

1

00:00:00,000 --> 00:00:03,400

On this episode of Mythbusters,

2

00:00:03,400 --> 00:00:05,000

Plains,

3

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

What Happened?

4

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

Trains,

5

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

Oh, it's perfect!

6

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

And Propeller Mobiles.

7

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

Come on, baby!

8

00:00:11,000 --> 00:00:16,000

It's chalks away as Adam and Jamie tackle the mystery of the shredded plane.

9

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

I'm so excited, man!

10

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

And creating fire without matches.

11

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

Cavemen could do it, but can these guys?

12

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

All is lost.

13

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

We do.

14

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

Who are the Mythbusters?

15

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

Adam Savage.

16

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

Answer all over my head, man!

17

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

Jamie Heineman.

18

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

Gets me all worked up, just looking at it.

19

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

Tori Balechi.

20

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

Whoa!

21

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

Carrie Byron.

22

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

That was crazy!

23

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

And Grant Imajara.

24

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

Go get him, boy.

25

00:00:42,000 --> 00:00:47,000

Between them, over 50 years of special effects experience.

26

00:00:47,000 --> 00:00:48,000

Go!

27

00:00:48,000 --> 00:00:49,000

No!

28

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

They don't just tell the Myths.

29

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

They put them to the test.

30

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

To Mythbusters fans, this abandoned naval yard should look very familiar.

31

00:01:08,000 --> 00:01:11,000

It's one of Adam and Jamie's favorite haunts.

32

00:01:11,000 --> 00:01:15,000

It's a place where they can get away from it all.

33

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

A place where they can find a little peace of mind.

34

00:01:19,000 --> 00:01:23,000

A place where they can smash stuff up.

35

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

Well, they're back.

36

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

And that can only mean one thing.

37

00:01:27,000 --> 00:01:35,000

Some large-scale destruction is just around the corner.

38

00:01:35,000 --> 00:01:38,000

Care to explain what we're doing out here with 700 feet of track?

39

00:01:38,000 --> 00:01:42,000

A 380 horsepower airplane engine mounted to a train car.

40

00:01:42,000 --> 00:01:45,000

An airplane fuselage and 10,000 bags of sand.

41

00:01:45,000 --> 00:01:49,000

This all started with an email that was circulating all over the net.

42

00:01:49,000 --> 00:01:52,000

And it had the image of an airplane that got neatly sliced up.

43

00:01:52,000 --> 00:01:54,000

Oh, like a loaf of bread.

44

00:01:54,000 --> 00:01:55,000

Yeah.

45

00:01:55,000 --> 00:01:58,000

And it didn't look appropriate to the explanations that we're giving.

46

00:01:58,000 --> 00:02:00,000

What was the explanation?

47

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

Well, there were a couple of them, actually.

48

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

And the first one was that a disgruntled ex-wife went after the plane with a chainsaw.

49

00:02:06,000 --> 00:02:10,000

Okay, I see some very reasonable destruction in our future.

50

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

So, first up, the ex-wife explanation.

51

00:02:16,000 --> 00:02:19,000

Adam's on the prowl for a plane to shred.

52

00:02:19,000 --> 00:02:22,000

I need some more aircraft parts.

53

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

Okay, we're on the right place.

54

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

All right, you got some fuselages I might be able to walk with?

55

00:02:25,000 --> 00:02:26,000

We do?

56

00:02:26,000 --> 00:02:27,000

Sure.

57

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

Kenny Faith runs Faith Aircraft in Sacramento.

58

00:02:29,000 --> 00:02:32,000

His birds have all had their wings clipped.

59

00:02:32,000 --> 00:02:36,000

What I need is a couple of fuselages, at least two, hopefully three.

60

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

Adam scours the lot looking for suitable candidates.

61

00:02:39,000 --> 00:02:44,000

Wow, this looks absolutely exactly like the one I'm seeing in the picture here.

62

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

I mean, it's really close.

63

00:02:46,000 --> 00:02:47,000

That's fantastic.

64

00:02:47,000 --> 00:02:50,000

He finds three planes that fit the bill.

65

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

This is the last one.

66

00:02:52,000 --> 00:02:56,000

Nowadays, it takes a forklift to get these babies off the ground.

67

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

There you go.

68

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

Oh, yeah.

69

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

Even decrepit craft don't come cheap.

70

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

So Kenny and Adam do a deal.

71

00:03:06,000 --> 00:03:12,000

Kenny will slice the price if Adam agrees to slice each plane in half and take just the tail end.

72

00:03:12,000 --> 00:03:23,000

Hang on, is Adam confirming the myth right now?

73

00:03:23,000 --> 00:03:30,000

True, he's not actually using a chainsaw, but the words hot knife and butter spring to mind.

74

00:03:36,000 --> 00:03:38,000

Ray down.

75

00:03:38,000 --> 00:03:42,000

I'm actually starting to believe that this myth might be plausible.

76

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

Whoa!

77

00:03:52,000 --> 00:03:53,000

What?

78

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

You must obey.

79

00:04:02,000 --> 00:04:07,000

You know, Jamie can wear this on Halloween and he can really go out as the bullet.

80

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

Okay, let's recap the myth.

81

00:04:09,000 --> 00:04:14,000

Right, Jamie, for this scene, your motivation is your jilted lover.

82

00:04:14,000 --> 00:04:16,000

He doesn't care about you anymore.

83

00:04:16,000 --> 00:04:24,000

He's found a younger thing and then what to wreck his pride and joy was neat vertical slices.

84

00:04:24,000 --> 00:04:25,000

What?

85

00:04:25,000 --> 00:04:26,000

No elaborate setup?

86

00:04:26,000 --> 00:04:27,000

No scale tests?

87

00:04:27,000 --> 00:04:29,000

No blueprint plans?

88

00:04:29,000 --> 00:04:33,000

This could be the quickest myth bust on record.

89

00:04:34,000 --> 00:04:37,000

If Jamie can start the chainsaw.

90

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

Jilted Jamie gives the plane some gills.

91

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

The cuts are like notches on the belt of a cheating lover.

92

00:04:52,000 --> 00:04:55,000

At first glance, it looks like the myth could be confirmed.

93

00:04:55,000 --> 00:04:56,000

Or is it?

94

00:04:56,000 --> 00:05:02,000

I see these little tiny scrappy marks all the way up and down, which I didn't see in the picture.

95

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

The edges are too jagged and uneven.

96

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

The cuts in the picture are clean.

97

00:05:07,000 --> 00:05:10,000

That surgical precision is impossible with a chainsaw.

98

00:05:10,000 --> 00:05:15,000

After 30 years of doing this kind of thing, Jamie's got a rock solid eye for measurement.

99

00:05:15,000 --> 00:05:22,000

He actually did cuts that I would call almost exactly 7 inches apart, which is totally accurate to what we see in the picture.

100

00:05:22,000 --> 00:05:29,000

And still, I think it's the best effort we could do with a chainsaw, but I don't think that it matches what we see.

101

00:05:29,000 --> 00:05:34,000

I don't get why somebody would make this neat little pattern on the side of an airplane if they were really...

102

00:05:34,000 --> 00:05:35,000

...stopped.

103

00:05:35,000 --> 00:05:43,000

Maybe cut the plane in half, maybe cut the tail off, you know, a few other things I could think of, but this pattern, what's that about?

104

00:05:43,000 --> 00:05:45,000

It doesn't make any sense.

105

00:05:47,000 --> 00:05:49,000

That's supposed to keep you up in the air.

106

00:05:49,000 --> 00:05:57,000

Okay, so assuming the photo is real and assuming a chainsaw-wielding woman wasn't responsible, how did it happen?

107

00:05:57,000 --> 00:05:59,000

Jamie has another tale to tell.

108

00:05:59,000 --> 00:06:07,000

Well, the story goes that an airplane got loose in a hanger and ran into another airplane and the props caused this damage.

109

00:06:07,000 --> 00:06:19,000

Yeah, I read that. It really sounds kind of fishy to me, but I'm not sure how to test this besides taking the photo to a forensics lab and working out the math.

110

00:06:19,000 --> 00:06:20,000

I mean, what do you think?

111

00:06:20,000 --> 00:06:22,000

I think we need to destroy some more airplanes.

112

00:06:22,000 --> 00:06:24,000

Do it full-scale.

113

00:06:24,000 --> 00:06:28,000

Yeah, mayhem, destruction, the whole nine yards.

114

00:06:28,000 --> 00:06:29,000

Absolutely radical.

115

00:06:29,000 --> 00:06:30,000

That's what we do.

116

00:06:30,000 --> 00:06:32,000

So let's go over that scenario again.

117

00:06:32,000 --> 00:06:36,000

For some reason, a pilot has to hand start his plane.

118

00:06:36,000 --> 00:06:40,000

This means getting out of the cockpit and spinning the propeller.

119

00:06:40,000 --> 00:06:50,000

The propeller starts, but before the pilot can get back in the cockpit, the plane careers off across the tarmac and crashes into another plane.

120

00:06:50,000 --> 00:06:55,000

The spinning prop gouging a precise pattern in the fuselage.

121

00:06:55,000 --> 00:06:58,000

We're at the West Valley Flying Club in Northern California.

122

00:06:58,000 --> 00:07:01,000

About an hour south of the Mythbuster Central to find out two things.

123

00:07:01,000 --> 00:07:04,000

One is, is it even possible to hand start a modern airplane?

124

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

And two, what are the physical characteristics of them?

125

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

We're going to measure up some and see if it is remotely possible for one plane to inflict the kind of damage we see on another.

126

00:07:14,000 --> 00:07:19,000

General Manager Josh Smith has lined up a plane similar to the one in the photo.

127

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

Let's do it from 9 o'clock and let's do it from 6 o'clock.

128

00:07:22,000 --> 00:07:25,000

9 and a half inches from 6 o'clock.

129

00:07:25,000 --> 00:07:33,000

This plane is exactly the same kind of high-performance single-engine airplane that is outlined in the myth.

130

00:07:33,000 --> 00:07:35,000

So these measurements should be perfect for us to figure it out.

131

00:07:35,000 --> 00:07:37,000

Okay, 24 inches.

132

00:07:37,000 --> 00:07:43,000

Now, in aviation's early days, hand propping was the only way to start a plane.

133

00:07:43,000 --> 00:07:51,000

Those daring young men in their flying machines defied decapitation every time they wanted to go up and e-up up.

134

00:07:51,000 --> 00:07:56,000

It was enough to get any pioneering pilot all up in the air.

135

00:07:56,000 --> 00:08:03,000

Nowadays, waking your winged steed is all done from the safety of the cockpit.

136

00:08:03,000 --> 00:08:05,000

Well, usually.

137

00:08:06,000 --> 00:08:13,000

Typically, the only reason you would ever have to hand start a plane is if your electrical system goes flat.

138

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

So like similar to a car, your battery runs dead.

139

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

Is there a difference between a normal starting speed and a hand starting speed?

140

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

The typical idle speed will be around 600 rpm.

141

00:08:22,000 --> 00:08:30,000

You know, typically right after you throw the prop on a takeoff start, regardless if it's electrical or done manually, it's going to be around 12 to 1500 rpm.

142

00:08:30,000 --> 00:08:33,000

Is that enough to propel the plane forward?

143

00:08:33,000 --> 00:08:39,000

The plane, depending on the surface, will generally move forward even at like 600 rpm.

144

00:08:39,000 --> 00:08:46,000

In fact, a pilotless plane that's runaway on the runway could reach about 30 miles per hour.

145

00:08:46,000 --> 00:08:51,000

Time for Jamie to chance his arm and his other extremities starting this process.

146

00:08:51,000 --> 00:09:01,000

When you throw the prop, what is essentially a thrust-creating device, once you're flying, now becomes a decapitation device if you're not careful when your hand's starting.

147

00:09:01,000 --> 00:09:04,000

So my advice is never try this at home.

148

00:09:07,000 --> 00:09:13,000

Unlike the MiG, our plane does have someone in the cockpit ready to keep a tight rein on the horsepower.

149

00:09:13,000 --> 00:09:16,000

Oh, getting nervous.

150

00:09:16,000 --> 00:09:19,000

Should Jamie actually get it started?

151

00:09:19,000 --> 00:09:22,000

Oh, you're going to get it this time, Jamie.

152

00:09:23,000 --> 00:09:29,000

That feels like it's just like, you know, it doesn't feel like it's doing anything.

153

00:09:29,000 --> 00:09:31,000

I think I could be here all day long.

154

00:09:34,000 --> 00:09:38,000

Once again, nothing ever goes the way we originally thought it would go.

155

00:09:38,000 --> 00:09:41,000

Okay, now what?

156

00:09:41,000 --> 00:09:44,000

We're moving to a smaller plane, this one right here behind me.

157

00:09:44,000 --> 00:09:47,000

This time, Adam tries to start a revolution.

158

00:09:47,000 --> 00:09:49,000

Oh, that was so close!

159

00:09:53,000 --> 00:09:55,000

Yay!

160

00:09:58,000 --> 00:10:04,000

Even though Jamie was not able to hand start this plane, we discovered some really vital facts for the myth.

161

00:10:04,000 --> 00:10:07,000

One is, it is possible to hand start one of these.

162

00:10:07,000 --> 00:10:17,000

Two, it's considered very bad practice to hand start one without someone sitting at the controls because they have to throttle it back from the idle speed.

163

00:10:17,000 --> 00:10:26,000

Three is, if you hand start it, it'll go right to 1500 RPM and if you don't have someone sitting behind the wheel, it's just going to start rolling across the tarmac.

164

00:10:26,000 --> 00:10:27,000

Good job!

165

00:10:27,000 --> 00:10:29,000

Thank you, sir.

166

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

All right, I think it's time to get back to the shop.

167

00:10:39,000 --> 00:10:41,000

It's the classic castaway scenario.

168

00:10:41,000 --> 00:10:49,000

A plane wreck survivor, in this case Tom Hanks, is washed up on a desert island and he's got his zippo wet.

169

00:10:49,000 --> 00:10:56,000

To survive, Tom needs fire, which, he discovers, is about as easy as getting blood from a stone.

170

00:10:56,000 --> 00:11:01,000

Now, Tori, Grant and Kerry are going to be stranded on their own desert island.

171

00:11:01,000 --> 00:11:03,000

I think we're all going to die.

172

00:11:03,000 --> 00:11:06,000

Their quest, fire without matches.

173

00:11:06,000 --> 00:11:13,000

So Jamie, with all your years of being an outdoor survivalist, have you ever had to start a fire without matches?

174

00:11:13,000 --> 00:11:16,000

Yeah.

175

00:11:16,000 --> 00:11:21,000

Would you like to go in into that?

176

00:11:21,000 --> 00:11:28,000

Well, I've done the typical thing with the sticks, you know, the string and the bow and he rotated until you build up a coal.

177

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

It's pretty tricky, but I've done it.

178

00:11:30,000 --> 00:11:32,000

Well, that's one we're going to try.

179

00:11:32,000 --> 00:11:35,000

We're going to try a few more to see if we can start a fire without using matches.

180

00:11:35,000 --> 00:11:40,000

One, we're going to polish the bottom of a soda can with chocolate, see if we can use it like a mirror.

181

00:11:40,000 --> 00:11:42,000

We're going to use a steel wool and a battery.

182

00:11:42,000 --> 00:11:45,000

We're going to see if we can start a fire with a bullet.

183

00:11:45,000 --> 00:11:48,000

And the last one is see if we can start a fire with ice.

184

00:11:48,000 --> 00:11:50,000

Well, that one I'd like to see.

185

00:11:50,000 --> 00:11:56,000

You'll get as wish, but first on the chopping block, it's the classic fire-starting technique.

186

00:11:56,000 --> 00:12:01,000

So, can our bright sparks pit their wits and light their fire?

187

00:12:01,000 --> 00:12:06,000

Obviously, you can't just take any two pieces of wood and start rubbing them together and get fire.

188

00:12:06,000 --> 00:12:08,000

I thought that was the idea.

189

00:12:08,000 --> 00:12:10,000

Well, there's going to be a little bit of preparation.

190

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

Gasoline, gunpowder.

191

00:12:12,000 --> 00:12:22,000

Unfortunately, like Tom Hanks and Castaway, they've got nothing but wood, elbow grease and a dim and distant memory of their cave dwelling ancestry.

192

00:12:22,000 --> 00:12:24,000

Are you going to give it a try?

193

00:12:24,000 --> 00:12:28,000

I gave it a shot, but this one, you're being very optimistic with this one.

194

00:12:28,000 --> 00:12:32,000

Carrie's normal enthusiasm has already been extinguished.

195

00:12:32,000 --> 00:12:34,000

There's just as much fun as it looks.

196

00:12:36,000 --> 00:12:39,000

You know, if you don't get this lit, we're going to boat you off the island.

197

00:12:40,000 --> 00:12:43,000

Any scouts watching might want to look away.

198

00:12:45,000 --> 00:12:47,000

This ain't pretty.

199

00:12:47,000 --> 00:12:49,000

Oh, shh, shh, shh, shh, shh, shh, shh, shh, shh, shh.

200

00:12:49,000 --> 00:12:51,000

Seems like he's off the island too.

201

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

I'm getting smoke, but I'm not getting any embers.

202

00:12:55,000 --> 00:12:57,000

Oh, those are so tired.

203

00:12:57,000 --> 00:12:59,000

I think we're all going to die.

204

00:12:59,000 --> 00:13:06,000

With things looking grim for our Castaways, they decide to boost their chances with some primitive technology.

205

00:13:06,000 --> 00:13:08,000

This is definitely it.

206

00:13:12,000 --> 00:13:14,000

Hey, I got the bow working.

207

00:13:14,000 --> 00:13:15,000

Yeah?

208

00:13:19,000 --> 00:13:23,000

There's a lot to coordinate here. This is like skiing or something.

209

00:13:28,000 --> 00:13:30,000

Grant slips into hysteria.

210

00:13:30,000 --> 00:13:33,000

The first stages of Desert Island Madness.

211

00:13:33,000 --> 00:13:36,000

Desperate measures are called for.

212

00:13:37,000 --> 00:13:42,000

Like a power drill, which Carrie claims to have found in the wreckage.

213

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

Oh, I'm seeing some black.

214

00:13:44,000 --> 00:13:45,000

I see smoke.

215

00:13:45,000 --> 00:13:47,000

Oh, it's smoking.

216

00:13:48,000 --> 00:13:50,000

So that's as fast as we have to get it going.

217

00:13:50,000 --> 00:13:55,000

They seem to be busting the myth that where there's smoke, there's fire.

218

00:13:55,000 --> 00:13:57,000

She's getting black wood.

219

00:13:57,000 --> 00:13:59,000

She's getting smoke.

220

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

And we're still not getting an ember.

221

00:14:01,000 --> 00:14:06,000

Even with modern technology, our mythbusters are looking like a bunch of fire retardants.

222

00:14:08,000 --> 00:14:10,000

I need a battery change on this.

223

00:14:12,000 --> 00:14:19,000

While Carrie and Tari fail at cheating, Grant stays true to the myth with a prehistoric hand drill.

224

00:14:19,000 --> 00:14:22,000

What the hell is that?

225

00:14:22,000 --> 00:14:25,000

They laughed at Galileo too.

226

00:14:25,000 --> 00:14:32,000

It's perhaps worth remembering at this point that Neanderthals had fire making whipped over 100,000 years ago.

227

00:14:32,000 --> 00:14:34,000

Oh, geez, do you feel the heat coming from that?

228

00:14:34,000 --> 00:14:39,000

Our hapless hominids are stuck between a rock and a hard place.

229

00:14:39,000 --> 00:14:42,000

Maybe we should be building a raft or something.

230

00:14:43,000 --> 00:14:45,000

So how's Tom Hanks doing?

231

00:14:45,000 --> 00:14:52,000

Through a process of trial and error, necessity at last gives birth to invention.

232

00:14:52,000 --> 00:15:00,000

When Tom's tinder catches flame, his celebration resonates across a million years of mankind.

233

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

Fire!

234

00:15:02,000 --> 00:15:05,000

The very hardest part about all this is we know it's not a myth.

235

00:15:05,000 --> 00:15:08,000

We know you can make fire while rubbing two sticks together.

236

00:15:08,000 --> 00:15:10,000

It's been proven over and over.

237

00:15:10,000 --> 00:15:13,000

It's just that we really suck at it.

238

00:15:13,000 --> 00:15:16,000

And because they suck at it, they keep cheating.

239

00:15:19,000 --> 00:15:21,000

Look under F for fire.

240

00:15:22,000 --> 00:15:25,000

Or how about G for gunpowder?

241

00:15:25,000 --> 00:15:28,000

Would you call using gunpowder cheating?

242

00:15:32,000 --> 00:15:34,000

Look, we got fire!

243

00:15:35,000 --> 00:15:37,000

Look at that! All it took was running.

244

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

It worked!

245

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

Fantastic!

246

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

Wow, what a resolve.

247

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

It's fair to say they're not setting the world on fire.

248

00:15:49,000 --> 00:15:56,000

So starving and beaten, they call in an expert and venture into the untamed wilderness of the car park.

249

00:15:56,000 --> 00:16:03,000

You ought to be able from start to finish to get fire in anywhere between 10 and 30 minutes, depending on what you have.

250

00:16:03,000 --> 00:16:08,000

According to survival expert Peter Wolf, Grant was on the right track with his bow.

251

00:16:09,000 --> 00:16:11,000

I want to use my full drill.

252

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

You see that dark dust forming?

253

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

I want that hole as big around as my drill.

254

00:16:19,000 --> 00:16:23,000

For tinder, the Wolfman favors the yucca leaf.

255

00:16:23,000 --> 00:16:26,000

Now I'm going to use a nice large bundle here.

256

00:16:26,000 --> 00:16:32,000

You don't want to catch your fibers while you're right in the middle of making a nice little hole.

257

00:16:32,000 --> 00:16:34,000

You see how straight the bow is?

258

00:16:34,000 --> 00:16:37,000

I want to keep it level, keep your string in the middle.

259

00:16:37,000 --> 00:16:39,000

Use the whole bow.

260

00:16:45,000 --> 00:16:48,000

What the heck?

261

00:16:48,000 --> 00:16:50,000

Too nice. Job.

262

00:16:58,000 --> 00:17:01,000

Meanwhile, Adam and Jerry are on the way to the beach.

263

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

Meanwhile, Adam and Jamie are out of the fire and into the flying plan.

264

00:17:05,000 --> 00:17:13,000

I'm having trouble visualizing what happens between these two planes when they hit, between the propeller, the body of the plane, all that stuff.

265

00:17:13,000 --> 00:17:19,000

I'd like to do a mock-up of these planes in scale and figure out the math of speeds in RPM.

266

00:17:19,000 --> 00:17:24,000

It'll give us at least a really good starting point to work out the logistics of the large scale experiment.

267

00:17:24,000 --> 00:17:26,000

Right. Well, that sounds like a great idea.

268

00:17:26,000 --> 00:17:31,000

Well, you're doing that. I've got a lead on an engine that I found on the Internet, so I'm going to go check that out.

269

00:17:31,000 --> 00:17:32,000

Okay.

270

00:17:32,000 --> 00:17:37,000

Step one. Adam digs out some diagrams, which he'll blow up to one-twelfth scale.

271

00:17:37,000 --> 00:17:41,000

One-twelfth scale means that one inch will equal one foot.

272

00:17:41,000 --> 00:17:53,000

This will allow me to measure out and match to the photo the amount of slices and their distance apart, and then calculate from that the exact speed that the runaway plane must have been traveling at.

273

00:17:53,000 --> 00:17:55,000

This calculation is crucial.

274

00:17:55,000 --> 00:18:03,000

Adam's math can't have the plane moving any faster than 30 miles per hour. The top ground speed of a runaway plane.

275

00:18:03,000 --> 00:18:04,000

Perfect.

276

00:18:04,000 --> 00:18:07,000

Jamie, meanwhile, is shopping for an aircraft engine.

277

00:18:07,000 --> 00:18:10,000

Can you tell me what the idle speed on that engine is?

278

00:18:10,000 --> 00:18:19,000

And before you know it, a 380 horsepower six-cylinder engine is touching down, direct from an aviation school in Ohio.

279

00:18:20,000 --> 00:18:24,000

All right, so here's how the myth is supposed to have worked.

280

00:18:24,000 --> 00:18:30,000

Our little pilot man, he climbs out of his plane. He walks over.

281

00:18:30,000 --> 00:18:34,000

Oh, I think I better hand start this plane.

282

00:18:34,000 --> 00:18:36,000

Oh, jot. Oh, jot.

283

00:18:36,000 --> 00:18:43,360

The plane starts to go, oh no I better get out of here, he dives for safety.

284

00:18:43,360 --> 00:18:56,360

And the plane travels and starts to go into the victim plane.

285

00:18:56,360 --> 00:19:00,680

This myth is looking really at least physically possible at this point.

286

00:19:00,680 --> 00:19:06,960

I was wondering how the wing of this plane would get past the tail of this plane.

287

00:19:06,960 --> 00:19:10,480

But I've got everything at its correct elevations here.

288

00:19:10,480 --> 00:19:16,000

And from everything that this tells me, the runaway plane clears relatively, the wing

289

00:19:16,000 --> 00:19:22,040

clears relatively underneath the back of the shredded plane.

290

00:19:22,040 --> 00:19:25,800

And right there, this myth is starting to seem like it might be possible.

291

00:19:25,800 --> 00:19:27,640

Now I think it's time to do some math.

292

00:19:27,640 --> 00:19:31,920

The key to determining the speed of the plane lies in working out the distance between the

293

00:19:31,920 --> 00:19:34,760

slices.

294

00:19:34,760 --> 00:19:40,160

Adam works out that the plane in the picture is punctured every 7 inches.

295

00:19:40,160 --> 00:19:41,160

Perfect.

296

00:19:41,160 --> 00:19:46,120

My marks here are matching up to the photo in terms of their spacing on the body of the

297

00:19:46,120 --> 00:19:47,120

plane.

298

00:19:47,120 --> 00:19:52,360

If the prop spinning at 1500 rpm, how fast does the plane have to be going in order to

299

00:19:52,360 --> 00:19:54,600

make slices 7 inches apart?

300

00:19:54,600 --> 00:19:58,000

It would make 4500 slices per minute.

301

00:19:58,000 --> 00:20:04,720

So 4500 times 7 inches is 31,500 inches.

302

00:20:04,720 --> 00:20:09,880

Divide that by 12, I get 2625 feet per minute.

303

00:20:09,880 --> 00:20:15,000

Multiply that by 60 for the hours, I get 157,500 feet per hour.

304

00:20:15,000 --> 00:20:20,200

Divide it by 5,280, the number of feet in a mile, and I get 29.8 miles per hour.

305

00:20:20,200 --> 00:20:23,240

A totally reasonable speed for this plane to be traveling at.

306

00:20:23,240 --> 00:20:30,240

I can't wait to tell Jamie, he's going to say, well that's what I was hoping to hear.

307

00:20:30,240 --> 00:20:32,240

That's what I wanted to hear.

308

00:20:32,240 --> 00:20:35,360

Because if it was 600 miles per hour, there's a problem.

309

00:20:35,360 --> 00:20:37,160

Or 2 miles an hour.

310

00:20:37,160 --> 00:20:40,120

So far the pieces are falling into place.

311

00:20:40,120 --> 00:20:44,200

We know a plane can be hand started.

312

00:20:44,200 --> 00:20:48,240

And thanks to Adam's scale cutouts, we know the math stacks up.

313

00:20:48,240 --> 00:20:53,520

The next question is whether the prop itself is capable of making those neat little slices.

314

00:20:53,520 --> 00:20:55,480

Everything else is lined up.

315

00:20:55,480 --> 00:21:10,160

That's the one remaining bit.

316

00:21:10,160 --> 00:21:14,440

This next one I'm excited about, we're going to try to light a fire with a bullet.

317

00:21:14,440 --> 00:21:19,400

And the idea here is to pull the bullet out of the casing, empty the gunpowder into your

318

00:21:19,400 --> 00:21:24,240

kindling, put the empty shell back in the gun, and shooting at the gunpowder, igniting

319

00:21:24,240 --> 00:21:26,440

it and igniting your kindling.

320

00:21:26,440 --> 00:21:30,560

The key to this neat idea is the firing cap at the bottom of the cartridge.

321

00:21:30,560 --> 00:21:35,120

Normally, it ignites the gunpowder, which fires the bullet from the shell.

322

00:21:35,120 --> 00:21:41,240

According to this myth, to start a fire, just remove the bullet, pour out the gunpowder,

323

00:21:41,240 --> 00:21:47,400

and use the firing cap as a fire lighter.

324

00:21:47,400 --> 00:21:51,880

With nine bullets in a clip, theoretically they'd have up to nine shots at starting a

325

00:21:51,880 --> 00:21:53,320

fire.

326

00:21:53,320 --> 00:21:59,560

They collect gunpowder from nine bullets and head for the Mythbusters blast chamber, where

327

00:21:59,560 --> 00:22:06,320

they use up all nine lives.

328

00:22:06,320 --> 00:22:08,440

These cats are going to have to think again.

329

00:22:08,440 --> 00:22:11,080

Do you have any more ideas of your sleeve?

330

00:22:11,080 --> 00:22:14,040

It seems kind of funny not being able to light gunpowder.

331

00:22:14,040 --> 00:22:17,160

I mean, it's so flammable and all, you'd think it would be a snap.

332

00:22:17,160 --> 00:22:22,480

But you know, here on Mythbusters, we find ways of making easy things hard.

333

00:22:22,480 --> 00:22:26,960

The problem is that the firing cap won't ignite the gunpowder unless it's compressed

334

00:22:26,960 --> 00:22:27,960

by a bullet.

335

00:22:27,960 --> 00:22:33,000

When you have the bullet compressing the gunpowder up against that cap, then you have that connection.

336

00:22:33,000 --> 00:22:38,560

Otherwise, if there's no bullet, the cap just blows the gunpowder out like confetti.

337

00:22:38,560 --> 00:22:44,560

So they decide to recalibrate the myth with a rifle, a bullet and some cloth.

338

00:22:44,560 --> 00:22:49,760

Hopefully, since there's more gunpowder in the round, it'll ignite the cloth and we'll

339

00:22:49,760 --> 00:22:51,680

have a burning ember shoot out of the barrel.

340

00:22:51,680 --> 00:22:55,200

And we won't have all of our gunpowder just blown away.

341

00:22:55,200 --> 00:23:00,360

With any luck, the wad of cloth will compress the gunpowder sufficiently to achieve ignition.

342

00:23:00,360 --> 00:23:04,560

All right, so that's packed tight in there.

343

00:23:04,880 --> 00:23:05,880

Holy.

344

00:23:08,880 --> 00:23:09,880

Nope.

345

00:23:09,880 --> 00:23:14,720

With the prospect of raw fish for dinner again, Carrie urges a radical rethink.

346

00:23:14,720 --> 00:23:19,480

Maybe it's time to start replicating the results and actually just make it happen instead

347

00:23:19,480 --> 00:23:22,080

of trying to make it happen the way the myth says.

348

00:23:22,080 --> 00:23:26,720

Tori suspects that the black powder used in old-fashioned muskets is more flammable than

349

00:23:26,720 --> 00:23:31,200

the smokeless gunpowder in modern bullets.

350

00:23:31,200 --> 00:23:33,080

So he quickly sets up an experiment.

351

00:23:33,440 --> 00:23:34,600

This is the black powder.

352

00:23:34,600 --> 00:23:35,600

This is the smokeless powder.

353

00:23:35,600 --> 00:23:36,600

Okay.

354

00:23:37,600 --> 00:23:38,600

Oh, quick.

355

00:23:44,600 --> 00:23:47,560

So that's why I think it benefits us to go with the black powder.

356

00:23:47,560 --> 00:23:48,560

I don't know.

357

00:23:48,560 --> 00:23:51,640

It looked to me like the smokeless was on longer.

358

00:23:51,640 --> 00:23:54,000

It seems like that should be better for us.

359

00:23:54,000 --> 00:23:57,000

But did you see how easy it was to ignite the black powder?

360

00:23:57,760 --> 00:24:02,880

If it's easier to ignite the black powder, we're going to get a better chance of igniting

361

00:24:02,880 --> 00:24:03,880

our cotton.

362

00:24:03,880 --> 00:24:05,880

It ignites faster.

363

00:24:05,880 --> 00:24:06,880

Like that.

364

00:24:09,440 --> 00:24:15,920

So take one musket at a measure of black powder, then ram home a wad of cotton.

365

00:24:15,920 --> 00:24:19,480

Finally, add a firing cap and cross your fingers.

366

00:24:20,480 --> 00:24:21,480

Yeah!

367

00:24:23,480 --> 00:24:27,480

At last, fire in the hole takes on real meaning.

368

00:24:28,480 --> 00:24:29,480

That's it.

369

00:24:29,480 --> 00:24:30,480

Yeah!

370

00:24:34,480 --> 00:24:39,480

Meanwhile, another myth buster is feeling a little under the gun.

371

00:24:39,480 --> 00:24:42,480

Seems a few gremlins have set up shop in the engine.

372

00:24:42,480 --> 00:24:46,480

And while Jamie might be a propeller head, he's no aircraft mechanic.

373

00:24:46,480 --> 00:24:48,480

The default is supposed to be out.

374

00:24:49,480 --> 00:24:50,480

That way.

375

00:24:50,480 --> 00:24:51,480

Yeah.

376

00:24:51,480 --> 00:24:53,480

Luckily, this guy is.

377

00:24:53,480 --> 00:24:59,480

His name is Earl Hibbler, and his colleague is propeller specialist Brian Sullivan.

378

00:24:59,480 --> 00:25:03,480

They've agreed to help Adam and Jamie make this myth take wing.

379

00:25:03,480 --> 00:25:05,480

But it won't be easy.

380

00:25:05,480 --> 00:25:10,480

You know, when you get an engine from an A&P school, they have students that take it apart,

381

00:25:10,480 --> 00:25:13,480

put it together, take it apart, put it together, take it apart, put it together.

382

00:25:13,480 --> 00:25:15,480

And not necessarily right.

383

00:25:15,480 --> 00:25:17,480

We've detected a few problems.

384

00:25:17,480 --> 00:25:23,480

Bad magnetos, which give the spark plugs their spark.

385

00:25:23,480 --> 00:25:29,480

We also are missing a fuel pump, but Brian and Earl seem to think that we can solve those problems by the end of the day.

386

00:25:29,480 --> 00:25:33,480

They said they have no idea what the word no means, and they're going to get this thing running.

387

00:25:33,480 --> 00:25:39,480

While Earl and Brian get down to business, Adam and Jamie use the time to do a little research.

388

00:25:39,480 --> 00:25:45,480

You know, propeller damage is not nearly as rare as I originally thought when we started this whole myth.

389

00:25:45,480 --> 00:25:51,480

In fact, in 2001 in New York, two planes collided on the runway and had prop damage.

390

00:25:51,480 --> 00:25:56,480

Well, actually in 2005 in Chino, California, the same type of accident happened.

391

00:25:56,480 --> 00:26:03,480

And then in 1986 in Santa Paula, California, two planes collided 150 feet in the air and had prop damage.

392

00:26:03,480 --> 00:26:10,480

You know, prop damage isn't limited only to planes. In 1983 in Quincy, Washington, a car on the ground was contacted by a plane

393

00:26:10,480 --> 00:26:13,480

and the three passengers were actually injured.

394

00:26:13,480 --> 00:26:20,480

And then finally in Concord, California in 2004, an airplane landed on a freeway

395

00:26:20,480 --> 00:26:25,480

and sliced up a minivan nearly amputating the leg of an 11-year-old girl.

396

00:26:25,480 --> 00:26:27,480

Meanwhile, back at the grease pit.

397

00:26:27,480 --> 00:26:29,480

This engine's fixing to become very dangerous.

398

00:26:29,480 --> 00:26:30,480

Are you all ready?

399

00:26:30,480 --> 00:26:31,480

Excellent.

400

00:26:31,480 --> 00:26:32,480

You ready?

401

00:26:32,480 --> 00:26:34,480

Yeah, I'm getting there.

402

00:26:34,480 --> 00:26:35,480

Y'all ready?

403

00:26:35,480 --> 00:26:36,480

Yeah.

404

00:26:36,480 --> 00:26:37,480

Clear.

405

00:26:50,480 --> 00:26:54,480

Earl and Brian have got that engine purring like a kitten.

406

00:26:54,480 --> 00:26:58,480

An asthmatic kitten who's just run the New York Marathon.

407

00:27:02,480 --> 00:27:15,480

Adam uses a tachometer to check the propeller's RPM.

408

00:27:15,480 --> 00:27:20,480

Well, that easily made it to 1500. We actually got up to 2000 RPM there.

409

00:27:20,480 --> 00:27:25,480

But while the engine starts okay, it just won't keep going.

410

00:27:25,480 --> 00:27:29,480

Earl's diagnosis? Dirty fuel injector servos.

411

00:27:29,480 --> 00:27:31,480

I bet it's servo.

412

00:27:31,480 --> 00:27:34,480

Think we're just pouring fuel on it or no fuel?

413

00:27:34,480 --> 00:27:36,480

Yeah, I think it's just pouring fuel.

414

00:27:36,480 --> 00:27:39,480

I don't know whether we have to climb all the way inside of it and try and clean it out

415

00:27:39,480 --> 00:27:43,480

or whether we ought to delay the shoot, but we're definitely running out of time.

416

00:27:43,480 --> 00:27:48,480

And this beautiful engine's proving really problematic.

417

00:28:00,480 --> 00:28:06,480

So the idea is you take a piece of chocolate, rub it on the bottom of your colican, which is pretty dull.

418

00:28:06,480 --> 00:28:10,480

Chocolate acts like a mild abrasive.

419

00:28:10,480 --> 00:28:11,480

And after time...

420

00:28:11,480 --> 00:28:13,480

So we're going to try to polish this up to a mirror finish.

421

00:28:13,480 --> 00:28:14,480

Right.

422

00:28:14,480 --> 00:28:18,480

It's a cunning use of the concave shape at the bottom of a soda can.

423

00:28:18,480 --> 00:28:25,480

According to the myth, it can focus the sun's rays into a single point, creating enough heat to start a fire.

424

00:28:26,480 --> 00:28:28,480

Go.

425

00:28:30,480 --> 00:28:35,480

It sounds simple enough, which is a copper bottom guarantee that it's anything but.

426

00:28:35,480 --> 00:28:37,480

Okay, you guys are about nine minutes into it.

427

00:28:37,480 --> 00:28:39,480

How far off do you think you are from a mirror finish?

428

00:28:39,480 --> 00:28:41,480

About a hundred freaking years.

429

00:28:41,480 --> 00:28:46,480

According to the myth, polishing with chocolate will help to remove the oxide layer.

430

00:28:46,480 --> 00:28:48,480

Andy wrote the tooling marks.

431

00:28:48,480 --> 00:28:52,480

Imagine you're freezing right now and it's getting dark.

432

00:28:53,480 --> 00:28:55,480

Well, it's getting dark.

433

00:28:55,480 --> 00:28:56,480

It's getting dark.

434

00:28:56,480 --> 00:28:58,480

We won't have any sun, so we won't be able to light it anyway.

435

00:28:58,480 --> 00:28:59,480

Good call.

436

00:28:59,480 --> 00:29:00,480

So all is lost.

437

00:29:00,480 --> 00:29:01,480

We do.

438

00:29:01,480 --> 00:29:07,480

Six solid hours of polishing later, and this survivalist is losing the will to live.

439

00:29:07,480 --> 00:29:10,480

And the results aren't exactly dazzling.

440

00:29:10,480 --> 00:29:15,480

So what we need to do is get all the sun's rays, which are all traveling about parallel.

441

00:29:15,480 --> 00:29:20,480

The reflector's going to take them and focus them in on one point, because it's parabolic.

442

00:29:20,480 --> 00:29:22,480

First up, Grant's effort.

443

00:29:22,480 --> 00:29:26,480

The fire extinguisher may be a little optimistic.

444

00:29:26,480 --> 00:29:30,480

I don't want to discount your work, but I don't think this is going to work very well.

445

00:29:30,480 --> 00:29:32,480

Should we move on to the next can?

446

00:29:32,480 --> 00:29:33,480

Yeah.

447

00:29:33,480 --> 00:29:34,480

Get one a little bit of a mirror finish?

448

00:29:34,480 --> 00:29:35,480

It's, yeah.

449

00:29:35,480 --> 00:29:41,480

If it's dull, it means that that light is not getting, it's actually bouncing off a little bit, getting dispersed.

450

00:29:41,480 --> 00:29:48,480

Tari's can is much shinier, and right away, the parabola produces an encouraging hotspot on the leaf.

451

00:29:48,480 --> 00:29:50,480

It's going, it's going, it's burning.

452

00:29:50,480 --> 00:29:52,480

But they can't hold the leaf still enough.

453

00:29:52,480 --> 00:29:54,480

The hotspot keeps moving.

454

00:29:54,480 --> 00:29:58,480

Let's say that there's some, we found some wire from the wreckage in the plane.

455

00:29:58,480 --> 00:30:02,480

We'll make an arm that comes up that will hold whatever we're trying to burn.

456

00:30:02,480 --> 00:30:07,480

And sure enough, by keeping the tinder steady, the hotspot soon ignites.

457

00:30:07,480 --> 00:30:08,480

Ow!

458

00:30:08,480 --> 00:30:10,480

Oh, the thing's burning my hand.

459

00:30:10,480 --> 00:30:11,480

It's hot.

460

00:30:11,480 --> 00:30:12,480

It's smoking.

461

00:30:12,480 --> 00:30:13,480

It's fire.

462

00:30:13,480 --> 00:30:15,480

So the can can.

463

00:30:15,480 --> 00:30:22,480

You just want to hope your doomed plane was carrying a large cargo of chocolate and soda.

464

00:30:22,480 --> 00:30:33,480

Here's the trick I'm sure you've all been waiting for.

465

00:30:33,480 --> 00:30:37,480

This is, how do you start a fire with a flashlight?

466

00:30:37,480 --> 00:30:41,480

The next myth is a big favorite with survival expert Ron Hood.

467

00:30:41,480 --> 00:30:47,480

He knows only too well the benefits of being able to make a cooking fire in the wilderness.

468

00:30:47,480 --> 00:30:48,480

Here's the trick.

469

00:30:48,480 --> 00:30:50,480

Steel wool.

470

00:30:50,480 --> 00:30:57,480

What we want to do now is touch it across these contacts and see if we can make a contact that'll ignite some of the steel wool.

471

00:30:57,480 --> 00:30:59,480

Looky there.

472

00:30:59,480 --> 00:31:00,480

Fire.

473

00:31:00,480 --> 00:31:01,480

Ouch.

474

00:31:01,480 --> 00:31:03,480

It's hot too.

475

00:31:03,480 --> 00:31:07,480

It's like taking candy from a baby, right?

476

00:31:07,480 --> 00:31:08,480

Ha!

477

00:31:08,480 --> 00:31:09,480

Ha!

478

00:31:09,480 --> 00:31:10,480

Wrong.

479

00:31:10,480 --> 00:31:11,480

Wrong.

480

00:31:11,480 --> 00:31:12,480

Oh.

481

00:31:12,480 --> 00:31:15,480

It's, yeah, it was close.

482

00:31:15,480 --> 00:31:16,480

Ah!

483

00:31:16,480 --> 00:31:21,480

I didn't like you stupid.

484

00:31:21,480 --> 00:31:23,480

That's hot.

485

00:31:23,480 --> 00:31:26,480

You're getting sparks.

486

00:31:26,480 --> 00:31:28,480

Yes, yes.

487

00:31:28,480 --> 00:31:31,480

Oh no, no, no, no, no.

488

00:31:31,480 --> 00:31:36,480

Eventually, as starvation begins to set in, they get their precious ember.

489

00:31:36,480 --> 00:31:37,480

There's smoke.

490

00:31:37,480 --> 00:31:39,480

There's definitely smoke.

491

00:31:39,480 --> 00:31:44,480

Smoke, they've got plenty of.

492

00:31:44,480 --> 00:31:47,480

There's no shortage of smoke.

493

00:31:47,480 --> 00:31:51,480

And on the edge of asphyxiation, they get fire.

494

00:31:51,480 --> 00:31:55,480

Hey, hey, hey, hey, proof of concept, yay!

495

00:31:55,480 --> 00:31:56,480

Cool.

496

00:31:56,480 --> 00:31:58,480

We did it.

497

00:31:58,480 --> 00:31:59,480

Fire.

498

00:31:59,480 --> 00:32:00,480

Fire.

499

00:32:00,480 --> 00:32:01,480

We've made it put this out before Jamie sees it.

500

00:32:01,480 --> 00:32:02,480

Don't worry guys.

501

00:32:02,480 --> 00:32:05,480

Jamie's a little preoccupied right now.

502

00:32:09,480 --> 00:32:11,480

Hit it, Brian.

503

00:32:11,480 --> 00:32:16,480

That engine still won't start.

504

00:32:16,480 --> 00:32:19,480

The long day is taking its toll.

505

00:32:19,480 --> 00:32:22,480

I can see for the first time some grease on your nose.

506

00:32:22,480 --> 00:32:25,480

Yeah, well, believe it or not, it does happen.

507

00:32:25,480 --> 00:32:28,480

I think you've got to feel water out there.

508

00:32:28,480 --> 00:32:30,480

Well, I'm trying to fit so.

509

00:32:30,480 --> 00:32:32,480

It's rope, it's off right there.

510

00:32:32,480 --> 00:32:38,480

Finally, as darkness descends, a ray of light.

511

00:32:47,480 --> 00:32:48,480

Wow.

512

00:32:48,480 --> 00:32:52,480

It will run good enough to do what they want to do.

513

00:32:52,480 --> 00:32:53,480

Woo!

514

00:32:53,480 --> 00:32:57,480

Right, they've got a working engine and a lethally spinning propeller.

515

00:32:57,480 --> 00:33:03,480

Now, how are they going to turn half a plane into a realistic target aircraft?

516

00:33:03,480 --> 00:33:06,480

We're going to do that by making a frame out of tube steel.

517

00:33:06,480 --> 00:33:13,480

Lots of cutting and welding a little bit so we'll make it so that we can bolt tail end after tail end onto this framework,

518

00:33:13,480 --> 00:33:21,480

as well as we'll make this so that we can put appropriate weight on it to simulate what the real target plane would be like.

519

00:33:21,480 --> 00:33:27,480

Soon the guys looking like a couple of cut price superheroes are cutting and welding up a storm.

520

00:33:31,480 --> 00:33:33,480

Love welding, that's why I love welding.

521

00:33:33,480 --> 00:33:35,480

You come in in the morning and there's just a pile of steel.

522

00:33:35,480 --> 00:33:40,480

Leave at the end of the day and there's a bloody airplane.

523

00:33:41,480 --> 00:33:46,480

Well, a rudimentary airplane anyway, complete with wings and landing gear.

524

00:33:47,480 --> 00:33:53,480

The whole thing will have to weigh the same as a fully fueled light aircraft, about 2,500 pounds.

525

00:33:58,480 --> 00:33:59,480

What happened?

526

00:33:59,480 --> 00:34:00,480

We need to add...

527

00:34:01,480 --> 00:34:04,480

What happened is we need to add some weight up here.

528

00:34:04,480 --> 00:34:06,480

Well, it held.

529

00:34:08,480 --> 00:34:12,480

At the moment, the whole thing weighs just 500 pounds.

530

00:34:13,480 --> 00:34:19,480

But after a successful raid on a few local gyms, they find another 2,000 pounds.

531

00:34:19,480 --> 00:34:27,480

The hope is that when the actual experiment occurs, this target plane will react the same way a real plane would.

532

00:34:27,480 --> 00:34:33,480

In other words, a real plane wouldn't be just anchored to the ground, it wouldn't be super light.

533

00:34:33,480 --> 00:34:37,480

It's going to react to this attacking plane.

534

00:34:37,480 --> 00:34:40,480

We've got a working engine, we've got the fuselage we need.

535

00:34:40,480 --> 00:34:44,480

We just have to work out and crash these things into each other without killing ourselves.

536

00:34:44,480 --> 00:34:52,480

Yeah, well, to replicate the actual physics of the real event, we need to make these two devices weigh the same as the planes they represent.

537

00:34:52,480 --> 00:34:55,480

And they've got to travel at like 30 miles an hour.

538

00:34:55,480 --> 00:34:58,480

What if we did it on train tracks?

539

00:34:59,480 --> 00:35:04,480

That sounds like a good idea. I think there are some railway areas around here that we could use.

540

00:35:04,480 --> 00:35:08,480

And we just need some kind of railway car platform to put them on.

541

00:35:08,480 --> 00:35:09,480

You got it.

542

00:35:10,480 --> 00:35:14,480

So here's the plan. The engine will be mounted on a railway car.

543

00:35:14,480 --> 00:35:24,480

With the engine roaring and the prop spinning at 1500 rpm, our runaway plane will taxi along the track straight into the target rig.

544

00:35:24,480 --> 00:35:29,480

Here at the railway museum, they have what they call service carts, which might be perfect for our needs.

545

00:35:29,480 --> 00:35:39,480

A four-wheeled cart that rides on train tracks that we can bolt our engine structure to and be safely in the distance, and yet we know it's going to hit its target perfectly.

546

00:35:39,480 --> 00:35:42,480

Adam soon finds his shred sled.

547

00:35:42,480 --> 00:35:44,480

Oh, it's perfect.

548

00:35:44,480 --> 00:35:46,480

This is perfect.

549

00:35:46,480 --> 00:35:48,480

It's perfect, apparently.

550

00:35:48,480 --> 00:35:55,480

I don't want to motorize this thing. I want it to take off just because the propeller's spinning, just like a real plane would.

551

00:35:55,480 --> 00:36:02,480

Thing is, the rig will need rails to run on and sufficient room to build up speed, say about a thousand feet.

552

00:36:02,480 --> 00:36:07,480

But where on earth is Adam going to find that much railway track just lying around?

553

00:36:07,480 --> 00:36:09,480

This looks like the perfect stuff.

554

00:36:09,480 --> 00:36:17,480

Once again, it's off to that myth-busting mecca, the abandoned naval facility, where there's a tangle of rail line.

555

00:36:17,480 --> 00:36:22,480

Things I really like about it are it's nice and remote. It's not near any other buildings or anything.

556

00:36:22,480 --> 00:36:28,480

We can all be way back there when this happens. It's a nice straight shot, which we haven't seen here before.

557

00:36:28,480 --> 00:36:30,480

A thousand feet of straight track.

558

00:36:38,480 --> 00:36:44,480

Alright, so this last technique is going to freak your mind out. It's getting fire from ice.

559

00:36:44,480 --> 00:36:52,480

And the idea is to take a block of ice, rub it until you get the shape of a lens, and then take it in the sun's rays and focusing them into your kenneling.

560

00:36:52,480 --> 00:36:58,480

For this myth, our castaways have left their desert island and are stranded in an icy wasteland.

561

00:36:58,480 --> 00:37:02,480

But to make fire, any old ice won't do.

562

00:37:02,480 --> 00:37:04,480

Alright, so you guys are looking for some clear ice, right?

563

00:37:04,480 --> 00:37:05,480

Yeah!

564

00:37:05,480 --> 00:37:06,480

Look at that!

565

00:37:06,480 --> 00:37:08,480

How long does it take to make something like this?

566

00:37:08,480 --> 00:37:15,480

These take three days to freeze. The fourth day, it's done. You let it cure for one day inside the tank where they're made.

567

00:37:15,480 --> 00:37:21,480

These specially produced clear ice blocks are used for creating ice sculptures.

568

00:37:21,480 --> 00:37:25,480

So where does our ice alchemist stand on this myth?

569

00:37:25,480 --> 00:37:32,480

When you first said that, I said no way. But then I have thought about what you're saying and where it sounds right and principal.

570

00:37:32,480 --> 00:37:34,480

I just don't know about the physics of that.

571

00:37:34,480 --> 00:37:40,480

Remember when you were a kid and those endless summer days spelled death for ants?

572

00:37:40,480 --> 00:37:48,480

Antiside relies on refraction. The convex shape of the lens bends sunlight into a single hot point.

573

00:37:48,480 --> 00:37:54,480

A lens made of ice should work the same way. What could possibly go wrong?

574

00:37:54,480 --> 00:38:02,480

It's crystal clear that this ice is their best chance of sculpting a lens which can focus sunlight and make fire.

575

00:38:02,480 --> 00:38:04,480

Now, how do you get it so clear?

576

00:38:04,480 --> 00:38:13,480

What we do is we agitate the water with 13 pounds of air pressure and it causes all the atoms and molecules to fly around inside this block.

577

00:38:13,480 --> 00:38:16,480

Only the most pure freeze from the outside in.

578

00:38:16,480 --> 00:38:19,480

So all the impurities kind of collect in the middle.

579

00:38:19,480 --> 00:38:24,480

Exit in the middle and we suck it all out with a pump and then fill it back up with a filtered water.

580

00:38:24,480 --> 00:38:28,480

The boys go dubster diving for some large chips off the old block.

581

00:38:29,480 --> 00:38:34,480

Back in the frozen wastes, Carrie starts sculpting herself a lens.

582

00:38:34,480 --> 00:38:40,480

I hope this is really going to work. This is the most interesting idea of all the fire starting methods I could think of.

583

00:38:40,480 --> 00:38:44,480

I mean if you're someplace frozen you need a fire more than anything else.

584

00:38:44,480 --> 00:38:47,480

Trouble is she isn't someplace frozen.

585

00:38:47,480 --> 00:38:51,480

More and more slippery as it melts.

586

00:38:52,480 --> 00:39:02,480

To make matters worse, Carrie finds that getting a lens shape without precision instruments is hard work, even for a sculptor like herself.

587

00:39:02,480 --> 00:39:05,480

Man, this can be harder than I thought.

588

00:39:05,480 --> 00:39:08,480

Grant meanwhile has turned his back on tools.

589

00:39:08,480 --> 00:39:15,480

Since we don't have a machine shop out here in the wilderness, I'm starting off by making a round shape with the rock.

590

00:39:17,480 --> 00:39:19,480

Oh, Jesus, it's cold.

591

00:39:20,480 --> 00:39:25,480

Actually, it seems to work pretty good and you can see magnification.

592

00:39:25,480 --> 00:39:31,480

And I think that that is what is going to help us focus the sun's rays. I think I'm almost ready to try it.

593

00:39:32,480 --> 00:39:35,480

Outside it's hot, bright and melty.

594

00:39:35,480 --> 00:39:37,480

Quick, before we lose our lens.

595

00:39:37,480 --> 00:39:41,480

I'm getting a pretty good pinpoint of light here.

596

00:39:41,480 --> 00:39:45,480

A skin test shows that the hotspot is, well, hot.

597

00:39:46,480 --> 00:39:51,480

Fire from ice may not be as crazy as it sounds.

598

00:39:51,480 --> 00:39:56,480

It's a glimmer of hope for our frozen castaways.

599

00:39:56,480 --> 00:40:00,480

But the sun's heat is a double-edged sword.

600

00:40:00,480 --> 00:40:04,480

As the lenses melt, the hotspots dissipate.

601

00:40:04,480 --> 00:40:07,480

My lens is getting smaller and smaller.

602

00:40:07,480 --> 00:40:09,480

Looks like it's back to the drawing board.

603

00:40:10,480 --> 00:40:14,480

One idea we had was making a mold of a pre-existing lens.

604

00:40:14,480 --> 00:40:16,480

So I have this magnifying glass.

605

00:40:16,480 --> 00:40:26,480

What I'm going to do is build a box around it, fill it with silicone, make a silicone mold, cut it out, fill it with water, freeze it, and then we'll have a ready-made lens.

606

00:40:26,480 --> 00:40:32,480

Tori's hoping a perfect lens will provide the requisite spark before the ice melts.

607

00:40:33,480 --> 00:40:35,480

Meanwhile, Kari's going global.

608

00:40:35,480 --> 00:40:42,480

I'm working with the idea that a perfect sphere is going to focus the light into a tiny little spot.

609

00:40:42,480 --> 00:40:45,480

So, I mean, I think this is pretty good.

610

00:40:45,480 --> 00:40:49,480

I mean, for doing it by hand, I'm not going to get it too much more perfect.

611

00:40:49,480 --> 00:40:55,480

Tori and Grant will try and replicate the special method of freezing they picked up in San Francisco ice.

612

00:40:55,480 --> 00:41:00,480

And if we just keep agitating this as it freezes, hopefully we'll get a clear lens.

613

00:41:00,480 --> 00:41:06,480

Industrial ice makers use pressurized air to agitate the water, which is filtered during freezing.

614

00:41:08,480 --> 00:41:14,480

Grant and Tori make do with a household freezer, an electric massager, and some crossed fingers.

615

00:41:14,480 --> 00:41:16,480

Check it out though. Look at the water.

616

00:41:16,480 --> 00:41:19,480

That's good. That's more like what we saw at the place.

617

00:41:20,480 --> 00:41:29,480

The following morning sees our Arctic castaways out in the California sun for one final shot at conjuring fire from ice.

618

00:41:31,480 --> 00:41:36,480

Kari's crystal ball has the advantage of size, shrinking the melt factor.

619

00:41:37,480 --> 00:41:40,480

The boy's precision lens is anything but.

620

00:41:40,480 --> 00:41:45,480

It's not very clear, in fact. It's pretty far from clear.

621

00:41:45,480 --> 00:41:47,480

We've got a light blocking device.

622

00:41:47,480 --> 00:41:49,480

Then Kari comes to the rescue.

623

00:41:49,480 --> 00:41:51,480

I'm smoking. I'm smoking.

624

00:41:51,480 --> 00:41:52,480

What?

625

00:41:52,480 --> 00:41:53,480

I'm smoking.

626

00:41:53,480 --> 00:41:54,480

Oh!

627

00:41:54,480 --> 00:41:56,480

That's going to do it.

628

00:41:56,480 --> 00:41:58,480

Nice work, Kari, buddy.

629

00:41:59,480 --> 00:42:01,480

Matches? Who needs them?

630

00:42:08,480 --> 00:42:12,480

Today's the day the Mythbusters hope to shred a plane.

631

00:42:12,480 --> 00:42:21,480

They've got a thousand feet of track, an aircraft engine welded to a railway cart, and a target plane just waiting to feel the kiss of the propeller blades.

632

00:42:22,480 --> 00:42:28,480

It's shaping up to be one of their most spectacular and dangerous experiments.

633

00:42:29,480 --> 00:42:31,480

I just love doing that.

634

00:42:31,480 --> 00:42:37,480

But before the mayhem and mania, the Monday, they have to clear the runway for takeoff.

635

00:42:37,480 --> 00:42:41,480

The track seems like it's really nice. It's in good shape.

636

00:42:41,480 --> 00:42:45,480

But there's a lot of dirt built up around it.

637

00:42:45,480 --> 00:42:53,480

And we need to have it clear so that the railway wheels can get down in the groove and seat properly.

638

00:42:54,480 --> 00:42:57,480

But there are rumblings on the chain gate.

639

00:42:57,480 --> 00:43:00,480

Only another 800 feet to go.

640

00:43:00,480 --> 00:43:02,480

Dude, this is going to get old real fast.

641

00:43:02,480 --> 00:43:04,480

Sorry, I'm already there.

642

00:43:04,480 --> 00:43:06,480

Okay, this is not how they sold this to me.

643

00:43:06,480 --> 00:43:11,480

They told me today there's going to be airplanes and there's going to be a crash and everything's going to explode and it's going to be really cool.

644

00:43:11,480 --> 00:43:17,480

Say what I got here. Adam handed me a pickaxe in a room and actually said put your back into it.

645

00:43:17,480 --> 00:43:22,480

A derailment would spell disaster and foreman Jamie isn't happy with the Hoenn.

646

00:43:22,480 --> 00:43:26,480

It's the little kind of rough spots that they glazed over.

647

00:43:26,480 --> 00:43:30,480

I mean, we got it more or less cleared. We could make the run.

648

00:43:30,480 --> 00:43:35,480

But I want to make sure that it's as pristine as it can be because this thing has no shocks.

649

00:43:35,480 --> 00:43:40,480

You know, it's going 30 miles an hour and it's steel to steel.

650

00:43:40,480 --> 00:43:42,480

We need to have a smooth bed.

651

00:43:42,480 --> 00:43:49,480

If Jamie's a little edgy, it's probably because he's done the math and understands the phenomenal physics involved.

652

00:43:49,480 --> 00:43:51,480

Does that feel okay Jamie?

653

00:43:51,480 --> 00:43:52,480

No.

654

00:43:52,480 --> 00:44:00,480

This engine rig weighs one and a half tons as much as a real light plane and it'll be traveling at 30 miles per hour when it hits the target.

655

00:44:00,480 --> 00:44:04,480

Generating about 800,000 foot pounds of force.

656

00:44:05,480 --> 00:44:11,480

Grants fashioned a remote cutoff switch. Just push a button and the engine is immediately disabled.

657

00:44:11,480 --> 00:44:13,480

So up is kill?

658

00:44:13,480 --> 00:44:15,480

Yeah. Up is go.

659

00:44:15,480 --> 00:44:16,480

Oh, okay.

660

00:44:16,480 --> 00:44:17,480

And then down is safe.

661

00:44:17,480 --> 00:44:18,480

Cool. Good job.

662

00:44:18,480 --> 00:44:19,480

Thanks.

663

00:44:19,480 --> 00:44:26,480

That and 10,000 pounds of sand should ensure that our runaway plane doesn't run away.

664

00:44:27,480 --> 00:44:34,480

Joe Raycow is an aerospace specialist who's studied the aftermath of thousands of air disasters.

665

00:44:34,480 --> 00:44:36,480

Now he's helping cause one.

666

00:44:36,480 --> 00:44:54,480

What we're looking at after impact is that the entire mass could slide as far as 20 feet and also pieces of the fuselage or pieces of the propeller could in theory fly on the order of miles given the energy that they have at impact.

667

00:44:54,480 --> 00:44:58,480

That's a pretty sound argument for being a long way away.

668

00:44:58,480 --> 00:45:00,480

That's it.

669

00:45:00,480 --> 00:45:03,480

A bunker is erected on the other side of the dry dock.

670

00:45:03,480 --> 00:45:05,480

Ah, it was nice now.

671

00:45:05,480 --> 00:45:09,480

We're nearing departure. Propeller and plane are lined up.

672

00:45:09,480 --> 00:45:16,480

Given what I'm seeing, we want to line this flat panel up exactly in line with the side of that cart and we'll be at the perfect relationship.

673

00:45:16,480 --> 00:45:18,480

Okay, we're done. Let's anchor this puppy.

674

00:45:25,480 --> 00:45:30,480

Time for a pilot run.

675

00:45:30,480 --> 00:45:36,480

We want to make sure all these systems work before doing the final test because we only have one shot at this.

676

00:45:36,480 --> 00:45:43,480

That means everything has to be going as good as we can make it go so that that test is as accurate

as possible.

677

00:45:43,480 --> 00:45:48,480

For the rehearsal, they're going to keep the engine on a long leash, just in case.

678

00:45:49,480 --> 00:45:53,480

But it doesn't look like making a getaway.

679

00:45:53,480 --> 00:45:57,480

There seems to be a short in the kill switch circuit, Nova.

680

00:45:57,480 --> 00:45:58,480

I understand.

681

00:45:58,480 --> 00:46:00,480

So now you got it?

682

00:46:00,480 --> 00:46:01,480

Yeah.

683

00:46:01,480 --> 00:46:02,480

Okay.

684

00:46:02,480 --> 00:46:03,480

That seems good.

685

00:46:03,480 --> 00:46:04,480

Okay, cool.

686

00:46:10,480 --> 00:46:15,480

The engine starts taxiing, reaching a dizzying nine miles per hour.

687

00:46:15,480 --> 00:46:19,480

Hope it has more grunt than that, or this flight will be canceled.

688

00:46:19,480 --> 00:46:20,480

It's more power.

689

00:46:20,480 --> 00:46:22,480

Yeah, I think it does.

690

00:46:22,480 --> 00:46:25,480

Remember, they're aiming for around 30 miles per hour.

691

00:46:25,480 --> 00:46:27,480

Do you want Grant to kill the engine?

692

00:46:27,480 --> 00:46:30,480

Yeah, go ahead and kill the engine. Let's see if it does it.

693

00:46:30,480 --> 00:46:32,480

Copy, killing the engine.

694

00:46:35,480 --> 00:46:36,480

Hey!

695

00:46:36,480 --> 00:46:38,480

That worked beautifully.

696

00:46:38,480 --> 00:46:39,480

Yay!

697

00:46:43,480 --> 00:46:48,480

This engine is leaking at every possible seal internally and externally.

698

00:46:48,480 --> 00:46:52,480

Whether or not this was the last thing we're going to do to it, it's the last thing we're going to do to it.

699

00:46:54,480 --> 00:46:58,480

Captain Earl and co-pilot Brian goose up the throttle.

700

00:47:03,480 --> 00:47:06,480

This time, a runaway success.

701

00:47:09,480 --> 00:47:12,480

Go ahead and kill it, Grant.

702

00:47:13,480 --> 00:47:18,480

Man, it was tugging at the reins. It was trying to be let loose. It was beautiful to see.

703

00:47:18,480 --> 00:47:26,480

I have no doubt that once we release this thing, it's going to be like a freight train, very much like a freight train, and that it's going to work.

704

00:47:27,480 --> 00:47:29,480

It's crunch time.

705

00:47:29,480 --> 00:47:30,480

Literally.

706

00:47:35,480 --> 00:47:37,480

Everyone takes cover.

707

00:47:37,480 --> 00:47:39,480

That is a monster of an engine.

708

00:47:39,480 --> 00:47:44,480

Ladies and gentlemen, welcome aboard Mythbusters Flight 101 to Shred City.

709

00:47:45,480 --> 00:47:46,480

Oh my God!

710

00:47:46,480 --> 00:47:49,480

Please fasten your seatbelts and prepare for takeoff.

711

00:47:49,480 --> 00:47:51,480

Come on, baby.

712

00:47:51,480 --> 00:47:54,480

Come on, stay there. Keep going.

713

00:47:56,480 --> 00:47:57,480

Come on!

714

00:47:59,480 --> 00:48:00,480

I'm going to choke.

715

00:48:03,480 --> 00:48:04,480

Yeah!

716

00:48:08,480 --> 00:48:09,480

Contact.

717

00:48:09,480 --> 00:48:11,480

I'm awaiting an all clear.

718

00:48:14,480 --> 00:48:16,480

Now that is a shredded plane.

719

00:48:19,480 --> 00:48:21,480

The engine performed perfectly.

720

00:48:21,480 --> 00:48:27,480

The high speed camera shows the prop blade slicing through the fuselage as though it was made of cardboard.

721

00:48:28,480 --> 00:48:30,480

Trust me, you wouldn't want a window seat.

722

00:48:31,480 --> 00:48:34,480

That's exactly the slice pattern we see in the picture.

723

00:48:34,480 --> 00:48:39,480

I mean, it's a little bit different, but we see that the airplane...

724

00:48:39,480 --> 00:48:40,480

It's a little bit different.

725

00:48:40,480 --> 00:48:42,480

I'm so excited, man!

726

00:48:42,480 --> 00:48:44,480

That's exactly what we see in the picture.

727

00:48:44,480 --> 00:48:49,480

It's vertical slices from the blade. That's just stunned.

728

00:48:49,480 --> 00:48:51,480

I think we lined it up pretty good.

729

00:48:52,480 --> 00:48:53,480

Dude!

730

00:48:53,480 --> 00:48:54,480

Give me some skin.

731

00:48:55,480 --> 00:48:56,480

Ow!

732

00:49:01,480 --> 00:49:02,480

So what's the verdict?

733

00:49:02,480 --> 00:49:05,480

Well, this one I call plausible.

734

00:49:05,480 --> 00:49:13,480

In fact, both versions of the story that we tested, we were able to replicate slices on our target plane that really closely matched what we saw in the photograph.

735

00:49:13,480 --> 00:49:18,480

Yeah, and since we did the experiment, our researchers have authenticated that photograph.

736

00:49:18,480 --> 00:49:22,480

It was a case of prop damage and it occurred on an airfield in Australia.

737

00:49:22,480 --> 00:49:24,480

Well, then that would be myth-confirmed.

738

00:49:24,480 --> 00:49:25,480

Myth-confirmed.