:15:45,080 --> 00:15:47,080

Meaning it's time to ramp it up.

254

00:15:48,080 --> 00:15:53,080

If duct tape is going to help somebody survive a car accident, it's going to have to be more than a belt.

255

00:15:53,080 --> 00:15:58,080

Yep, this duct tape farewell tour is far from dead and buried.

256

00:15:59,080 --> 00:16:03,080

Oh, no, no, no, no. We've only proven that a duct tape seat belt won't work,

257

00:16:03,080 --> 00:16:07,080

but that doesn't mean that duct tape can't help. We have some other ideas.

258

00:16:08,080 --> 00:16:12,080

While Buster patiently waits for another potentially fatal car crash,

259

00:16:12,080 --> 00:16:16,080

the guys are back on the trail of the duct tape trebuchet.

260

00:16:17,080 --> 00:16:23,080

It's an accelerator. You're exchanging heavy weight with 3.75 times the speed of the fall,

261

00:16:23,080 --> 00:16:28,080

and you've got that additional bonus of a little centrifugal force with the sling.

262

00:16:28,080 --> 00:16:29,080

It's pretty awesome.

263

00:16:31,080 --> 00:16:35,080

To turn prototype proficiency into the real deal.

264

00:16:35,080 --> 00:16:38,080

That's a perfect battlefield for a trebuchet, huh?

265

00:16:39,080 --> 00:16:43,080

They're attempting the biggest duct tape assembly in myth Buster history.

266

00:16:44,080 --> 00:16:48,080

Now I know there might be some purists among you who look at this giant stack of wood and think,

267

00:16:48,080 --> 00:16:54,080

duct tape, well, that's mostly wood, and I will remind you, when we built the first duct tape sailboat,

268

00:16:54,080 --> 00:16:56,080

it had a steel frame.

269

00:16:57,080 --> 00:17:02,080

When we escaped from a deserted island in the 20-foot duct tape out of Rigor Canoe,

270

00:17:02,080 --> 00:17:06,080

that also had bamboo as its structural medium.

271

00:17:07,080 --> 00:17:13,080

And so it is in this case of our trebuchet that pine here is our structural member,

272

00:17:13,080 --> 00:17:17,080

but duct tape is our only binder.

273

00:17:17,080 --> 00:17:20,080

No screws, no nothing, just duct tape.

274

00:17:21,080 --> 00:17:25,080

Now this cut list is basically this scaled up times six.

275

00:17:28,080 --> 00:17:29,080

The first cut!

276

00:17:30,080 --> 00:17:35,080

And I've done it using the same lengths of wood, so this right here is our blue duct tape.

277

00:17:36,080 --> 00:17:37,080

Blue print.

278

00:17:41,080 --> 00:17:47,080

With the cuts complete, the building begins with the four triangles that make up the stand.

279

00:17:50,080 --> 00:17:57,080

By exactly following Jamie's 3D blueprint, the main challenge is to ensure the giant jigsaw sticks together.

280

00:17:59,080 --> 00:18:04,080

How much they need is a guessing game, so their strategy is simple.

281

00:18:04,080 --> 00:18:05,080

Ten wraps.

282

00:18:06,080 --> 00:18:13,080

They're going to spread the load and err on the side of caution by using as much duct tape as they possibly can.

283

00:18:13,080 --> 00:18:18,080

This bit in the middle here, this is the business end of what's going on in this structure.

284

00:18:18,080 --> 00:18:21,080

I'm getting kind of psyched to see this out and go.

285

00:18:21,080 --> 00:18:29,080

The weight of the actual swing arm is pushing down on that area, and all that load's going right to that center piece.

286

00:18:31,080 --> 00:18:33,080

Yeah, like Egyptians!

287

00:18:33,080 --> 00:18:36,080

So without the tape, everything falls apart.

288

00:18:39,080 --> 00:18:40,080

Got another roll for me.

289

00:18:41,080 --> 00:18:45,080

To help hold the load bearing triangles in place, thank y'all.

290

00:18:45,080 --> 00:18:49,080

They're using the tape in all its versatile forms.

291

00:18:49,080 --> 00:18:52,080

Recognize this? It's our duct tape rope.

292

00:18:52,080 --> 00:18:57,080

It's made of seven strands of duct tape, all twisted together into one solid rope.

293

00:18:57,080 --> 00:19:01,080

And it'll easily suspend a person, kind of like a climbing rope.

294

00:19:01,080 --> 00:19:04,080

Woo! Oh! Ha!

295

00:19:04,080 --> 00:19:13,080

What it gives us here is the ability to tie it and twist it, because we don't want this stuff to move very much.

296

00:19:13,080 --> 00:19:20,080

With the tape, while it grips, it doesn't really have a lot of squeeze, and we want some squeeze that's what this is going to give us.

297

00:19:21,080 --> 00:19:28,080

What I love about this kind of engineering is trying to physically understand all the forces you're

going to be dealing with.

298

00:19:28,080 --> 00:19:31,080

The force is coming this way, and it's going to want to jump out of here.

299

00:19:31,080 --> 00:19:35,080

So the most critical point of failure is right here.

300

00:19:35,080 --> 00:19:41,080

Where the tension's going to be, where things are going to want to fail, where they're going to leap out, and trying to run those off at the pass.

301

00:19:41,080 --> 00:19:43,080

Ain't going nowhere.

302

00:19:43,080 --> 00:19:49,080

It's a deeply pleasurable experience to think through the device, and all the weight and force and torque it's going to be under,

303

00:19:49,080 --> 00:19:52,080

and to try and make an in-run pass around that.

304

00:19:53,080 --> 00:19:55,080

Three, two, one, up!

305

00:19:55,080 --> 00:19:57,080

And here we go.

306

00:19:57,080 --> 00:19:59,080

Watch your feet there, and down.

307

00:19:59,080 --> 00:20:11,080

With the first two triangles tied and taped into submission, and then raised into position, the giant scale of this build comes into perspective.

308

00:20:11,080 --> 00:20:14,080

This is by far the heaviest thing we have ever made out of duct tape.

309

00:20:14,080 --> 00:20:16,080

My way.

310

00:20:16,080 --> 00:20:19,080

Keep coming. Good.

311

00:20:20,080 --> 00:20:22,080

Keep coming. Good. Okay?

312

00:20:22,080 --> 00:20:27,080

And with the second stand standing, it's even more impressive.

313

00:20:30,080 --> 00:20:37,080

But will it stand up to the incredible force of a full-scale medieval weapon of war?

314

00:20:37,080 --> 00:20:40,080

I'm kind of curious about that myself.

315

00:20:41,080 --> 00:20:47,080

With the main structure of our trebuchet completed, it's time for Jamie and I to move on to the axle and the throwing arm,

316

00:20:47,080 --> 00:20:51,080

which is quite literally the business end of a trebuchet.

317

00:20:51,080 --> 00:20:53,080

Critical little bit of engineering.

318

00:20:53,080 --> 00:20:58,080

The amount of stress on that joint is massive.

319

00:20:58,080 --> 00:21:04,080

The technique used to secure the machine's major moving parts is crucial.

320

00:21:04,080 --> 00:21:09,080

The energy transfer and torque through the pivot will be enormous.

321

00:21:09,080 --> 00:21:14,080

And the key to success will be duct tape's ability to stick them together,

322

00:21:14,080 --> 00:21:18,080

the smooth rotation of a soon-to-be rounded axle.

323

00:21:18,080 --> 00:21:23,080

This adds is a tool I made myself.

324

00:21:23,080 --> 00:21:25,080

And the sling.

325

00:21:25,080 --> 00:21:29,080

While Jamie works on the axle, I'm going to be using the sling.

326

00:21:29,080 --> 00:21:32,080

This is the thing that flings.

327

00:21:32,080 --> 00:21:36,080

It's going to be made out of duct tape and it's going to be made out of duct tape rope.

328

00:21:36,080 --> 00:21:41,080

The energy of the trebuchet is distributed to that load and has to throw it.

329

00:21:41,080 --> 00:21:47,080

So this basket has to be very, very, very, very robust.

330

00:21:47,080 --> 00:21:51,080

Duct tape is particularly fantastic as we've learned over the years

331

00:21:51,080 --> 00:21:55,080

for making very smooth and flexible parts of the machine.

332

00:21:55,080 --> 00:21:58,080

It's particularly fantastic as we've learned over the years

333

00:21:58,080 --> 00:22:02,080

for making very strong cloth and tarps,

334

00:22:02,080 --> 00:22:08,080

especially when you put one side up and then stick one side down on top of it.

335

00:22:10,080 --> 00:22:16,080

With the slings suitably secure and the axle rounded and ready to roll,

336

00:22:16,080 --> 00:22:19,080

it's time to join them to the swing arm.

337

00:22:19,080 --> 00:22:20,080

Are they going in?

338

00:22:20,080 --> 00:22:22,080

That is. It's seated nicely.

339

00:22:22,080 --> 00:22:26,080

We're going to make sure that the trebuchet will exert the most strain.

340

00:22:26,080 --> 00:22:31,080

To contain it, the guys continue their duct tape tactic.

341

00:22:31,080 --> 00:22:33,080

Lots of duct tape!

342

00:22:33,080 --> 00:22:36,080

When in doubt, tape it down.

343

00:22:36,080 --> 00:22:40,080

If you're going to make a trebuchet, you're going to need a big weight.

344

00:22:40,080 --> 00:22:42,080

We've got just the thing.

345

00:22:42,080 --> 00:22:46,080

The counterweight, the trebuchet's engine room.

346

00:22:46,080 --> 00:22:51,080

It has to be attached securely enough so that it can be repeatedly raised and dropped,

347

00:22:51,080 --> 00:22:55,080

transferring its gravitational potential to the payload.

348

00:22:55,080 --> 00:22:58,080

We've got two things going on that we have to worry about.

349

00:22:58,080 --> 00:23:01,080

One is the elasticity of this tape.

350

00:23:01,080 --> 00:23:03,080

It stretches.

351

00:23:03,080 --> 00:23:07,080

And the other thing is the shock loading.

352

00:23:07,080 --> 00:23:08,080

Oh yeah!

353

00:23:08,080 --> 00:23:12,080

This engine, once it starts to bounce around from being released,

354

00:23:12,080 --> 00:23:16,080

it's going to weigh many times its weight.

355

00:23:16,080 --> 00:23:18,080

Good? You're looking good?

356

00:23:18,080 --> 00:23:23,080

The fact that there's not a single nail or screw is, well, it's risky.

357

00:23:23,080 --> 00:23:27,080

If anybody's guess whether it's going to work.

358

00:23:27,080 --> 00:23:32,080

With only one less than ideal material to work with.

359

00:23:32,080 --> 00:23:34,080

We've had several lines break.

360

00:23:34,080 --> 00:23:37,080

I'm going to need a lot more of this than I thought I would.

361

00:23:37,080 --> 00:23:39,080

Frustration sets in.

362

00:23:39,080 --> 00:23:40,080

That's not sliding.

363

00:23:40,080 --> 00:23:43,080

No, it's not. What the hell?

364

00:23:43,080 --> 00:23:46,080

The problem right now is that these are too long.

365

00:23:46,080 --> 00:23:50,080

If we start to load this, it is going to stretch.

366

00:23:50,080 --> 00:23:55,080

As they say, no plan survives first contact with implementation.

367

00:23:55,080 --> 00:23:59,080

The problem with that to me is that this thing could then twist against them.

368

00:23:59,080 --> 00:24:01,080

And that's what's happening here.

369

00:24:01,080 --> 00:24:06,080

Eventually, with eight more lengths of rope to further spread the load,

370

00:24:06,080 --> 00:24:08,080

they think they have a working solution.

371

00:24:08,080 --> 00:24:10,080

But will it hold?

372

00:24:16,080 --> 00:24:18,080

This might actually be happening.

373

00:24:18,080 --> 00:24:23,080

Finally, with 73 rolls of the sticky stuff, we have lift off.

374

00:24:23,080 --> 00:24:28,080

But with the light fading, it's over to seat belt central.

375

00:24:30,080 --> 00:24:33,080

Where it's make or break for the tape.

376

00:24:33,080 --> 00:24:38,080

Duck tape is made of a thin layer of polyethylene, a layer of lightweight cloth, and adhesive.

377

00:24:38,080 --> 00:24:39,080

I'm ready.

378

00:24:39,080 --> 00:24:43,080

Now, the manufacturers want you to be able to rip it like so.

379

00:24:43,080 --> 00:24:44,080

It makes it handy.

380

00:24:44,080 --> 00:24:46,080

That also makes it weak.

381

00:24:46,080 --> 00:24:47,080

It's beautiful.

382

00:24:49,080 --> 00:24:50,080

He's dead.

383

00:24:50,080 --> 00:24:53,080

That is, unless you use it in the right way.

384

00:24:53,080 --> 00:24:57,080

If you have an adhesive on something, it means you can put it everywhere.

385

00:24:57,080 --> 00:25:03,080

And the cumulative tensile strength of the tape can be strong enough to do some amazing things.

386

00:25:03,080 --> 00:25:08,080

Will it be strong enough to hold buster in a car crash?

387

00:25:08,080 --> 00:25:10,080

Well, that remains to be seen.

388

00:25:11,080 --> 00:25:17,080

Yep, contrary to the myth, it wasn't strong enough as a like for like seat belt replacement.

389

00:25:17,080 --> 00:25:22,080

But in a new car, Buster and his partner are set for take two.

390

00:25:22,080 --> 00:25:26,080

One crash test down, one broken seat belt.

391

00:25:26,080 --> 00:25:31,080

But this is only one way to use duck tape to hold buster in this car safely.

392

00:25:31,080 --> 00:25:34,080

I'm about to explore another way.

393

00:25:35,080 --> 00:25:37,080

All right, here is the new plan.

394

00:25:37,080 --> 00:25:42,080

Clearly, because the seat belt buckle only fits nine layers, that design is totally out.

395

00:25:42,080 --> 00:25:45,080

I'm now thinking of taping our driver directly to his seat.

396

00:25:45,080 --> 00:25:47,080

Let's call it a body belt.

397

00:25:47,080 --> 00:25:51,080

Two points of contact across the chest, across the pelvis.

398

00:25:51,080 --> 00:25:53,080

Double the layers, at least 18 layers.

399

00:25:53,080 --> 00:25:58,080

Also, I'm not convinced the seat mounts of the seat are strong enough to hold the whole driver.

400

00:25:58,080 --> 00:26:03,080

So I'm also going to anchor him to the body, the frame of the car.

401

00:26:03,080 --> 00:26:05,080

I get another roll.

402

00:26:05,080 --> 00:26:08,080

Is this going to keep our driver in the seat in a car accident?

403

00:26:08,080 --> 00:26:12,080

After seeing how quickly it snapped the nine layers, I'm not sure.

404

00:26:12,080 --> 00:26:14,080

But there's no way to find out but trying.

405

00:26:14,080 --> 00:26:18,080

Look, I'm aware that you might see footage like this.

406

00:26:23,080 --> 00:26:30,080

And conclude that I don't care about Buster's well-being, that I delight in watching him be hurt.

407

00:26:30,080 --> 00:26:33,080

Nice work, Buster. Nice work.

408

00:26:33,080 --> 00:26:38,080

But with someone who didn't care about Buster going to all this length to protect him, I think not.

409

00:26:46,080 --> 00:26:48,080

All right, Mr. Heineman, are you ready?

410

00:26:48,080 --> 00:26:49,080

Set to go.

411

00:26:49,080 --> 00:26:51,080

All right, sir, on your mark.

412

00:26:51,080 --> 00:26:59,080

This is the ultimate duct tape seat belt, 25 mile per hour crash, commencing in three, two, one, go crash.

413

00:27:01,080 --> 00:27:06,080

Car is moving. All right, that's good.

414

00:27:08,080 --> 00:27:12,080

I hear the cable going through the keeper there, moving forward.

415

00:27:12,080 --> 00:27:15,080

Looks like it's going to work beautifully. Here we go.

416

00:27:19,080 --> 00:27:20,080

Awesome.

417

00:27:20,080 --> 00:27:23,080

Better than that, it looks like Buster might have survived in there.

418

00:27:23,080 --> 00:27:26,080

I didn't see him hit the steering wheel.

419

00:27:30,080 --> 00:27:32,080

Here comes the moment of truth.

420

00:27:35,080 --> 00:27:37,080

Yeah, he made it.

421

00:27:37,080 --> 00:27:44,080

Look at, oh my God, it broke the, wow, it broke the wrapping around his belly, but not around his chest.

422

00:27:44,080 --> 00:27:47,080

That is a tremendous amount of force.

423

00:27:52,080 --> 00:27:55,080

Well, yet again, we've totaled the car.

424

00:27:55,080 --> 00:27:59,080

The duct tape seat belt did restrain Buster just.

425

00:27:59,080 --> 00:28:03,080

Now we have to look at the data and see whether he would have survived.

426

00:28:03,080 --> 00:28:08,080

Let's recap the G-loads sustained by Buster and his passenger in crash number one.

427

00:28:08,080 --> 00:28:10,080

You can see the comparisons pretty directly.

428

00:28:10,080 --> 00:28:14,080

The passenger survives as you'd expect with the seat belt and Buster dies.

429

00:28:14,080 --> 00:28:17,080

Now let's look at the passenger for crash number two.

430

00:28:17,080 --> 00:28:21,080

Those numbers are almost identical to crash number one, which is what we'd expect from a control.

431

00:28:21,080 --> 00:28:22,080

That's awesome.

432

00:28:22,080 --> 00:28:28,080

Now let's look at Buster's number and we see, oh, it is confirmed by the accelerometers that the

seat belt made of duct tape

433

00:28:28,080 --> 00:28:31,080

saved Buster's life in that car accident.

434

00:28:31,080 --> 00:28:34,080

That is pretty remarkable and awesome.

435

00:28:34,080 --> 00:28:36,080

That's duct tape.

436

00:28:37,080 --> 00:28:41,080

But this tall tail of the tape is far from finished.

437

00:28:44,080 --> 00:28:50,080

To conclusively prove its crash-proof credentials, there's a need for more speed.

438

00:28:51,080 --> 00:28:52,080

Come on, baby!

439

00:28:59,080 --> 00:29:10,080

For this last test, we're going to really up the ante by bringing the car up to 40 miles per hour,

440

00:29:10,080 --> 00:29:13,080

which is the industry standard for this kind of thing.

441

00:29:13,080 --> 00:29:15,080

Now it doesn't sound like that much.

442

00:29:15,080 --> 00:29:18,080

It's only 15 miles per hour faster than what we did before.

443

00:29:18,080 --> 00:29:25,080

But the formula force equals mass times acceleration dictates that we're going to actually more than double that impact

444

00:29:25,080 --> 00:29:29,080

and that's going to make a dramatic difference to Buster and his seat belt.

445

00:29:29,080 --> 00:29:35,080

So last time, I localized the belts into two main straps and both of them failed.

446

00:29:35,080 --> 00:29:38,080

The first one completely, the second one about 85%.

447

00:29:38,080 --> 00:29:41,080

I don't think I want to make the same mistake on this one.

448

00:29:42,080 --> 00:29:46,080

Yep, this time Adam's going for a full torso wrap.

449

00:29:46,080 --> 00:29:53,080

And in line with the crash energy increase, he's using 40 layers, more than twice as much as last time.

450

00:29:55,080 --> 00:29:57,080

I think it's going to be enough.

451

00:29:57,080 --> 00:29:59,080

Personally, I'm not so sure.

452

00:30:01,080 --> 00:30:06,080

There they go, the Buster's off to risk life and fake limbs for science.

453

00:30:09,080 --> 00:30:11,080

Makes me a little misty.

454

00:30:17,080 --> 00:30:19,080

Alright, sir, on my mark, this is...

455

00:30:20,080 --> 00:30:30,080

Duck tape, seat belt, 40 mile per hour crash in three, two, one, drive.

456

00:30:32,080 --> 00:30:34,080

Jamie's moving.

457

00:30:34,080 --> 00:30:36,080

Campbell's tensing up, car's moving.

458

00:30:36,080 --> 00:30:38,080

Alright, Jamie's going.

459

00:30:38,080 --> 00:30:40,080

He's giving it some gas.

460

00:30:41,080 --> 00:30:43,080

Oh man, this is exciting.

461

00:30:45,080 --> 00:30:47,080

40 miles an hour.

462

00:30:47,080 --> 00:30:49,080

Come on, baby.

463

00:30:51,080 --> 00:30:53,080

A perfect hit.

464

00:30:53,080 --> 00:30:54,080

Beautiful.

465

00:30:54,080 --> 00:30:56,080

Our barrier's stayed, the car has crashed.

466

00:30:56,080 --> 00:30:58,080

Doesn't look like we broke anything.

467

00:30:58,080 --> 00:31:00,080

Let's go see how we did.

468

00:31:05,080 --> 00:31:07,080

Dude, dude.

469

00:31:10,080 --> 00:31:11,080

Duck tape held.

470

00:31:11,080 --> 00:31:12,080

It looks like it held.

471

00:31:12,080 --> 00:31:14,080

It doesn't look like it's broken on either side.

472

00:31:14,080 --> 00:31:16,080

He did not hit the steering wheel.

473

00:31:16,080 --> 00:31:19,080

And this was a more severe impact, clearly.

474

00:31:21,080 --> 00:31:28,080

During this collision, more than twice as much force was required to stop Buster from flying through the windshield.

475

00:31:28,080 --> 00:31:30,080

And that duck tape held.

476

00:31:30,080 --> 00:31:32,080

Great news for the myth?

477

00:31:32,080 --> 00:31:36,080

Well, according to the accelerometers, not so much.

478

00:31:36,080 --> 00:31:40,080

So Buster's duck tape seat belt held in a 40 mile per hour collision.

479

00:31:40,080 --> 00:31:42,080

It is a miracle material.

480

00:31:42,080 --> 00:31:45,080

Does that mean that we should all be driving around with duck tape seat belts?

481

00:31:45,080 --> 00:31:47,080

Well, no.

482

00:31:47,080 --> 00:31:49,080

Here's the thing about a seat belt.

483

00:31:49,080 --> 00:31:52,080

A seat belt gives a little in a car accident.

484

00:31:52,080 --> 00:31:54,080

It actually allows you to move a little bit.

485

00:31:54,080 --> 00:31:57,080

And that is one of the ways it keeps you alive.

486

00:31:57,080 --> 00:32:03,080

Unfortunately, I tie Buster to this chair and to the body of this car with so much rigidity

487

00:32:03,080 --> 00:32:08,080

that a tremendous amount of the force of the accident was transferred right to Buster's torso.

488

00:32:08,080 --> 00:32:12,080

And unfortunately, we have to say that Buster here is totally dead.

489

00:32:13,080 --> 00:32:16,080

Yep, the duck tape worked too well.

490

00:32:16,080 --> 00:32:22,080

There was no give and Buster's instant deceleration was catastrophic.

491

00:32:22,080 --> 00:32:28,080

As versatile as it is, it simply cannot replicate a real seat belt.

492

00:32:28,080 --> 00:32:33,080

Speaking of which, the control seat belt turned out to be faulty.

493

00:32:33,080 --> 00:32:37,080

That right there is where control Buster hit his head.

494

00:32:37,080 --> 00:32:46,080

Unfortunately, the seat belt didn't hold and he experienced 475 G's, which is entirely lethal.

495

00:32:46,080 --> 00:32:52,080

It just goes to show even a 40 mile an hour crash, it's going to kill you without some form of restraint.

496

00:32:52,080 --> 00:32:59,080

You know, it's funny when we started this, I didn't expect we'd end up at a point where duck tape actually worked and yet still killed it.

497

00:32:59,080 --> 00:33:02,080

Maybe we should have made duck tape airbags.

498

00:33:03,080 --> 00:33:10,080

In this final season spectacular, duck tape has one last chance at glory.

499

00:33:10,080 --> 00:33:13,080

Right, here's where we currently stand.

500

00:33:13,080 --> 00:33:24,080

2600 pounds of pine board, 78 rolls of duck tape, our stands are up, the axle is properly attached.

501

00:33:24,080 --> 00:33:26,080

It's working beautifully!

502

00:33:27,080 --> 00:33:32,080

And it also has a 750 pound engine block hanging from the backside.

503

00:33:32,080 --> 00:33:34,080

I can't see any reason this won't work.

504

00:33:34,080 --> 00:33:36,080

Nice and easy, no jerking.

505

00:33:36,080 --> 00:33:41,080

At this point, the only thing left to do, it's bending but it's not splitting.

506

00:33:41,080 --> 00:33:42,080

That is scary.

507

00:33:42,080 --> 00:33:46,080

It's attached to the sling and tried to sting out for the first time.

508

00:33:46,080 --> 00:33:48,080

A little more, a little more, one more inch.

509

00:33:48,080 --> 00:33:50,080

We're clipped in.

510

00:33:50,080 --> 00:33:55,080

I've never built a weapon of war this capable before.

511

00:33:55,080 --> 00:34:00,080

Let go slowly and back away, this may snap, especially when out of duck tape.

512

00:34:02,080 --> 00:34:05,080

A little closer we get, the scarier it gets.

513

00:34:05,080 --> 00:34:10,080

I'm in this point where I'm getting very excited, can you tell?

514

00:34:10,080 --> 00:34:18,080

With the trebuchet locked into firing position, it's clear that this is the duck tape build to end all duck tape builds.

515

00:34:18,080 --> 00:34:25,080

In size, engineering complexity and sheer ambition, it tops the lot.

516

00:34:25,080 --> 00:34:27,080

Sir, there's nothing left to do but fire, are you ready?

517

00:34:27,080 --> 00:34:29,080

Let's load the gun.

518

00:34:29,080 --> 00:34:32,080

First up, a test with that most medieval of ammo.

519

00:34:32,080 --> 00:34:33,080

Our first ammo.

520

00:34:33,080 --> 00:34:35,080

A melon.

521

00:34:35,080 --> 00:34:38,080

I do not like being here.

522

00:34:38,080 --> 00:34:39,080

Okay.

523

00:34:39,080 --> 00:34:40,080

Looks good.

524

00:34:40,080 --> 00:34:41,080

That's loaded.

525

00:34:44,080 --> 00:34:45,080

You ready?

526

00:34:45,080 --> 00:34:46,080

I'm ready.

527

00:34:46,080 --> 00:34:48,080

Now safety is out.

528

00:34:48,080 --> 00:34:50,080

Let's retreat to a safe distance.

529

00:34:52,080 --> 00:34:54,080

First firing of the duck tape trebuchet.

530

00:34:54,080 --> 00:35:00,080

In three, two, one.

531

00:35:03,080 --> 00:35:04,080

Hold!

532

00:35:06,080 --> 00:35:07,080

Yeah!

533

00:35:07,080 --> 00:35:18,080

The fears of a catastrophic failure dispelled.

534

00:35:18,080 --> 00:35:21,080

Boy, it was so sort of gentle watching it do its thing.

535

00:35:21,080 --> 00:35:27,080

In the elegant, effortless action of the trebuchet and flight of a watermelon.

536

00:35:29,080 --> 00:35:30,080

It went a good ways.

537

00:35:30,080 --> 00:35:31,080

It did!

538

00:35:31,080 --> 00:35:36,080

171 feet.

539

00:35:43,080 --> 00:35:47,080

That's a successful firing of a duck tape trebuchet.

540

00:35:47,080 --> 00:35:49,080

And nothing fell apart.

541

00:35:49,080 --> 00:35:51,080

On closer inspection.

542

00:35:51,080 --> 00:35:53,080

Hey, Adam, we've lost one line.

543

00:35:53,080 --> 00:35:54,080

What?

544

00:35:54,080 --> 00:35:56,080

The strain did tell on the tape.

545

00:35:56,080 --> 00:35:57,080

Right there.

546

00:35:57,080 --> 00:35:58,080

Oh, ****.

547

00:35:58,080 --> 00:36:01,080

But all in all, the test fire was a success.

548

00:36:01,080 --> 00:36:02,080

Coming up.

549

00:36:02,080 --> 00:36:04,080

Duck tape trebuchet!

550

00:36:04,080 --> 00:36:06,080

Flaming ball of awesome!

551

00:36:06,080 --> 00:36:10,080

Their choice of ammo gets a little more medieval.

552

00:36:10,080 --> 00:36:11,080

One!

553

00:36:17,080 --> 00:36:22,080

To celebrate the final season, this is the final season of the Duck Tape.

554

00:36:23,080 --> 00:36:29,080

To celebrate the final season, this is the Mythbusters number crunching countdown.

555

00:36:31,080 --> 00:36:32,080

Duck tape.

556

00:36:32,080 --> 00:36:38,080

That most miraculous of engineering marvels has not only been the focus of 24 stories,

557

00:36:38,080 --> 00:36:43,080

it's been crucial to virtually every myth the team has tackled.

558

00:36:46,080 --> 00:36:48,080

It's built five boats.

559

00:36:48,080 --> 00:36:49,080

Yeah!

560

00:36:49,080 --> 00:36:53,080

One bridge and several hats.

561

00:36:53,080 --> 00:36:56,080

Almost 5,000 rolls.

562

00:36:56,080 --> 00:37:01,080

More than 83 miles of the sticky stuff have been pressed into service for science.

563

00:37:01,080 --> 00:37:02,080

Cheers!

564

00:37:02,080 --> 00:37:03,080

Duck tape.

565

00:37:03,080 --> 00:37:05,080

Resolute you.

566

00:37:06,080 --> 00:37:21,080

This is Duck Tape's final season, final fling.

567

00:37:23,080 --> 00:37:29,080

To fully test this tape trebuchet held together without a single screw or bolt,

568

00:37:29,080 --> 00:37:32,080

they need to prove it's fully operational.

569

00:37:32,080 --> 00:37:36,080

Capable of serving up a cocktail of death and destruction.

570

00:37:36,080 --> 00:37:39,080

We're very happy with how the trebuchet is going.

571

00:37:39,080 --> 00:37:45,080

And I love Duck Tape, but I have to admit to you, it is not the ideal material to build a trebuchet out of.

572

00:37:45,080 --> 00:37:48,080

Trebuchet is hot, you want to set the bottle?

573

00:37:48,080 --> 00:37:52,080

And this device is still very, very dangerous, even standing still.

574

00:37:52,080 --> 00:37:53,080

Beauty.

575

00:37:53,080 --> 00:37:58,080

And now that we're adding flaming gasoline, malt-hub cocktails to the mix.

576

00:37:58,080 --> 00:37:59,080

Jamie, you ready?

577

00:37:59,080 --> 00:38:01,080

All right, here we go.

578

00:38:01,080 --> 00:38:02,080

Hold the safety.

579

00:38:02,080 --> 00:38:05,080

The danger quotient is going up exponentially.

580

00:38:05,080 --> 00:38:06,080

Trebuchet is hot!

581

00:38:06,080 --> 00:38:10,080

And it is the very reason why I am dressed for success in a proximity suit.

582

00:38:10,080 --> 00:38:12,080

Lighting the fuse.

583

00:38:12,080 --> 00:38:20,080

I will be zipped up to light the malt-hub cocktail, but I will also be standing at the ready to put out anything that's burning.

584

00:38:20,080 --> 00:38:22,080

Relit, back to the trigger.

585

00:38:22,080 --> 00:38:25,080

Well, more specifically, anything that's burning that we didn't intend to burn.

586

00:38:25,080 --> 00:38:29,080

The stuff we want to burn, we're just going to go get some marshmallows and watch it.

587

00:38:30,080 --> 00:38:31,080

All right.

588

00:38:31,080 --> 00:38:33,080

Duct tape trebuchet.

589

00:38:33,080 --> 00:38:35,080

Flaming ball of awesome.

590

00:38:35,080 --> 00:38:36,080

Here we go.

591

00:38:36,080 --> 00:38:41,080

In three, two, one.

592

00:38:42,080 --> 00:38:44,080

Yeah!

593

00:38:48,080 --> 00:38:49,080

Woo!

594

00:38:49,080 --> 00:38:50,080

That was a good one.

595

00:38:50,080 --> 00:39:03,080

A medieval weapon of war held together by duct tape spreads fire and fury.

596

00:39:03,080 --> 00:39:06,080

Surely a world first.

597

00:39:12,080 --> 00:39:13,080

Ha ha ha ha!

598

00:39:13,080 --> 00:39:16,080

Now we need something to burn to the ground.

599

00:39:16,080 --> 00:39:23,080

Now we can use the trebuchet to hit something.

600

00:39:23,080 --> 00:39:26,080

Yeah, the fire was never an end in and of itself.

601

00:39:28,080 --> 00:39:32,080

We always intended to set something on fire.

602

00:39:32,080 --> 00:39:34,080

All right, perfect.

603

00:39:34,080 --> 00:39:36,080

It's a weapon of war.

604

00:39:36,080 --> 00:39:38,080

We've got to use it to destroy something.

605

00:39:38,080 --> 00:39:41,080

And oh boy, did we find something fun to destroy.

606

00:39:43,080 --> 00:39:44,080

Yeah!

607

00:39:45,080 --> 00:39:48,080

My crew hasn't told me what this looks like.

608

00:39:48,080 --> 00:39:50,080

They just said it's not a castle.

609

00:39:50,080 --> 00:39:52,080

Oh yeah!

610

00:39:52,080 --> 00:39:54,080

What the hell is this thing?

611

00:39:54,080 --> 00:39:55,080

Wow!

612

00:39:55,080 --> 00:39:58,080

Some giant slide.

613

00:39:58,080 --> 00:39:59,080

What the hell?

614

00:39:59,080 --> 00:40:00,080

Woo hoo!

615

00:40:00,080 --> 00:40:01,080

Ha ha ha ha!

616

00:40:01,080 --> 00:40:02,080

Oh ha ha ha!

617

00:40:02,080 --> 00:40:06,080

Is this possible that we got a giant inflatable shark?

618

00:40:06,080 --> 00:40:08,080

That's freaking awesome.

619

00:40:09,080 --> 00:40:10,080

Woo!

620

00:40:10,080 --> 00:40:11,080

Whoa!

621

00:40:11,080 --> 00:40:12,080

Whoa!

622

00:40:12,080 --> 00:40:13,080

Ha ha ha!

623

00:40:13,080 --> 00:40:14,080

Woo!

624

00:40:15,080 --> 00:40:16,080

Woo!

625

00:40:16,080 --> 00:40:21,080

Well, it's a little random, but it definitely deserves to be destroyed.

626

00:40:25,080 --> 00:40:28,080

In a couple of minutes, we're going to finally answer the question,

627

00:40:28,080 --> 00:40:32,080

can a duct tape trebuchet be a viable weapon of war?

628

00:40:34,080 --> 00:40:35,080

Lighting her up.

629

00:40:35,080 --> 00:40:36,080

There you go.

630

00:40:36,080 --> 00:40:39,080

Can it actually take out a target?

631

00:40:40,080 --> 00:40:41,080

We're lit!

632

00:40:42,080 --> 00:40:43,080

We are hot!

633

00:40:43,080 --> 00:40:47,080

In a moment, we're going to find out just how good a weapon of war it actually is.

634

00:40:47,080 --> 00:40:49,080

Ha ha ha ha ha ha!

635

00:40:50,080 --> 00:40:51,080

Woo hoo!

636

00:40:52,080 --> 00:40:53,080

Okay, here we go.

637

00:40:53,080 --> 00:41:02,080

Dug tape trebuchet, the final warmongering blast in three, two, one, pull!

638

00:41:05,080 --> 00:41:06,080

Yeah!

639

00:41:06,080 --> 00:41:07,080

That's it!

640

00:41:08,080 --> 00:41:09,080

Yeah!

641

00:41:09,080 --> 00:41:11,080

We hit it!

642

00:41:11,080 --> 00:41:13,080

It's burning!

643

00:41:14,080 --> 00:41:15,080

She burns!

644

00:41:17,080 --> 00:41:18,080

Wow.

645

00:41:18,080 --> 00:41:20,080

That's going up in a hurry.

646

00:41:20,080 --> 00:41:21,080

Oh, yeah!

647

00:41:23,080 --> 00:41:26,080

That is the last inflatable shark that will f*** with us!

648

00:41:28,080 --> 00:41:33,080

It's actually pretty impressive because here's thousands of pounds of wood,

649

00:41:33,080 --> 00:41:37,080

a throwing arm that's moving violently that weighs hundreds of pounds,

650

00:41:37,080 --> 00:41:39,080

and it's holding on to an engine block.

651

00:41:39,080 --> 00:41:43,080

And yet, there's not a single screw, no pins.

652

00:41:43,080 --> 00:41:47,080

There's nothing but tape holding this machine together.

653

00:41:49,080 --> 00:41:51,080

Best day ever!

654

00:41:51,080 --> 00:41:55,080

And so, as far as I'm concerned, for what it is, it's darn near perfect.

655

00:41:55,080 --> 00:41:56,080

Hey!

656

00:41:56,080 --> 00:41:58,080

Nice work there, sir.

657

00:41:58,080 --> 00:42:07,080

And I can't think of a more dramatic way of demonstrating just how strong something as simple as tape can actually be if it's applied in the right way.

658

00:42:07,080 --> 00:42:13,080

In 14 years, the Mythbusters have made a myriad of marvels with this miracle material.

659

00:42:13,080 --> 00:42:21,080

But with this one monstrous medieval weapon of war, they've stretched duct tape to its absolute limit.

660

00:42:21,080 --> 00:42:23,080

What a way to sign off.